TABLE OF CONTENTS

01.00.00 INTRODUCTION.

THE BASIC DISKETTE, P/N1635001, TESTS ATTACHMENT(S) AND DEVICE(S) IN SERIAL MODE. THAT IS, ONE (1) AND ONLY ONE (1) ATTACHMENT OR DEVICE IS TESTED AT A TIME. THE SYSTEM TEST DISKETTE P/N 1635003, WILL TEST FROM A MAXIMUM OF THREE (3) UP TO A MAXIMUM OF FIFTEEN (15) ATTACHMENTS AND/OR DEVICES AT ONCE. THE INSTALLED STORAGE SIZE IS USED FOR THE NUMBER OF ATTACHMENTS/DEVICES THAT CAN BE RUN.

THIS IS A WORST CASE TEST OF THE PROCESSING UNIT AND ATTACHMENTS AND DEVICES UNDER A CUSTOMER TYPE APPLICATION. THIS TEST IS NOT A FIELD REPLACEMENT UNIT TEST. IT IS AN ERROR INDICATION TEST. THE PROBLEM FINDING MUST BE DONE BY THE C E, USING ECP ERROR MESSAGES AS AN AID.

02.00.00 DIAGNOSTIC FLOW:

- POWER UP ALL FILE(S) AND DEVICE(S).

MICRO DIAGNOSTICS WILL TEST THE BASIC PROCESSING UNIT.

- PRESS THE RESET KEY.

THE MICRO CODE WILL RESET THE SYSTEM AND DO A BASIC CHANNEL TEST.

- INSERT THE SYSTEM TEST DISKETTE.
- PRESS THE LOAD KEY.

A THIRD MICRO DIAGNOSTIC ROUTINE WILL START.

AT THE END OF THE MICRO ROUTINE, IPL WILL START AT CYLINDER 0, HEAD 0,RECORD 1, AND 256 BYTES OF DATA WILL BE READ INTO STORAGE. A HARDWARE BRANCH TO STORAGE LOCATION 0000 STARTS THE STORAGE PARITY TESTS.

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*                                                                               *
*   NOTE:     WHEN YOU IPL THE SYSTEM TEST DISKETTE WITHOUT THE SYSTEM           *
*             FIRST BEING INITIALIZED, PARITY ERROR(S) WILL OCCUR,              *
*             BECAUSE THE SYSTEM DOES NOT GENERATE PARITY IN STORAGE            *
*             (EXCEPT FOR THE FIRST 16K). IN THIS CASE THESE ERRORS MUST        *
*             BE IGNORED BECAUSE THEY ARE NOT A CORRECT INDICATION OF           *
*             THE CONDITION OF THE MACHINE.                                     *
*             RUN MAP 2000 USING THE BASIC DISKETTE, OR SOME OTHER METHOD.      *
*             THIS WILL INITIALIZE THE STORAGE.                                 *
*                                                                               *
*                                                                               *
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AT THE END OF THE STORAGE PARITY TESTS, THE EXERCISER CONTROL PROGRAM (ECP) IS LOADED AND CONTROL IS PASSED TO IT.
IF PARITY ERRORS ARE FOUND, SEE SECTION 02.01.00.

IF DEVICE TYPE 'E4' IS TO BE TESTED, USE THE DISKETTE PART NUMBER 6826590 TO SET UP THE DEVICE FOR TESTING.

IF THE ASSIGNED ALTERNATE CONSOLE DEVICE TYPE IS '45' (FEATURE 4978), SEE THE NOTE BELOW.

IF NO PARITY ERRORS ARE FOUND, ECP WILL PROMPT 'RDY ENTER' (HALT CODE 3400). TESTING OF THE I/O DEVICES CAN START.

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*                                                                               *
*                                                                               *
*   NOTE:     THE 4978 IS A RPQ DEVICE, BUT BECAUSE IT IS A SUPPORTED           *
*             ALTERNATE CONSOLE, IT IS TESTED BY THE BASIC AND SYSTEM           *
*             TEST DISKETTE. THE 4978 DISPLAY HAS A NUMBER OF                   *
*             KEYBOARDS, SO ANY KEY MAY GENERATE ANY CODE. ECP MUST             *
*             KNOW WHAT CODE(S) ARE ASSOCIATED WITH THE FUNCTION(S)             *
*             AND CHARACTER(S) USED IN THE ALTERNATE CONSOLE ROUTINE.           *
*             THIS HALT CODE IS 3417 WHICH IS THE SAME AS 3817 UNDER DCP.       *
*             SEE MAP 0013, HALT 3817.                                          *
*                                                                               *
*                                                                               *
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02.01.00 STORAGE PARITY TEST

THE STORAGE PARITY TESTS REFERENCED IN SECTION 02.00.00 (THIS MAP) ARE A SET OF THREE PROGRAMS (PID 34A1, 34A2, 34A3) WHICH TEST FOR ERRORS AS FOLLOWS:

A) INNER STORAGE PARITY. (TESTED BY 34A1 AND 34A2)
B) INNER STORAGE PARITY FOUND WHEN THE TRANSLATOR IS ENABLED. (TESTED BY 34A3)
C) OUTER STORAGE PARITY. (TESTED BY 34A3)
D) INNER STORAGE PARITY FOUND AFTER A 60 SECOND DELAY. (TESTED BY 34A3)
E) INNER STORAGE PARITY FOUND WHEN THE TRANSLATOR IS ENABLED AFTER A 60 SECOND DELAY. (TESTED BY 34A3)
F) OUTER STORAGE PARITY FOUND AFTER A 60 SECOND DELAY. (TESTED BY 34A3)

THE TESTING IS PERFORMED IN THE FOLLOWING SEQUENCE:

WHEN YOU IPL, PROGRAM 34A1 IS LOADED IN STORAGE. 34A1 WILL TEST THE FIRST 16K BYTES OF STORAGE. IF AN ERROR IS FOUND, HALT CODE 342E WILL BE DISPLAYED IN THE LEDS. (SEE SECTION 02.02.00). IF NO ERROR(S) ARE FOUND, 34A2 IS LOADED FROM THE DISKETTE AND CONTROL IS PASSED TO IT. 34A2 WILL TEST THE REMAINING INNER STORAGE (RECORDING ALL ERRORS, IF ANY), THEN WILL LOAD IN 34A3 AND PASS CONTROL TO IT. PID 34A3 WILL FIRST TEST TO SEE IF A TRANSLATOR IS INSTALLED, IF NOT IT WILL DELAY 60 SECONDS THEN AGAIN TEST ALL INNER STORAGE (SEE NOTE BELOW). IF A TRANSLATOR IS INSTALLED THE TESTS ARE PERFORMED IN THE FOLLOWING SEQUENCE:

1) ENABLE THE TRANSLATOR
2) TEST INNER STORAGE
3) TEST OUTER STORAGE
4) DISABLE THE TRANSLATOR
5) DELAY 60 SECONDS (SEE NOTE BELOW)
6) TEST INNER STORAGE
7) ENABLE THE TRANSLATOR
8) TEST INNER STORAGE
9) TEST OUTER STORAGE
10) DISABLE THE TRANSLATOR

AFTER IT IS ENDED 34A3 WILL LOAD IN ECP AND TURN CONTROL OVER TO IT.

AFTER ECP IS LOADED AND HAS ASSIGNED AN ALTERNATE CONSOLE, BUT BEFORE THE 'RDY ENTER' MESSAGE (HALT 3400), ALL PARITY ERRORS FOUND WILL BE PRESENTED TO THE OPERATOR AS PER THE HALT CODES DESCRIBED IN SECTION 02.02.00 (THIS MAP).

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* *
* NOTE: WHILE IN THE 60 SECOND DELAY THE LEDS WILL INDICATE (IN HEXADECIMAL) THE TIME OF THE DELAY IN SECONDS. IF THIS SECTION OF THE TEST IS NOT DESIRED, THE OPERATOR CAN PRESS THE RESET KEY FOLLOWED BY THE START KEY. WHEN THIS IS DONE ALL PARITY ERRORS ARE IGNORED BY THE SYSTEM, THE SYSTEM WILL GO TO THE READY ENTER STATUS (HALT CODE 3400). *
* *
* NOTE: WHEN YOU IPL THE SYSTEM TEST DISKETTE WITHOUT THE SYSTEM FIRST BEING INITIALIZED, PARITY ERROR(S) WILL OCCUR, BECAUSE THE SYSTEM DOES NOT GENERATE PARITY IN STORAGE (EXCEPT FOR THE FIRST 16K). IN THIS CASE THESE ERRORS MUST BE IGNORED BECAUSE THEY ARE NOT A CORRECT INDICATION OF THE CONDITION OF THE MACHINE. RUN MAP 2000 USING THE BASIC DISKETTE, OR SOME OTHER METHOD. THIS WILL INITIALIZE THE STORAGE. *
* *
* NOTE: ON THE BASIC DISKETTE, THE STORAGE SIZE IS PASSED TO DCP. ON THE SYSTEM TEST DISKETTE, THE STORAGE SIZE PASSED TO ECP DOES NOT CONTAIN THE STORAGE COUNT OF OUTER STORAGE, BUT THE QUAN TITY OF OUTER STORAGE THE TRANSLATOR CARD IS JUMPERED FOR. IF THE TRANSLATOR CARD IS JUMPERED FOR 48K (3 - 16K BLOC KS) AND THE MACHINE ONLY HAS 32K OF OUTER STORAGE (2 - 16K BLOCKS), WHEN YOU IPL THE SYSTEM TEST DISKETTE, IT WILL SHOW 3 - 16K BLOCKS FOUND WITH A PARITY ERROR IN THE THIRD 16K BLOCK. *
* *
* NOTE: IF IN INDICATING AN ERROR THE STORAGE SIZE PASSED TO THE OPERATOR IS NOT CORRECT, THE ADDRESS TRANSLATOR IS SUSPECT. *
* *
****

02.02.00 STORAGE PARITY TESTS HALT CODES

34A1 (NO MESSAGE)
PID 34A1 IS IN STORAGE AND RUNNING (THIS SHOULD ONLY APPEAR IN THE LEDS FOR A SHORT PERIOD OF TIME)

34A2 (NO MESSAGE)
PID 34A2 IS IN STORAGE AND RUNNING (THIS SHOULD ONLY APPEAR IN THE LEDS FOR A SHORT PERIOD OF TIME)

34A3 (NO MESSAGE)
PID 34A3 IS IN STORAGE AND RUNNING. THIS IS THE PROGRAM THAT DOES A RUNNING COUNT FOR 60 SECONDS.

3424 INNER STORAGE PARITY ERROR(S)
PARITY ERROR(S) WERE FOUND WHEN TESTING INNER STORAGE. THESE ERRORS WILL BE INDICATED BY THE FOLLOWING 342A HALT(S).
(PROGRAMMERS CONSOLE USE '6' TO CONTINUE EXECUTION)

3425 INNER STORAGE PARITY ERROR(S) WITH TRANSLATOR ENABLED
PARITY ERROR(S) WERE FOUND WHEN TESTING INNER STORAGE WITH THE TRANSLATOR ENABLED. THESE ERRORS WILL BE INDICATED BY THE FOLLOWING 342A HALT(S).
(PROGRAMMERS CONSOLE USE '6' TO CONTINUE EXECUTION)

3426 OUTER STORAGE PARITY ERROR(S)
PARITY ERROR(S) WERE FOUND WHEN TESTING OUTER STORAGE. THESE ERRORS WILL BE INDICATED BY THE FOLLOWING 342A HALT(S).
(PROGRAMMERS CONSOLE USE '6' TO CONTINUE EXECUTION)

3427 INNER STORAGE PARITY ERROR(S) AFTER DELAY
PARITY ERROR(S) WERE FOUND WHEN TESTING INNER STORAGE AFTER A 60 SECOND DELAY. THESE ERRORS WILL BE INDICATED BY THE FOLLOWING 342A HALT(S).
(PROGRAMMERS CONSOLE USE '6' TO CONTINUE EXECUTION)

3428 OUTER STORAGE PARITY ERROR(S) AFTER DELAY)
PARITY ERROR(S) WERE FOUND WHEN TESTING OUTER STORAGE AFTER A 60 SECOND DELAY. THESE ERRORS WILL BE INDICATED BY THE FOLLOWING 342A HALT(S).
(PROGRAMMERS CONSOLE USE '6' TO CONTINUE EXECUTION)

3429 INNER STORAGE PARITY ERROR(S) TRANSLATOR ENABLED AFTER DELAY
PARITY ERROR(S) WERE FOUND WHEN TESTING INNER STORAGE WITH THE TRANSLATOR ENABLED AFTER A 60 SECOND DELAY. THESE ERRORS WILL BE INDICATED BY THE FOLLOWING 342A HALTS(S).
(PROGRAMMERS CONSOLE USE '6' TO CONTINUE EXECUTION)

342A XXXXXX --> LOCATED IN THE 16K BLOCK NUMBER X'YYYY'
A PARITY ERROR WAS FOUND (PROGRAMMERS CONSOLE USE '6' TO CONTINUE EXECUTION). REGISTER 1 AND 2 WILL CONTAIN ADDRESS XXXXXX WHILE REGISTER 3 WILL CONTAIN THE 16K BLOCK NUMBER YYYY.)

342B (NO MESSAGE)
PARITY ERRORS WERE FOUND. IF THE ERRORS ARE TO BE DISPLAYED TO THE OPERATOR, RESPOND WITH A 1 (YES). IF THESE ERROR(S) ARE TO BE IGNORED, RESPOND WITH A 0 (NO). THIS MESSAGE WILL ONLY BE ISSUED WHEN THERE IS NO ALTERNATE CONSOLE AND THE PROGRAMMERS CONSOLE IS THE ONLY METHOD OF INPUT/OUTPUT.

342E (NO MESSAGE)
AN ERROR WAS FOUND IN THE FIRST 16K OF STORAGE WHILE EXECUTING PID 34A1. PRESS INTERRUPT TO OBTAIN THE ADDRESS IN THE LEDS, THEN PRESS THE INTERRUPT KEY TO CONTINUE RUNNING.

03.00.00 EXERCISER CONTROL PROGRAM (ECP) COMMANDS:

0 REPLY TO QUESTION WITH A 'NO'

1 REPLY TO QUESTION WITH A 'YES'

2 IGNORE ERROR LIMIT WHILE RUNNING SYSTEM TEST

3 RESET ERROR LIMIT TO FIVE (5) ERRORS

6 CONTINUE AT NEXT SEQUENTIAL INSTRUCTION.

7 STOP SYSTEM TEST.

STOP ALL SYSTEM TEST AND COME TO A NORMAL TERMINATION.

8 DUMP EXECUTION AND ERROR NUMBER WHILE TESTING

9 TERMINATE THE PROGRAM AND/OR DEVICE ADDRESS.

NOTE: WHILE THE SYSTEM TEST SUPERVISOR IS IN STORAGE THIS COMMAND MUST BE FOLLOWED BY A DEVICE ADDRESS. THE PROGRAM TESTING THIS ADDRESS WILL THEN BE TERMINATED.

B START PROGRAM.

USE 'B' FOR LOAD AND GO. FOR EXAMPLE 'B 3410' WILL CAUSE THE SYSTEM TEST SUPERVISOR TO LOAD AND EXECUTE.

NOTE: WHILE THE SYSTEM TEST SUPERVISOR IS IN STORAGE THIS COMMAND MUST BE FOLLOWED BY A DEVICE ADDRESS. THE PROGRAM NEEDED FOR TESTING THIS ADDRESS WILL THEN BE LOADED INTO STORAGE AND START TESTING THE INDICATED DEVICE ADDRESS.

D DUMP STORAGE TO ALTERNATE CONSOLE.

F RESPOND TO PROGRAM WITH SUITABLE INFORMATION

04.00.00 COMMON HALT LIST:

04.01.00 EXERCISER CONTROL PROGRAM (ECP) HALTS

3400 RDY ENTER

ECP WILL TAKE ANY VALID COMMAND.

3401 (NO MESSAGE)

BAD CONDITION CODE RECEIVED FROM ALTERNATE CONSOLE. USE THE PROGRAMMER CONSOLE TO GIVE A CONTINUE (B),6,(I),(I), SEE SECTION 05.01.00. ECP WILL ASSIGN AS THE ALTERNATE CONSOLE THE PROGRAMMER CONSOLE AND CONTINUE THE PROGRAM.

3402 PCK ROUTINE=XXXX CHECKPOINT=XXXX PSW=XXXX IAR=XXXX
0260 IAR AKR LSR REG0 REG1 REG2 REG3 REG4
0270 REG5 REG6 REG7 PSW SAR 0000 0000 0000

PROGRAM CHECK HAS OCCURRED --> GO TO MAP 3871 ENTRY POINT A, OR IF OPERATING UNDER FRIEND SELECT THE LOOP ON PCK OPTION.
NOTE: IF THE PROGRAMMER CONSOLE IS THE ACTIVE CONSOLE, PRESS 'STOP', SELECT LEVEL 3 THEN: R0 WILL CONTAIN THE PROGRAM ID, R1 WILL CONTAIN THE CHECKPOINT, R2 WILL CONTAIN THE PROGRAM STATUS WORD AT THE TIME OF THE PCK INTERRUPT, AND R3 WILL CONTAIN THE ADDRESS OF THE INSTRUCTION FOLLOWING THE FAILURE. THE INFORMATION IN THE LEVEL STATUS BLOCK (LSB) CAN BE FOUND AT HEXADECIMAL STORAGE LOCATION '0260' IN THE ABOVE ORDER.
IF THE ROUTINE = 3400, THE PCK OCCURRED WHILE LOADING A PROGRAM.

3403 MCK ROUTINE=XXXX CHECKPOINT=XXXX PSW=XXXX IAR=XXXX
0260 IAR AKR LSR REG0 REG1 REG2 REG3 REG4
0270 REG5 REG6 REG7 PSW SAR 0000 0000 0000

MACHINE CHECK HAS OCCURRED --> GO TO MAP 3871 ENTRY POINT A, OR IF OPERATING UNDER FRIEND SELECT THE LOOP ON MCK OPTION.
NOTE: (IF THE PROGRAMMER CONSOLE IS THE ACTIVE CONSOLE, PRESS 'STOP', SELECT LEVEL 3, THEN: R0 WILL CONTAIN THE PROGRAM ID, R1 WILL CONTAIN THE CHECKPOINT, R2 WILL CONTAIN THE PROGRAM STATUS WORD AT THE TIME OF THE MCK INTERRUPT, R3 WILL CONTAIN THE IAR AT THE TIME OF THE INTERRUPT. THE INFORMATION IN THE LEVEL STATUS BLOCK (LSB) CAN BE FOUND AT HEXADECIMAL STORAGE LOCATION '0260' IN THE ABOVE ORDER.

3404 POWER THERMAL WARNING
0260 IAR AKR LSR REG0 REG1 REG2 REG3 REG4
0270 REG5 REG6 REG7 PSW SAR 0000 0000 0000

POWER/THERMAL CHECK (IF NO BATTERY BACKUP THE SYSTEM WILL POWER DOWN BEFORE THE MESSAGE CAN BE DISPLAYED ON AN ALTERNATE CONSOLE.) GO TO MAP 1470, ENTRY POINT A, OR IF OPERATING UNDER FRIEND SELECT THE LOOP ON POWER THERMAL WARNING OPTION (IF THE THERMAL WARNING IS A WRONG INDICATION OF THE PROBLEM).
NOTE: (IF THE PROGRAMMER CONSOLE IS THE ACTIVE CONSOLE, PRESS 'STOP'. THE INFORMATION IN THE LEVEL STATUS BLOCK (LSB) CAN BE FOUND AT HEXADECIMAL STORAGE LOCATION '0260' IN THE ABOVE ORDER.

3405 PT

THE PROGRAM HAS BEEN TERMINATED. ECP WILL TAKE ANY VALID COMMAND/OPTION. WHEN THE PROGRAMMER CONSOLE IS THE ACTIVE CONSOLE THIS HALT WILL BE DISPLAYED TO INDICATE CORRECT TERMINATION OF A PROGRAM.

3406 REQUEST NOT VALID

ECP RECEIVED A WRONG COMMAND.

3407 ALTERNATE CONSOLE OFF

THE ALTERNATE CONSOLE (A CONSOLE ASSIGNED BY THE CONFIGURATION PROGRAM) IS BEING TESTED. ANY MESSAGES WILL BE DISPLAYED ON THE PROGRAMMER CONSOLE.

3408 ALTERNATE CONSOLE ON

TESTING OF THE ALTERNATE CONSOLE IS COMPLETE. MESSAGES ARE BEING DISPLAYED ON THE ALTERNATE CONSOLE.

3409 NOT EXPECTED INTERRUPT ISB=XXXX

ECP HAS BEEN INTERRUPTED BY A DEVICE THAT SHOULD NOT BE ACTIVE. THE RIGHT MOST BYTE OF THE ISB IS THE ADDRESS OF THE INTERRUPTING DEVICE. IF THE PROGRAMMER CONSOLE IS THE ACTIVE CONSOLE R0 (LEVEL = 3) WILL CONTAIN THE ISB.

340A ST

THE PROGRAM HAS STARTED.

340B DISKETTE ERROR

AN OIO ERROR OCCURRED WHILE ADDRESSING THE CE LOAD DEVICE. ATTEMPT THE ECP COMMAND AGAIN. IF THE PROBLEM REMAINS, IPL THE BASIC DIAGNOSTIC DISKETTE THEN, GO TO THE 4964 ENTRY MAP. AFTER THIS IF NO FAILURE VERIFY THE DISKETTE.

340C PNF

NO VTOC ENTRY FOR THE REQUESTED PROGRAM.
IF THE PROGRAMMER CONSOLE IS THE ACTIVE CONSOLE R3 WILL CONTAIN A POINTER TO THE REQUESTED PROGRAM NAME IN STORAGE.

340D XXXXX LOADED

REQUESTED PROGRAM HAS BEEN LOADED. (XXXXX LOADED AT = YYYY). THIS MESSAGE WILL BE DISPLAYED IF THE PROGRAM JUST LOADED CAN BE LOADED AT ANY LOCATION IN STORAGE. THE 'AT' ADDRESS (YYYY) IS THE START ADDRESS OF THE LOADED PROGRAM.

3410 NO REPLY EXPECTED

THE CONSOLE DATA WAS RECEIVED AND ECP WAS NOT EXPECTING 'REPLY' DATA.

3413 (NO MESSAGE)

A COMMAND SEQUENCE HAS BEEN ENTERED FROM THE PROGRAMMER CONSOLE. IF CORRECT, PRESS CONSOLE INTERRUPT. ECP WILL EXECUTE THE COMMAND. TO CHANGE (CONSOLE DELETE), CHANGE THE BUFFER CONTENTS AND PRESS CONSOLE INTERRUPT. ECP WILL DISPLAY 3414. START THE COMMAND SEQUENCE AGAIN.

3414 ENTER

A COMMAND OR REPLY SEQUENCE HAS BEEN STARTED AND MORE DATA IS NEEDED. INSERT THE DATA.
NOTE: THIS HALT IS ALSO DISPLAYED AFTER A PROGRAMMER CONSOLE DELETE. (SEE SECTION 05.01.00).

3415 (NO MESSAGE)

ECP HAS RECEIVED A WRONG SEQUENCE OF 'SVC' REQUESTS FROM THE I/O PROGRAM.
YOU CANNOT CONTINUE FROM THIS HALT. GO TO MAP 0070, ENTRY POINT A.

341D (NO MESSAGE)

ECP HAS RECEIVED A COMMAND TO DUMP STORAGE AND IS NOW DUMPING TO THE ALTERNATE CONSOLE.

05.00.00 OPERATING THE SYSTEM:

IF THE ONLY CE COMMUNICATION DEVICE IS THE PROGRAMMER CONSOLE SEE - PROGRAMMER CONSOLE OPERATION, SECTION 05.01.00, FOR MESSAGE DECODE AND COMMAND ENTRY.

IF A KEYBOARD CONSOLE IS BEING USED, ANSWER(S) WILL HAVE TO BE ENTERED THROUGH THE PROGRAMMER CONSOLE IF:
(1) THE DISKETTE HAS NEVER BEEN CONFIGURED, OR
(2) THE KEYBOARD CONSOLE HAS BEEN ASSIGNED A NEW ADDRESS, OR
(3) THE KEYBOARD CONSOLE IS KNOWN TO BE FAILING.

WHEN THE CONFIGURATION IS CORRECT AND A KEYBOARD CONSOLE HAS BEEN ASSIGNED, YOU CAN COMMUNICATE THROUGH THE CONSOLE KEYBOARD EXCEPT WHILE THE CONSOLE DEVICE IS UNDER TEST.
WHILE TESTING THE ASSIGNED KEYBOARD CONSOLE ECP WILL COMMUNICATE THROUGH THE PROGRAMMER CONSOLE SEE SECTION 05.01.00.

KEYBOARD COMMUNICATION IS AS INDICATED: AT ANY 'ENTER' PROMPT, KEY THE ECP COMMAND/OPTION CHARACTER, FOLLOWED BY A 'SPACE', FOLLOWED BY DATA (IF NEEDED) AND END THE INPUT WITH RETURN/ENTER/TRANSMIT.

NOTE THE SPACE IS NOT NECESSARY IF NO DATA FOLLOWS.

FOR EXAMPLE '7 RETURN' WILL SET THE STOP SYSTEM TEST BIT.
'F XXXX XXXX, RETURN' WILL ANSWER A PROGRAM'S REQUEST FOR 4 BYTES OF HEXADECIMAL INFORMATION (A PROGRAM MAY REQUEST UP TO 32 BYTES EBCDIC, 64 BYTES HEXADECIMAL OR DECIMAL.
'1 RETURN' WILL ANSWER A ROUTINE QUESTION 'YES'.
'0 RETURN' WILL ANSWER A ROUTINE QUESTION 'NO'.

NOTE: IF THE MAINTENANCE LOAD DEVICE IS USED TO IPL THE SYSTEM TEST DISKETTE, YOU MUST VERIFY THAT THE CUSTOMER PROGRAM WILL LOAD AND EXECUTE AFTER REMOVING THE MAINTENANCE LOAD DEVICE.

05.01.00 PROGRAMMER CONSOLE OPERATION:

THE SEQUENCE FOR COMMAND/REPLY/OPTION ENTRY THROUGH THE PROGRAMMER CONSOLE WILL CHANGE WITH THE COMMAND.

THESE COMMANDS ARE GROUPED INTO FOUR SECTIONS AS FOLLOWS:

(1) SINGLE CHARACTER COMMAND(S) (NO ASSOCIATED DATA).
COMMAND(S) '2','3','7', AND '8' ARE ENTERED BY PRESSING FOUR KEY'S AS FOLLOWS:

(B)=DATA BUFFER KEY, (I)=CONSOLE INTERRUPT KEY.

COMMAND	KEY SEQUENCE	DESCRIPTION
2	(B),2,(I),(I)	IGNORE ERROR LIMIT.
		|_|SECOND CONSECUTIVE INTERRUPT CAUSES ECP TO |EXECUTE THE COMMAND
		|_|ECP WILL 'ON CONDITION' TAKE THE '2' |COMMAND. IF YOU WANT TO CHANGE: |SELECT THE DATA BUFFER (B), CHANGE THE VALUE |OF THE RIGHTMOST HEXADECIMAL CHARACTER |(BIT(S) 12 THROUGH 15) AND PRESS |INTERRUPT (I). THIS WILL TRANSMIT A |'DELETE', START THE COMMAND SEQUENCE AGAIN.
		|_|INSERT THE COMMAND CHARACTER (2) |INTO BIT(S) 12-15 OF THE DATA BUFFER.
		|_|WILL SELECT THE DATA BUFFER FOR |COMMAND/OPTION ENTRY.
3	(B),3,(I),(I)	RESET ERROR LIMIT OPTION.
6	(B),6,(I),(I)	CONTINUE.
7	(B),7,(I),(I)	STOP SYSTEM TEST.
8	(B),8,(I),(I)	DUMP SYSTEM TEST INFORMATION.

NOTE: COMMAND 8 IS NOT RECOGNIZED WITHOUT AN ALTERNATE CONSOLE .

(2) COMMAND(S) NEEDING A PROGRAM NAME OR DEVICE ADDRESS.
COMMAND(S) '9' AND 'B' CAUSE ECP TO LOAD OR TERMINATE A PROGRAM, THEREFORE, THE FOUR DIGIT PROGRAM ID OR TWO DIGIT DEVICE ADDRESS MUST BE SUPPLIED WITH THE COMMAND CHARACTER.

(B)=DATA BUFFER KEY, (I)=CONSOLE INTERRUPT KEY.

COMMAND	KEY SEQUENCE	DESCRIPTION
B	(B),B,(I),(B),Y,Z,X,X,(I),(I)	LOAD & GO PROGRAM YZXX OR DEVICE ADDRESS YZ
		|_|SECOND CONSECUTIVE INTERRUPT, |ECP WILL EXECUTE THE COMMAND.
		|_|ECP HAS 'ON CONDITION' TAKEN |THE COMMAND. FOR 'DELETE' |SEE COMMAND '2' ABOVE.
		|_|PROGRAM/DEVICE ADDRESS |YZ=DEVICE ADDRESS XX=00
		|_|SELECT DATA BUFFER FOR ENTRY.
		|CAUSES ECP TO READ THE COMMAND.
		|BECAUSE COMMAND='9-B-F' ECP NEEDS DATA.
		|_|INSERT COMMAND 'B' INTO DATA BUFFER.
		|_|WILL SELECT THE DATA BUFFER FOR COMMAND ENTRY.
9	(B),9,(I),(B),Y,Z,X,X,(I),(I)	TERMINATE DEVICE ADDRESS YZ FROM SYSTEM TEST.

(3) COMMAND(S) NEEDING A VARIABLE AMOUNT OF DATA.

COMMAND 'D' DUMP STORAGE NEEDS TWO WORDS OF DATA --> A FROM ADDRESS FOLLOWED BY THE TO ADDRESS.

THE 'D' COMMAND CAN BE ENTERED AS FOLLOWS:
(1) ALTERNATE CONSOLE -> 'D FFFFTTTT' OR 'D FFFF TTTT
(2) PROGRAMMERS CONSOLE -> (B),D,(I),(B),F,F,F,F,(I),(B),T,T,T,T,(I),(I)

COMMAND 'F' CAN NEED FROM ONE TO FIFTEEN 'WORDS' OF REPLY DATA
THIS COMMAND IS ENTERED AS FOLLOWS:

(B)=DATA BUFFER KEY,(I)=CONSOLE INTERRUPT KEY,< >=OPTIONAL ENTRY.

COMMAND 'F', REPLY TO PROGRAM.

ALL UTILITY AND CONTROL PROGRAMS MAY REQUEST 'REPLY DATA' (DEVICE ADDRESS, TEST DATA, AND SO ON.) THIS IS DONE BY THE 'F' COMMAND.

(B),X,F,(I),(B),X,X,X,X,(I),<(B),X,X,X,X,(I),>(I)

\|NUMBER ENTRY. PROGRAM CAN REQUEST UP TO \|FIFTEEN WORDS OF REPLY DATA (ENTRY = 'FF').
\|FIRST WORD OF REPLY DATA. (IF ONLY TWO \|CHARACTERS WERE REQUESTED INSERT XX00.)
\|INSERT UP TO FIFTEEN \|(BECAUSE OF THE \|NUMBER) MORE WORDS OF \|REPLY DATA.

(4) COMMAND(S) USED TO ANSWER A QUESTION.

COMMAND '1' WILL ANSWER A QUESTION 'YES'.
COMMAND '0' WILL ANSWER A QUESTION 'NO'.

1	(B),1,(I),(I)	ANSWER	QUESTION YES.
0	(B),0,(I),(I)	ANSWER	QUESTION NO.

THE CONSOLE/PROCESSING UNIT HARDWARE INTERFACE IS SUCH THAT YOU MAY FIND IT DIFFICULT TO CAUSE AN INTERRUPT FROM THE PROGRAMMER CONSOLE WHEN PROGRAMS ARE EXECUTING. PRESS THE INTERRUPT KEY SLOWLY --- WHEN THE INTERRUPT IS TAKEN THE AUDIBLE DEVICE WILL SOUND.

05.02.00 HALT AND DATA CODES:

HALT CODES HAVE BEEN ASSOCIATED WITH A DEVICE WHERE POSSIBLE. (SEE MAP 0012)

A REFERENCE FOR PROGRAM HALTS FOLLOWS:

HALT CODES	PROGRAM AND REFERENCE	
3400-341F	ECP	SEE SECTION 04.01.00 MAP 0015
3420-342F	SYSTEM IPL PARITY CHECK	SEE SECTION 02.02.00 MAP 0015
3430-343F	SYSTEM TEST	SEE SECTION 02.01.00 MAP 0016
3460-347F	SYSTEM TEST UTILITY	SEE SECTION 03.01.00 MAP 0016
3480-34DF	FRIEND TEST	SEE SECTION 02.02.00 MAP 0017

REPLY WITH '1', '0', '6', OR DATA AS NEEDED.

IF YOU ARE USING THE C.E. MAINTENANCE CONSOLE:
VERIFY THE MACHINE AFTER REMOVING THE CONSOLE:

SET THE MODE SWITCH TO 'DIAG'.
OBSERVE THE IPL INDICATOR AS YOU IPL THE DIAGNOSTIC DISKETTE.

THE IPL INDICATOR SHOULD FLASH 'ON' THEN 'OFF' AND THE RUN INDICATOR SHOULD REMAIN 'ON'. IF THE IPL INDICATOR DOES NOT FLASH, OR THE 'RUN' INDICATOR DOES NOT REMAIN 'ON', A FAILURE HAS OCCURRED. CHECK THE SEATING OF THE CARD(S) AND/OR CABLE(S) WHICH MAY HAVE BEEN LOOSENED AS THE RESULT OF REMOVING THE MAINTENANCE CONSOLE.

RESET THE MODE SWITCH TO ITS ORIGINAL PLACE BEFORE RETURNING THE SYSTEM TO THE CUSTOMER.

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***** CAUTION *****
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IT IS RECOMMENDED THAT THE C.E. MAINTENANCE CONSOLE NEVER BE LEFT INSTALLED WHILE THE CUSTOMER PROGRAM IS EXECUTING. THIS IS BECAUSE A CONSOLE INTERRUPT IS A 'CLASS INTERRUPT', WHICH STARTS HARDWARE ACTION TO STORE THE LEVEL CONTROL BLOCK AND BRANCH TO AN INTERRUPT ROUTINE. IF THE CUSTOMER PROGRAM DOES NOT INITIALIZE STORAGE IN PREPARATION FOR A CONSOLE INTERRUPT, THE RESULTS ARE NOT PREDICTABLE.

06.00.00 SYSTEM TEST
START UP AND EXECUTION --- SEE MAP 0016

SYSTEM TEST SERVICE GUIDE

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**                                                                              **
**                                                                              **
**                                                                              **
**   CCCCCCCC   AAAAAAAA  UU      UU TTTTTTTTTT IIIIIIIIII OOOOOOOOOO NN      NN  **
**  CCCCCCCCCC AAAAAAAAAA UU      UU TTTTTTTTTT IIIIIIIIII OOOOOOOOOO NNN     NN  **
**  CC      CC AA      AA UU      UU     TT         II     OO      OO NNNN    NN  **
**  CC         AA      AA UU      UU     TT         II     OO      OO NN NN   NN  **
**  CC         AAAAAAAAAA UU      UU     TT         II     OO      OO NN  NN  NN  **
**  CC         AAAAAAAAAA UU      UU     TT         II     OO      OO NN   NN NN  **
**  CC         AA      AA UU      UU     TT         II     OO      OO NN    NNNN  **
**  CC      CC AA      AA UU      UU     TT         II     OO      OO NN     NNN  **
**  CCCCCCCCCC AA      AA UUUUUUUUUU     TT     IIIIIIIIII OOOOOOOOOO NN      NN  **
**   CCCCCCCC  AA      AA  UUUUUUUU      TT     IIIIIIIIII OOOOOOOOOO NN       N  **
**                                                                              **
**                                                                              **
**                                                                              **
**                                                                              **
**  A) --- RECORD, FOR FUTURE REFERENCE, ALL AUTO SYSTEM TEST DEVICE ADDRESS     **
**         AND THEIR RESPECTIVE DEVICE TYPES IN THE TABLE SUPPLIED ON THE       **
**         FOLLOWING PAGE.                                                      **
**                                                                              **
**                                                                              **
**  B) --- AT FIRST INSTALLATION THE SYSTEM TEST DISKETTE SHOULD BE CONFIGURED   **
**         BY THE DCP (DIAGNOSTIC) DISKETTE. (USE PROGRAM ID U38F0 <CONFIGURATION **
**         PROGRAM> OPTION - D - TO COPY THE CONFIGURATION TABLE)                **
**                                                                              **
**                                                                              **
**  C) --- WHEN AN ENTRY IN THE CONFIGURATION TABLE HAS BEEN IN ANY WAY CHANGED  **
**         OR A NEW ONE ADDED. UTILITY U34F8 MUST BE EXECUTED TO ADD THIS NEW   **
**         ENTRY TO THE SYSTEM TEST AUTO TEST RUN. THIS IS COMPLETED BY FIRST   **
**         DELETING THEN ADDING EITHER THE CHANGED OR ADDED ENTRY.              **
**                                                                              **
**                                                                              **
**  D) --- IF THE SYSTEM TEST IS TO BE EXECUTED AFTER RUNNING FRIEND THE SYSTEM  **
**         MUST AGAIN BE IPL'ED. IF THIS IS NOT DONE A PROGRAM CHECK WILL OCCUR. **
**                                                                              **
**                                                                              **
**  E) --- WHILE SYSTEM TEST IS RUNNING THE PROGRAMMER CONSOLE WILL BE USED AS  **
**         AN INDICATOR TO THE OPERATOR THAT THE SYSTEM IS IN OPERATION. IF THE  **
**         LEDS ARE NOT INDICATING ACTION THE SYSTEM IS STOPPED AND WAITING FOR  **
**         ACTION BY THE OPERATOR OR, IF THE FLOATING POINT TEST IS ACTIVE, MAY  **
**         BE IN A PROCESSING UNIT LOOP. THE LEDS SHOULD CONTAIN 0F0F OR F0F0.  **
**                                                                              **
**                                                                              **
**  F) --- WHEN A DEVICE ADDRESS IS REQUESTED, AND IF THE DEVICE ADDRESS IS     **
**         CHAINED TO ANOTHER, THEN THE ONLY ACCEPTABLE ADDRESS IS THE BASE     **
**         ADDRESS OF THAT GROUP. WHEN THE BASE ADDRESS IS INDICATED ALL        **
**         ADDRESSES OF THE CHAINED GROUP ARE SELECTED.                         **
**                                                                              **
**                                                                              **
**  G) --- THE FLOATING POINT FEATURE (DEVICE TYPE 3D) IS NOT ASSOCIATED WITH   **
**         ANY DEVICE ADDRESS. BUT A DEVICE ADDRESS MUST BE ASSIGNED TO THE     **
**         FLOATING POINT FEATURE (THROUGH THE CONFIGURATION TABLE) SINCE THE    **
**         SYSTEM TEST SUPERVISOR (ID 3410) HAS SPECIFIED ALL INPUT AND OUTPUT  **
**         IO BE RELATIVE TO GIVEN DEVICE ADDRESSES. THIS DEVICE ADDRESS MUST   **
**         BE A DEVICE ADDRESS NOT ALREADY USED (IN ANY WAY) BY THE SYSTEM.     **
**         WHEN THIS IS DONE (THROUGH THE USE OF THE UTILITY PROGRAM            **
**         34F8) THE MODULE USED TO TEST THE FLOATING POINT FEATURE CAN THEN    **
**         BE REFERENCED BY ITS OWN IDENTIFIABLE DEVICE ADDRESS.                **
**                                                                              **
**                                                                              **
**  H) --- WHEN A PROGRAMMERS CONSOLE IS THE ONLY CONSOLE, REGISTER THREE (3)   **
**         LEVEL THREE (3) WILL CONTAIN INFORMATION NEEDED BY THE USER.         **
**         (THAT IS --- REGISTER THREE LEVEL THREE IS ALWAYS THE INDICATED      **
**         INFORMATION REGISTER)                                                **
**                                                                              **
**                                                                              **
**  I) --- SYSTEM TEST MODULE TEST SPECIFICATIONS:                              **
**           1) FLOATING POINT -- MUST BE ASSIGNED A DEVICE ADDRESS (SEE G ABOVE).**
**           2) TWO CHANNEL SWITCH -- THE TCS CONSOLE MUST BE IN MANUAL MODE.   **
**           3) 4966 -- MUST HAVE EITHER 1, 3, 13 OR 23 DISKETTES INSTALLED.    **
**           4) 4974 -- SHOULD NEVER BE RUN ON A PRINTER USING MULTIPART PAPER.  **
**           5) 4982 -- MUST HAVE A FEATURE CARD PLUGGED INTO ITS BASE ADDRESS. **
**           6) 5250 -- WILL ONLY TEST TWO WORK STATION ADDRESS (ONE OF EACH TYPE).*
**                                                                              **
**                                                                              **
**                                                                              **
**********************************************************************************
**********************************************************************************
```

AUTO SYSTEM TEST HISTORY TABLE

DATE OF CHG.	LIST HERE DEVICE ADDRESS AND ASSOCIATED DEVICE TYPE ----> ADDR / TYPE										

01.00.00 INTRODUCTION.

THE PURPOSE OF THIS MAP IS TO AID THE C.E. IN DETERMINING A PROBLEM ON THE SYSTEM THAT THE BASIC DIAGNOSTIC DISKETTE FAILED TO SENSE. THE TWO MAIN AREAS THIS MAP IS RELATIVE TO ARE:

A) INTERMITTENT PROBLEMS NOT FOUND BY THE BASIC DEVICE MAPS
B) ONE DEVICE AFFECTING ANOTHER DEVICE THROUGH THE CHANNEL AND NOT FOUND BY THE BASIC DEVICE MAPS

IT IS ASSUMED THAT ON ENTERING THIS MAP EITHER REASON (A) OR (B) IS VALID. IN STARTING SYSTEM TEST USE ALL SUITABLE DEVICE ADDRESSES FOR THE SUSPECT SYSTEM, AND IF AN ERROR IS FOUND ANALYZE THE ERROR AND TAKE SUITABLE ACTION. IF THE ERROR IS CAUSED BY REASON (B) ABOVE THEN THE INDICATED ERROR MAY OR MAY NOT BE THE VALID ERROR AND MORE ERROR LOCATING WILL BE NEEDED.

IT IS FROM THIS POINT THAT THE C.E. MUST FREELANCE FOR IT IS NOT POSSIBLE TO DESCRIBE THROUGH EXACT PROCEDURE(S) EITHER THE EXACT CAUSE OR REASON(S) FOR THE ERROR. ERROR LOCATION IS THEREFORE LEFT TO THE C.E. USING:

1) SYSTEM TEST ISOLATING METHOD
   (SWAPPING PROGRAMS IN AND OUT OF STORAGE)
2) FRIEND (SEE THE NOTE BELOW)
   (ATTEMPT TO DUPLICATE THE ERROR INDICATED BY THE CUSTOMER)
   (REFERENCE MAP 0017)
3) PROBLEM DETERMINING PROCEDURE
   (REFERENCE MAP 0070)
   (DO NOT USE THIS REFERENCE UNLESS SYSTEM TEST OR FRIEND INDICATES AN ERROR)

WHEN THE CE DOES FIND AN ERROR THE SUSPECT UNIT SHOULD BE EXCHANGED AND THE REPAIR VERIFIED. FIRST USING THE BASIC DEVICE TEST THEN USING THE TEST, IN SYSTEM TEST, WHERE THE ERROR WAS FOUND IN THE FIRST PLACE.

```
**********************************************************************************
*                                                                                *
*                                                                                *
*  NOTE:      IF SYSTEM TEST IS TO BE EXECUTED AFTER FRIEND, YOU MUST            *
*             IPL THE SYSTEM AGAIN, OR A PROGRAM CHECK WILL OCCUR.               *
*                                                                                *
*                                                                                *
**********************************************************************************
```

02.00.00 SYSTEM TEST START UP AND EXECUTION

AT FIRST INSTALLATION:
- COPY THE CONFIGURATION TABLE FROM THE BASIC TO THE SYSTEM TEST DISKETTE.
- IPL THE SYSTEM TEST DISKETTE.
- PREPARE THE AUTO SYSTEM TEST BY EXECUTING PROGRAM NAME 34F8 BEFORE CONTINUING. (SEE SECTION 03.00.00).

WHEN THE AUTO TEST TABLE HAS BEEN INITIALIZED:
- START PROGRAM 3410.

WHEN 3410 HAS BEEN STARTED IT WILL AUTOMATICALLY READ IN THE TEST(S) AND START THEM. THE ONLY VALID COMMAND(S) THAT WILL BE PERMITTED AFTER THIS ARE:

(A) ANSWER A QUESTION NO
0 --- THIS COMMAND WILL ANSWER ANY QUESTION WITH A 'NO': <(B),0,(I),(I)>

(B) ANSWER A QUESTION YES
1 --- THIS COMMAND WILL ANSWER ANY QUESTION WITH A 'YES': <(B),1,(I),(I)>

(C) STOP ERROR COUNTING
2 --- THIS COMMAND WILL STOP ALL ERROR COUNTING. (NO ERROR LIMIT OF 5)
<(B),2,(I),(I)>

(D) CONTINUE ERROR COUNTING
3 --- THIS COMMAND WILL START AGAIN THE ERROR LIMIT OF 5
<(B),3,(I),(I)>

(E) CONTINUE PROGRAM
6 --- THIS COMMAND, USED WITH THE PROGRAMMER CONSOLE, WILL LET THE OPERATOR COLLECT ALL DATA THEN CONTINUE WHERE INTERRUPTED
<(B),6,(I),(I)>

(F) TERMINATE (STOP) SYSTEM TEST
7 --- THIS COMMAND WILL TERMINATE ALL ACTIVE DEVICE ADDRESSES AND SYSTEM TEST.
<(B),7,(I),(I)>

(G) DISPLAY EXECUTION AND ERROR NUMBER(S)
8 --- THIS WILL DISPLAY THE EXECUTION AND ERROR NUMBER(S) OF THE SYSTEM (COMMAND NOT VALID WITHOUT AN ALTERNATE CONSOLE)

(H) TERMINATE DEVICE ADDRESS
9 DA -- WHERE DA IS ANY DEVICE NOW ACTIVE
<(B),9,(I),(B),D,A,X,X,(I),(I)>

(I) START DEVICE ADDRESS
B DA -- WHERE DA IS ANY DEVICE ADDRESS VALID TO THE SYSTEM AND ATTACHED TO A VALID SYSTEM TEST DEVICE TYPE.
<(B),B,(I),(B),D,A,X,X,(I),(I)>

(J) DUMP STORAGE TO THE ALTERNATE CONSOLE
D XXXX YYYY - WHERE XXXX = FROM ADDRESS AND YYYY = TO ADDRESS
(COMMAND NOT VALID WITHOUT AN ALTERNATE CONSOLE OR WHEN THE ALTERNATE CONSOLE IS UNDER TEST)

COMMAND(S) 7, 9 AND B WILL NOT WORK UNTIL A PRECEDING COMMAND HAS BEEN FULLY EXECUTED. ALSO THE B (START) COMMAND WILL NOT START A PROGRAM UNTIL THE IPL DEVICE IS TERMINATED BY THE 9 (TERMINATE) COMMAND.

SYSTEM TEST IS STOPPED WHILE ONE OF THE FOLLOWING IS BEING EXECUTED:
(1) A YES OR NO QUESTION IS DISPLAYED TO THE OPERATOR AND WAS NOT ANSWERED
(2) A PROGRAM IS BEING LOADED TO START EXECUTION
(3) ERROR INFORMATION IS BEING DISPLAYED TO THE OPERATOR BY A CONSOLE
(4) A DEVICE ADDRESS IS BEING TERMINATED.

****
* NOTE: WHILE THE SYSTEM TEST IS RUNNING THE PROGRAMMER CONSOLE LEDS WILL BE USED AS AN INDICATOR TO THE OPERATOR THAT THE SYSTEM IS IN OPERATION. IF THE LEDS ARE NOT INDICATING ACTION AND ONE OF THE ABOVE 4 HALT(S) ARE NOT ACTIVE THE SYSTEM COULD BE IN AN ERROR CONDITION (I.E. HUNG IN A FLOATING POINT LOOP). TO DETERMINE IF THIS IS THE CONDITION, WAIT FOR THE LEDS TO SHOW 'TEST IS RUNNING'. THE LEDS WILL CONTAIN X'F0F0' OR X'0F0F' AND WILL CHANGE IN 15 SECONDS.
*
* NOTE: WHEN A DEVICE ADDRESS IS REQUESTED, (EITHER THROUGH A 'B' OR '9' COMMAND), IF THE DEVICE ADDRESS IS CHAINED TO ANOTHER ADDRESS (SEE MAP 0010 SECTION 8.00.00) THEN THE ONLY ACCEPTABLE ADDRESS IS THE BASE ADDRESS OF THAT GROUP. WHEN THE BASE ADDRESS IS INDICATED, ALL ADDRESSES OF THE CHAINED GROUP ARE SELECTED.
*
* NOTE: WHEN AN ENTRY IN THE CONFIGURATION TABLE HAS BEEN CHANGED OR A NEW ONE ADDED, UTILITY U34F8 MUST BE EXECUTED TO ADD THIS NEW ENTRY TO THE SYSTEM TEST AUTO RUN. THIS IS DONE BY FIRST DELETING THEN ADDING THE CHANGED/ADDED ENTRY.
****

02.01.00 SYSTEM TEST HALT CODES. (---) = PROGRAMMER CONSOLE DATA

****
* >>>>>>>> NOTE <<<<<<<<
* 1) R3 -> SHOULD BE INTERPRETED AS ----> REGISTER THREE IS POINTING AT.
* 2) A '*' AFTER THE HALT CODE INDICATES THAT WHEN THE MESSAGE IS DECODED THE PROGRAM IS STARTED WITH A RESUME (6) COMMAND.
****

3430 WAIT

THE OPERATOR IS REQUESTED TO WAIT UNTIL THE PRECEDING OPERATION IS COMPLETE

3431 NOT VALID REQUEST

THE OPERATOR ENTERED ILLEGAL DATA OR NO DATA

3432* XX NOT FOUND

DEVICE ADDRESS XX IS NOT UNDER TEST AT PRESENT. (R3 -> HEXADECIMAL DEVICE ADDRESS)

3433* XX TERM

DEVICE ADDRESS XX HAS TERMINATED (R3 -> HEXADECIMAL DEVICE ADDRESS)

3434* PNF

THE PROGRAM TO TEST THE REQUESTED DEVICE ADDRESS CAN NOT BE FOUND ON THE DISKETTE. (R3 -> HEXADECIMAL DEVICE ADDRESS)

3435 NO PROGRAM ACTION

THE LAST DEVICE OPERATING UNDER SYSTEM TEST HAS TERMINATED, BUT SYSTEM TEST IS STILL ACTIVE

3436 PNF

THE AUTO TEST TABLE CAN NOT BE FOUND ON THE DISKETTE. (PROGRAM ID EQUAL U34F1)

3437 NO STORAGE

THERE IS NOT ENOUGH STORAGE TO START ANOTHER PROGRAM.
THIS INDICATES EITHER STORAGE IS FILLED OR THE DEVICE TABLE NEEDED TO CONTAIN ALL THE DEVICE CONFIGURATION DATA IS TO SMALL.

3438* XX ACTIVE - NOT VALID REQUEST

DEVICE ADDRESS XX IS ALREADY ACTIVE. (R3 -> HEXADECIMAL DEVICE ADDRESS)

3439* XX ST

DEVICE ADDRESS XX HAS STARTED. (R3 -> HEXADECIMAL DEVICE ADDRESS)

343A* XX MUST TERM

DEVICE ADDRESS XX (IPL DEVICE) MUST TERM BEFORE STARTING ANOTHER DEVICE (R3 -> HEXADECIMAL DEVICE ADDRESS)

343B* XX - NOT VALID DEVICE TYPE

DEVICE ADDRESS XX IS NOT COMPATIBLE WITH SYSTEM TEST. (R3 -> HEXADECIMAL DEVICE ADDRESS)

343C* ****ERROR*****

AN ERROR OCCURRED WHILE TESTING. (R3 -> THE ERROR FIELD(S) AS ARE DESCRIBED IN SECTION 04.00.00 THIS MAP. THE FIELD(S) ARE DISPLAYED IN SEQUENCE FROM THE FLAG FIELD THROUGH THE ERROR NUMBER FIELD IN HEXADECIMAL.
THE DEVICE TYPE AND DEVICE ADDRESS CAN BE FOUND IN EBCDIC AT THE ADDRESS THAT IS OBTAINED WHEN ZEROING OUT THE LAST TWO DIGITS OF R3. THAT IS IF R3 IS EQUAL TO 3262 THEN THE DEVICE TYPE AND ADDRESS CAN BE OBTAINED STARTING AT LOCATION 3200, HEXADECIMAL ROUTINE AT 320A, AND HEXADECIMAL CHECKPOINT AT 320C.)

343D* XX ERROR LIMIT

DEVICE ADDRESS XX HAS REACHED ITS ERROR LIMIT. (R3 -> EBCDIC DEVICE ADDRESS)

03.00.00 SYSTEM TEST UTILITY - PROGRAM NAME 34F8

WHEN IT IS NECESSARY TO INITIALIZE OR CHANGE THE AUTO SYSTEM TEST THIS PROGRAM MUST BE STARTED. IT'S PURPOSE IS TO INITIALIZE A TABLE (34F1) THAT THE SYSTEM TEST PROGRAM WILL USE, TO DETERMINE THE DEVICE ADDRESS AND TYPE OF CONNECTED DEVICE, TO AUTOMATICALLY TEST. WHEN THIS PROGRAM IS STARTED IT WILL INFORM THE OPERATOR OF THE MAXIMUM QUANTITY OF TESTED DEVICES THAT CAN BE INCLUDED IN THE PROCESSING UNIT (IN HEXADECIMAL), AND HOW MANY TEST(S) (IN HEXADECIMAL) ARE NOW ASSIGNED. THE VALID OPTION(S) WITH THIS UTILITY ARE:

NOTE:
IF THE AUTO TEST TABLE HAS NEVER BEEN INITIALIZED, OR IF THE COMMAND 'F' IS ISSUED, THIS PROGRAM WILL AUTOMATICALLY ADD (IF POSSIBLE) ALL THE VALID DEVICE ADDRESSES (EXCEPT THE ALTERNATE CONSOLE AND THOSE DEVICES ATTACHED TO THE COMMON I/O CHANNEL THROUGH A TWO CHANNEL SWITCH) TO THE AUTO TEST TABLE, PLUS ASSIGN A DEVICE ADDRESS TO THE FLOATING POINT FEATURE (IF INSTALLED).

ADD (A A1 A2 A3 A4-----)

THIS COMMAND WILL ADD TO THE TABLE (IF VALID) ALL GIVEN DEVICE ADDRESSES
<(B),1,F,(I),(B),A,X,Y,Y,(I),(I)> YY=DEVICE ADDRESS

LIST (B)

THIS COMMAND WILL LIST ALL ACTIVE DEVICE ADDRESSES
<(B),1,F,(I),(B),B,X,X,X,(I),(I)>

KEEP (C)

THIS COMMAND WILL KEEP THE UPDATED TABLE ON THE DISKETTE FOR USE BY THE 3410 PROGRAM (IF NOT GIVEN, ALL UPDATING IS LOST)
<(B),1,F,(I),(B),C,X,X,X,(I),(I)>

DELETE (D A1 A2 A3 A4-----)

THIS COMMAND WILL DELETE ALL ACTIVE DEVICE ADDRESSES GIVEN
<(B),1,F,(I),(B),D,X,Y,Y,(I),(I)> YY=DEVICE ADDRESS

END (E)

THIS COMMAND WILL TERMINATE PROGRAM 34F8
<(B),1,F,(I),(B),E,X,X,X,(I),(I)>

INITIALIZE (F)

THIS COMMAND WILL INITIALIZE THE TABLE AND SET THE MAXIMUM QUANTITY OF ACTIVE PROGRAMS.
<(B),1,F,(I),(B),F,X,X,X,(I),(I)>

NOTE: WHEN AN ENTRY IN THE CONFIGURATION TABLE HAS BEEN IN ANY WAY CHANGED OR A NEW ENTRY HAS BEEN ADDED. UTILITY U34F8 MUST BE EXECUTED TO ADD THIS ENTRY TO SYSTEM TEST'S AUTO TEST RUN. THIS IS COMPLETED BY FIRST DELETING THEN ADDING THE CHANGED/ADDED ENTRY.

03.01.00 SYSTEM TEST UTILITY HALT CODES. (---) = PROGRAMMER CONSOLE DATA

>>>>>>>> NOTE <<<<<<<<

1) R3 -> SHOULD BE INTERPRETED AS ----- REGISTER THREE IS POINTING AT.
2) A '*' AFTER THE HALT CODE INDICATES THAT WHEN THE MESSAGE IS DECODED THE PROGRAM IS STARTED WITH A RESUME (6) COMMAND.

3460* STORAGE INDICATES UP TO 'XXXX' CONCURRENTLY EXECUTING PROGRAMS

THIS INDICATES THE MAXIMUM NUMBER OF PROGRAMS IN STORAGE. (R3 -> XXXX IN HEXADECIMAL)

3461* THIS SYSTEM IS NOW CONFIGURED TO EXECUTE XXXX DEVICE ADDRESS(S).

THIS INDICATES THE NUMBER OF DEVICES NOW ACTIVE IN THE AUTO SYSTEM TEST. (R3 -> XXXX IN HEXADECIMAL)

3462* ENTER OPTIONS

ENTER FROM THE MENU THE OPTION DESIRED.

3463* NOT VALID REQUEST

AN ILLEGAL OPTION WAS SELECTED

3464* DEVICE ADDRESS ACTIVE
DEVICE ADDRESS XX --- TYPE YY

THIS IS A LIST OF ALL DEVICES ACTIVE WHILE AUTO TESTING, WITH XX BEING THE DEVICE ADDRESS AND YY BEING THE DEVICE TYPE.
(R3 = HEXADECIMAL DEVICE ADDRESS, DEVICE TYPE 'XXYY')

3465* XX NOT ADDED ---- TABLE FILLED

DEVICE ADDRESS XX NOT ADDED INTO TABLE 34F1 BECAUSE THE TABLE IS FILLED (R3 -> EBCDIC DEVICE ADDRESS).

3466* XX NOT FOUND IN SYSTEM CONFIGURATION TABLE

DEVICE ADDRESS XX IS NOT PRESENT IN THE CONFIGURATION TABLE. (R3 -> EBCDIC DEVICE ADDRESS).

3467* XX ILLEGAL DEVICE TYPE FOR SYSTEM TEST

DEVICE ADDRESS XX IS AN ILLEGAL DEVICE TYPE FOR EXECUTION UNDER SYSTEM TEST (R3 -> EBCDIC DEVICE ADDRESS).

3468* -- EMPTY --

A LIST OF THE TABLE WAS REQUESTED AND THE TABLE WAS EMPTY

3469* XX NOT DELETED --- NOT FOUND

A REQUEST FOR DELETE WAS TERMINATED BECAUSE THE ENTRY COULD NOT BE LOCATED (R3 -> EBCDIC DEVICE ADDRESS)

346A* NOT KEPT ---- ENTER C OR E

THE OPERATOR ENDED THIS UTILITY AFTER THE TABLE WAS CHANGED, BUT DID NOT KEEP IT. IF THE TABLE IS TO BE KEPT, ENTER 'C'. IF THE TABLE IS NOT TO BE KEPT ENTER END (E) AGAIN.

346B* KEPT

THE TABLE HAS BEEN KEPT WITHOUT ERROR

346C* XX NOT ADDED ---- DUPLICATE

DEVICE ADDRESS XX WAS NOT ADDED BECAUSE IT ALREADY OCCURRED IN THE TABLE (R3 -> EBCDIC DEVICE ADDRESS)

346D* XX ADDED

DEVICE ADDRESS XX HAS BEEN ADDED TO THE TABLE (R3 -> EBCDIC DEVICE ADDRESS)

346E* XX DELETED

DEVICE ADDRESS XX HAS NOW BEEN DELETED FROM THE TABLE (R3 -> EBCDIC DEVICE ADDRESS).

346F* READ ERROR -- COULD NOT READ EITHER U34F1 OR U38F1

A READ ERROR WAS DECODED WHEN ATTEMPTING TO READ INTO STORAGE EITHER INDICATED TABLE

3470* XX ILLEGAL --- CHAINED

DEVICE ADDRESS XX IS ILLEGAL BECAUSE IT IS NOT THE FIRST ENTRY IN A CHAINED GROUP (R3 -> EBCDIC DEVICE ADDRESS)

3471* XX -- IS THE DEVICE ADDRESS USED FOR FLOATING POINT

DEVICE ADDRESS XX HAS BEEN ASSIGNED TO THE FLOATING POINT FEATURE FOR SYSTEM TEST REASONS. WHILE EXECUTING SYSTEM TEST REFERENCE THE FLOATING POINT FEATURE WITH THIS ADDRESS

04.00.00 SYSTEM TEST ERROR REPORTING METHOD

WHEN THE SYSTEM TEST HAS DECODED AN ERROR IN ONE OF THE DEVICES, SYSTEM TEST IS STOPPED WHILE THE ERROR IS REPORTED TO THE OPERATOR BY THE ALTERNATE CONSOLE. WHEN THE ERROR REPORTING IS COMPLETED, THE TEST WILL CONTINUE WHERE IT LEFT OFF ON ALL OTHER DEVICES BUT THE ONE THE ERROR WAS FOUND ON, THIS DEVICE WILL CONTINUE FROM THE START OF ITS TEST AND GO FROM THERE. AUTOMATIC TERMINATING OF ANY DEVICE UNDER TEST WILL TAKE PLACE WHEN FIVE (5) ERRORS HAVE BEEN FOUND FOR THAT DEVICE. (UNLESS ERROR COUNTING IS INHIBITED) IF, AFTER TERMINATING, THE DEVICE IS STARTED BY THE OPERATOR ERROR COUNTING WILL START AGAIN FOR A MAXIMUM OF FIVE (5) BEFORE TERMINATING. IF UNDER ANY CONDITION THE OPERATOR WILL WANT TO TERMINATE THE DEVICE (OR ANY DEVICE) THE COMMAND '9 DA' MUST BE GIVEN TO TERMINATE DEVICE.

IF AN ERROR IS FOUND, THE NEEDED DATA WILL BE SENT TO THE OPERATOR. THIS INFORMATION WILL BE IN THE FOLLOWING FORMAT:

```
****ERROR*****
ETTDA  ROUTINE = XXXX CKPT=YYYY
FLAG  IOIN  ISB  INST  DEV1  DEV2  DEV3  DEV4
AAAA  BBCC  DDEE FFFF  GGGG  GGGG  GGGG  GGGG

CNTL  DCB2  DCB3 DCB4  DCB5  CHAD  BYCT  ADDR
HHHH  HHHH  HHHH HHHH  HHHH  HHHH  HHHH  HHHH

RSAD  CS-2  CS-3 CS-4  CS-5  CS-5  CS-7  CS-8
IIII  IIII  IIII IIII  IIII  IIII  IIII  IIII

EXECUTE/ERROR COUNT = PPPPPPPP  SSSSSS
```

WHERE:

TT = FAILING DEVICE TYPE

- 3D = FLOATING POINT
- 3E = TWO CHANNEL SWITCH
- 40 = TTY
- 44 = DISPLAY UNIT
- 45 = DISPLAY UNIT
- 48 = DISKETTE
- 4A = DISKETTE
- 50 = TIMER
- 58 = TAPE
- 64 = PRINTER <MATRIX>
- 68 = PRINTER <CHAIN>
- 78 = DISK
- 7A = DISK
- A0 = IDIDO
- A3 = OEMIA
- A4 = SENSOR I/O
- E0 = PROGRAMMABLE COMMUNICATIONS SUBSYSTEM
- E4 = 5250 ATTACHMENT
- E8 = ACCA SL
- E9 = ACCA ML
- EA = FPMLC
- F0 = BSCA SL
- F1 = BSCA ML
- F8 = SDLC

********** NOTE: THE INDICATED TYPE IS USED TO DETERMINE WHICH
==========> ERROR MAP TO USE TO ANALYZE THE ERROR. THE
MAP IS NAMED TTE0, WHERE TT IS AS INDICATED

DA = FAILING DEVICE ADDRESS

XXXX = ROUTINE NUMBER (SEE SPECIFIC DEVICE INFORMATION THIS MAP)

YYYY = CHECKPOINT NUMBER (SEE SPECIFIC DEVICE INFORMATION THIS MAP)

AAAA = FLAG WORD (BIT CODED)

BIT	HEXADECIMAL	MEANING
0	8000	NOT EXPECTED I/O INTERRUPT
1	4000	ERROR CONDITION WAS DECODED
2	2000	I/O GIVEN - INTERRUPT EXPECTED
3	1000	I/O INTERRUPT WAS RECEIVED
4	0800	I/O GIVEN - ERROR INTERRUPT EXPECTED
5	0400	I/O INTERRUPT RECEIVED ON WRONG LEVEL
6	0200	I/O INTERRUPT EXPECTED NOT RECEIVED (LOST)
7	0100	CYCLE STEAL STATUS WAS GIVEN
8	0080	CYCLE STEAL STATUS ERROR INTERRUPT RECEIVED
9	0040	I/O INTERRUPT GOOD - ERROR EXPECTED
10	0020	POSSIBLE ERROR EXPECTED
11	0010	NO INTERRUPT EXPECTED
12	0008	FLOATING POINT DATA TRANSMIT ERROR
13	0004	SOFT EXCEPTION TRAP ERROR
14-15		NOT USED

BB = CONDITION CODE OF THE LAST I/O INSTRUCTION (7 = GOOD)

CC = CONDITION CODE OF THE LAST I/O INTERRUPT

*DD = INTERRUPT STATUS BYTE BIT 0 = ON INDICATES CYCLE STEAL INFORMATION IS AVAILABLE

*EE = DEVICE ADDRESS

FFFF = PRINTOUT ADDRESS OF LAST I/O INSTRUCTION

GGGG = FOUR WORDS OF DEVICE DATA (SEE SPECIFIC DEVICE INFORMATION THIS MAP)

HHHH = LAST DCB OR IDCB. IF CHAD IS NOT EQUAL TO 0000 THEN THE CHAINED DCB WILL BE DISPLAYED AS ADDITIONAL INFORMATION

IIII = CYCLE STEAL INFORMATION IF AVAILABLE (FF INDICATES NO DATA)

PPPPPPPP = HEXADECIMAL NUMBER OF TIMES THAT EXECUTION WAS PASSED TO ROUTINE ONE. (THAT IS THE NUMBER OF PROGRAM STARTS)

SSSSSS = NUMBER OF ERRORS FOUND WHILE TESTING

* NOTE: ON A CYCLE STEAL OPERATION ERROR THESE VALUES ARE PLACED IN CS-8

IN DECODING THE PRECEDING ERROR DATA THE FIRST AREA TO BE INSPECTED SHOULD BE THE OIO CONDITION CODE (IOIN). IF THIS IS NOT EQUAL TO SEVEN (07XX) THEN ALL INFORMATION CONNECTED WITH THIS MATERIAL MAY OR MAY NOT BE VALID. IF THIS VALUE IS EQUAL TO SEVEN (07XX) THEN THE INFORMATION RECEIVED IN THE FLAG, IOIN AND ISB FIELD(S) SHOULD INDICATE THE TYPE OF ERROR FOUND. (FOR MORE DETAIL SEE THE SPECIFIC DEVICE SECTION IN THIS MAP.)

WHEN DECODING, THE FIELD 'INST' WILL GIVE THE PRINTOUT ADDRESS OF THE LAST I/O INSTRUCTION. ALL OTHER ADDRESSES THAT IS, CHAD (CHAIN ADDRESS), ADDR (BUFFER ADDRESS) AND RSAD (CYCLE STEAL RESIDUAL ADDRESS) ARE EXACT STORAGE ADDRESSES IN THE PROCESSING UNIT.

05.00.00 SYSTEM TEST SAMPLE SESSION

THE SYSTEM TEST DISKETTE IS IPL'ED AS PER SECTION 02.00.00 MAP 0015 WITH A CORRECT CONFIGURATION TABLE PRESENT ON THE DISK. THIS TABLE WAS COPIED TO THIS DISKETTE BY THE CONFIGURATION PROGRAM'S OPTION 'OD'. A SAMPLE SYSTEM TEST SESSION (ASSUMING THERE IS NO CHANGE TO THE CONFIGURATION TABLE) IS AS FOLLOWS:

```
### ---> NOT PART OF THE SESSION (COMMENT)
$$$ ---> COMMENT IGNORED IF PROGRAMMER CONSOLE ONLY
<-> ---> PROGRAMMER CONSOLE INPUT.
@@@ ---> THE NEXT LINE IS OPERATOR INPUT
```

NOTE: ALL OUTPUT MESSAGES IN THE FOLLOWING EXAMPLE (NOT EXPECTING A ANSWER) MUST BE STARTED WITH <(B),6,(I),(I)> IF AN ALTERNATE CONSOLE IS NOT ATTACHED OR IS UNDER TEST.

```
RDY
ENTER
@@@                         ### INITIALIZE SYSTEM TEST AUTO TABLE
B 34F8                      <(B),B,(I),(B),3,4,F,8,(I),(I)>
U34F8 LOADED
ST
U34F1 LOADED
U38F1 LOADED
STORAGE INDICATES UP TO '0015' CONCURRENTLY EXECUTING PROGRAMS
THIS SYSTEM IS NOW CONFIGURED TO EXECUTE 0000 DEVICE ADDRESS(S)
ENTER OPTIONS
ENTER
@@@                         ### MAKE FOUR DEVICES ACTIVE
FA 10 02 40                 <(B),1,F,(I),(B),A,X,1,0,(I),(I)>
                            <(B),1,F,(I),(B),A,X,0,2,(I),(I)>
                            <(B),1,F,(I),(B),A,X,4,0,(I),(I)>
10 ADDED
02 ADDED
40 ADDED                    ### NOTE THAT DEVICE ADDRESS 40 WAS A
41 ADDED                    ### CHAINED ENTRY WITH 41
ENTER OPTIONS
ENTER
@@@                         ### THE NEW TABLE MUST BE KEPT
FC                          <(B),1,F,(I),(B),C,X,X,X,(I),(I)>
KEPT
ENTER OPTIONS
ENTER
@@@                         ### OPTION COMPLETE - END
FE                          <(B),1,F,(I),(B),E,X,X,X,(I),(I)>
PT
ENTER
@@@                         ### WE ARE NOW READY TO START SYSTEM TEST
B 3410                      <(B),B,(I),(B),3,4,1,0,(I),(I)>
D3410 LOADED
ST
U34F1 LOADED
E4010 LOADED AT 2800        ### DEVICE ADDRESS 10 TYPE 40 LOADED
E4802 LOADED AT 3200        ### DEVICE ADDRESS 02 TYPE 48 LOADED
E5040 LOADED AT 3C00        ### DEVICE ADDRESS 40 TYPE 50 LOADED
IS THERE A TTY ATTACHED TO DA = 10
ENTER
@@@                         ### ASSUME NO
0                           <(B),0,(I),(I)>
IS THERE A WRAP CABLE CONNECTED TO DA = 10
@@@                         ### ASSUME YES
1                           <(B),1,(I),(I)>
```

```
*****************************************************************************
*                                                                           *
*                                                                           *
*    NOTE:   AT THIS POINT IN TIME SYSTEM TEST WILL START TO EXECUTE        *
*            THE DEVICE ADDRESS INDICATED IN THE TABLE INITIALIZED BY       *
*            PROGRAM ID 34F8. TESTING WILL CONTINUE UNTIL EITHER            *
*            STOPPED BY THE OPERATOR, OR AN ERROR IS FOUND.                 *
*            THE LEDS DISPLAY EITHER HEXADECIMAL F0F0 OR 0F0F DURING        *
*            THE TIME THE TEST IS OPERATING.                                *
*            (IF THIS IS NOT OCCURRING SEE SECTION 02.00.00 THIS MAP)       *
*                                                                           *
*                                                                           *
*****************************************************************************
```



```
                            ### ASSUME AN ERROR OCCURRED
****ERROR*****
E4802 ROUTINE = 0003 CHECKPOINT=0001
FLAG IOIN ISB  INST DEV1 DEV2 DEV3 DEV4
4100 0702 8002 0330 104B 0003 0000 0000
CNTL DCB2 DCB3 DCB4 DCB5 CHAD BYCT ADDR
8005 0849 0000 0000 0000 3634 0000 0000
RSAD CS-2 CS-3 CS-4 CS-5 CS-6 CS-7 CS-8
3643 0800 FFFF FFFF FFFF FFFF FFFF FFFF
CNTL DCB2 DCB3 DCB4 DCB5 CHAD BYCT ADDR
200A 0000 0000 0000 0000 0000 0004 321A
EXECUTE/ERROR COUNT = 000000005  000001
                            $$$ OPERATOR CAUSES INTERRUPT
ENTER
@@@                         ### ADDRESS 40 IS TO BE TERMINATED
9 40                        <(B),9,(I),(B),4,0,X,X,(I),(I)>
40 TERM
41 TERM                     ### NOTE CHAINED ENTRY
                            $$$ OPERATOR CAUSES INTERRUPT
ENTER
@@@                         ### OPERATOR WANTED TO START 40
B 40                        <(B),B,(I),(B),4,0,X,X,(I),(I)>
40 ST
41 ST                       ### AGAIN NOTE CHAINED ENTRY
                            $$$ OPERATOR CAUSES INTERRUPT
ENTER
@@@                         ### OPERATOR WANTED TO STOP SYSTEM TEST
7                           <(B),7,(I),(I)>
10 TERM
02 TERM
40 TERM
41 TERM
PT
ENTER
```

TO DESCRIBE THE SESSION WE WILL ANALYZE THE ERROR INDICATED ABOVE: (SEE SECTION 04.00.00)

FROM THE FIRST ERROR ENTRY WE CAN DETERMINE THAT THE DEVICE TYPE IN ERROR IS '48' AND THAT IT IS AT DEVICE ADDRESS '02', ALSO THE FAILURE OCCURRED IN THIS PROGRAM AT ROUTINE 3 - CHECKPOINT 1. FROM THIS WE ARE SENT TO MAP 48E0 WHERE WE FOLLOW THE STEPS IN THE FOLLOWING SEQUENCE:

001->002->003->069->070->072->073 --->
THIS INDICATES A CHAINED SEEK AND READ SECTOR ID ERROR

THE ABOVE ERROR REPORTING METHOD IS USED THROUGH EACH SYSTEM TEST MODULE. WHEN AN ERROR OCCURS SEE SECTION 04.00.00 REMEMBERING THAT ONLY FIVE (5) ERRORS WILL BE RECORDED BEFORE THE DEVICE IN ERROR IS AUTOMATICALLY TERMINATED BY SYSTEM TEST. (UNLESS ECP COMMAND 2 WAS GIVEN. REFERENCE MAP 0015 SECTION 03.00.00)

05.01.00 SYSTEM TEST MODULE HALT CODES

```
*****************************************************************************
*                                                                           *
*                                                                           *
*   NOTE:    R3 ->  INTERPRET AS -- REGISTER THREE IS POINTING AT.          *
*                                                                           *
*                                                                           *
*                                                                           *
*****************************************************************************
```

========> TWO CHANNEL SWITCH HALT CODES

3EE1 CAN A RESERVE BE ISSUED FROM DA. = XX
IS DEVICE ADDRESS XX ON ONE PROCESSING UNIT PERMITTED TO ISSUE RESERVES TO THE OTHER PROCESSING UNIT THROUGH THE TWO CHANNEL SWITCH.
(R3 -> EBCDIC DEVICE ADDRESS).

========> TTY HALT CODES

40E1 IS THERE A TTY ATTACHED TO DA = XX
DEVICE ADDRESS XX IS ATTACHED TO A TTY (Y OR N).
(R3 -> EBCDIC DEVICE ADDRESS).

40E2 IS THERE A WRAP CABLE CONNECTED TO DA = XX
DEVICE ADDRESS XX IS WRAPPED WITH A CABLE (Y OR N).
(R3 -> EBCDIC DEVICE ADDRESS).

========> 4966 HALT CODES

4AE1 23 DISKETTES LOADED ON DA = XX
IS DEVICE ADDRESS XX LOADED WITH DISKETTES (I.E. 3 IN THE OPENINGS PLUS TWO LOADED CONTAINERS) -- (Y OR N).
(R3 -> EBCDIC DEVICE ADDRESS).

4AE2 13 DISKETTES LOADED ON DA = XX
IS DEVICE ADDRESS XX LOADED WITH 13 DISKETTES (I.E. 3 IN THE OPENINGS PLUS ONE LOADED CONTAINER) -- (Y OR N).
(R3 -> EBCDIC DEVICE ADDRESS).

4AE3 3 DISKETTES LOADED ON DA = XX
IS DEVICE ADDRESS XX LOADED WITH 3 DISKETTES (I.E. 3 IN THE OPENINGS) -- (Y OR N).
(R3 -> EBCDIC DEVICE ADDRESS).

4AE4 SHOULD THERE BE HARDWARE RETRIES - DA = XX
DEVICE ADDRESS XX HAS AUTOMATIC HARDWARE RETRY -- SHOULD IT BE USED (Y OR N).
(R3 -> EBCDIC DEVICE ADDRESS).

4AE5 SHOULD HARDWARE RETRIES BE AN ERROR -- DA = XX
IF HARDWARE RETRIES ARE SELECTED AS AN OPTION FOR DEVICE ADDRESS XX SHOULD RETRIES, IF THEY OCCUR, BE AN ERROR.
(R3 -> EBCDIC DEVICE ADDRESS).

========> 4974 PRINTER <MATRIX> HALT CODES

64E1 FORMS WIDTH FOR THE 4974 PRINTER D.A. = XX
(ENTER PRINT POSITIONS I.E. F0132 - AND SO ON).
THE PRINT POSITIONS SHOULD BE A DECIMAL NUMBER.
THE QUESTION SHOULD BE ANSWERED AS DESCRIBED REMEMBERING THAT MULTIPART PAPER SHOULD NEVER BE USED DURING TEST.
(R3 -> EBCDIC DEVICE ADDRESS)

========> 4962 DISK HALT CODES

78E1 CAN THE 4962 C.E. TRACK BE WRITTEN ON DA = XX
CAN A 256 BYTE SECTOR BE WRITTEN AT DEVICE ADDRESS XX CYLINDER (DECIMAL) 302.
(R3 -> EBCDIC DEVICE ADDRESS)

========> 4963 DISK HALT CODES

7AE1 CAN THE 4963 C.E. TRACK BE WRITTEN ON DA = XX
CAN A 256 BYTE SECTOR BE WRITTEN AT DEVICE ADDRESS XX ON THE C.E. CYLINDER.
(R3 -> EBCDIC DEVICE ADDRESS)

7AE2 DO YOU WANT 4963 HARDWARE RETRIES ON DA = XX
DEVICE ADDRESS XX HAS AUTOMATIC HARDWARE RETRY -- SHOULD IT BE USED (Y OR N).
(R3 -> EBCDIC DEVICE ADDRESS).

7AE3 IS A 4963 HARDWARE RETRY AN ERROR ON DA = XX
IF HARDWARE RETRIES ARE SELECTED AS AN OPTION FOR DEVICE ADDRESS XX SHOULD RETRIES, IF THEY OCCUR, BE AN ERROR.
(R3 -> EBCDIC DEVICE ADDRESS).

========> IDIDO HALT CODE

A0E1 IS THERE A WRAP CABLE CONNECTED TO DA = XX
DOES THE DEVICE ADDRESS XX HAVE A WRAP CABLE CONNECTED (Y OR N)
(R3 -> EBCDIC DEVICE ADDRESS)

========> 5250 HALT CODE

E4E1 ENTER STATION ADDRESS FOR DISPLAY (FF = DO NOT TEST) DA = XX
FOR DEVICE ADDRESS XX ENTER THE STATION ADDRESS OF THE DISPLAY STATION TO BE TESTED. IF NO STATION IS DESIRED ENTER FF AS THE STATION ADDRESS.
(R3 -> EBCDIC DEVICE ADDRESS)

E4E2 ENTER STATION ADDRESS FOR PRINTER (FF = DO NOT TEST) DA = XX
FOR DEVICE ADDRESS XX ENTER THE STATION ADDRESS OF THE DISPLAY STATION TO BE TESTED. IF NO STATION IS DESIRED ENTER FF AS THE STATION ADDRESS.
(R3 -> EBCDIC DEVICE ADDRESS)

E4E3 FORMS WIDTH FOR THE 4974 PRINTER D.A. = XX
(ENTER PRINT POSITIONS I.E. F0132 - AND SO ON)
THE PRINT POSITIONS SHOULD BE A DECIMAL NUMBER.
THE QUESTION SHOULD BE ANSWERED AS DESCRIBED REMEMBERING THAT MULTIPART PAPER SHOULD NEVER BE USED DURING TEST.
(R3 -> EBCDIC DEVICE ADDRESS)

========> SDLC HALT CODE

F8E1 IS THERE A WRAP CONNECTED TO DA = XX
DOES THE DEVICE ADDRESS XX HAVE A WRAP CABLE CONNECTED (Y OR N)
(R3 -> EBCDIC DEVICE ADDRESS)

06.00.00 FLOATING POINT ROUTINE DESCRIPTION ---- TYPE 3D

BEFORE EXECUTION OF THIS SYSTEM TEST PROGRAM, THE SYSTEM TEST DISKETTE SHOULD BE CONFIGURED TO HAVE THE FLOATING POINT ENTRY HAVE A DEVICE ADDRESS DIFFERENT FROM ANY OTHER ON THE SYSTEM. WHEN THIS IS DONE AND THE TEST HAS BEEN STARTED THREE ROUTINES ARE EXECUTED TO TEST THE MOVING OF DATA FROM AND TO THE FLOATING POINT CARD. THESE ROUTINES ARE DESCRIBED AS FOLLOWS:

ROUTINE 1:
THIS ROUTINE FIRST TEST THE FLOATING POINT SET LEVEL BLOCK COMMANDS. THIS IS FIRST DONE ON LEVEL 0 THEN 1, 2, AND 3. ON EACH LEVEL GIVEN DATA PATTERNS ARE WRITTEN AND READ BACK TO VERIFY THAT THE DATA CAN BE MOVED CORRECTLY. IF NO ERRORS ARE FOUND ROUTINE 2 IS STARTED.

ROUTINE 2:
THIS ROUTINE IS THE SAME AS ROUTINE ONE BUT TESTS THE WORD COMMANDS SUCH AS FMV FOR MOVEMENT OF DATA TO THE CARD, WITH THE DATA BEING READ AS A BLOCK COMING FROM THE FLOATING POINT CARD. IF NO ERRORS ARE FOUND, ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE IS THE SAME AS ROUTINE ONE BUT TESTS THE DOUBLE WORD COMMANDS SUCH AS FMVD FOR MOVEMENT OF DATA TO THE CARD, WITH THE DATA BEING READ AS A BLOCK COMING FROM THE FLOATING POINT CARD. IF NO ERRORS ARE FOUND, ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE:
1) RESET ALL LOW STORAGE POINTERS
2) ENSURE THE PROGRAM IS ON LEVEL THREE
3) PROGRAM TERMINATE

NOTE: THE FLOATING POINT FEATURE (DEVICE TYPE 3D) IS NOT ASSOCIATED WITH ANY DEVICE ADDRESS. BUT A DEVICE ADDRESS MUST BE ASSIGNED TO THE FLOATING POINT FEATURE (THROUGH THE CONFIGURATION TABLE) BECAUSE THE SYSTEM TEST SUPERVISOR (ID 3410) HAS SPECIFIED ALL INPUT AND OUTPUT TO BE RELATIVE TO GIVEN DEVICE ADDRESSES. THIS DEVICE ADDRESS MUST BE A DEVICE ADDRESS NOT ALREADY USED (IN ANY WAY) BY THE SYSTEM. WHEN THIS IS DONE (THROUGH THE USE OF THE UTILITY PROGRAM (PROGRAM ID 34F8) THE MODULE USED TO TEST THE FLOATING POINT FEATURE CAN THEN BE REFERENCED BY ITS OWN IDENTIFIABLE DEVICE ADDRESS.

07.00.00 TWO CHANNEL SWITCH ROUTINE DESCRIPTION ---- TYPE 3E

BEFORE EXECUTION OF THIS SYSTEM TEST PROGRAM, THE TWO CHANNEL SWITCH CONSOLE SHOULD BE PLACED INTO MANUAL MODE FOR MORE COMPLETE TESTING OF THE DEVICE. ON THE SYSTEM WHICH DOES NOT HAVE CONTROL OF THE COMMON I/O, A QUESTION WILL BE PRESENTED TO THE OPERATOR ABOUT RESERVES BEING PRESENTED TO THE OTHER PROCESSING UNIT (THE ONE WHICH HAS THE COMMON I/O). IF THE ANSWER IS YES, ROUTINE FIVE (5) WILL PRESENT THESE RESERVES. A DESCRIPTION OF THESE ROUTINES FOLLOWS:

ROUTINE 1:
THIS ROUTINE FIRST DOES A READ DEVICE ID FOLLOWED BY A DEVICE RESET THEN ISSUES A DEVICE READ STATUS. THIS STATUS IS THEN STORED INTO THE AREA 'DEV1' A COMPARE IS THEN MADE TO THE DATA STORED IN THE CONFIGURATION TABLE. IF NO ERRORS ARE FOUND ROUTINE 2 IS STARTED.

ROUTINE 2:
THIS ROUTINE WILL ENSURE THAT ALL ILLEGAL DCB'S WILL GIVE A COMMAND REJECT. AFTER THIS A RESET IS GIVEN TO THE ATTACHMENT CARD. IF NO ERRORS ARE FOUND, ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE FIRST TESTS TO DETERMINE IF THIS SIDE OF THE TWO CHANNEL SWITCH HAS THE COMMON I/O (IF NO ROUTINE 4 IS STARTED). AFTER THIS THE ACK LED IS TURNED ON THEN A TIMEOUT UNDER TEST IS ISSUED ON (3) INTERRUPT LEVELS (0,1,2) TO ENSURE THE ATTACHMENT CARD WILL INTERRUPT ON THESE LEVELS. IF NO ERRORS ARE FOUND, ROUTINE 4 IS STARTED.

ROUTINE 4:
THIS ROUTINE FIRST TESTS TO DETERMINE IF THIS SIDE OF THE TWO CHANNEL SWITCH HAS THE COMMON I/O (IF NO ROUTINE 5 IS STARTED), THEN TEST TO DETERMINE IF THE CONSOLE SWITCH IS IN MANUAL MODE (IF NOT ROUTINE 5 IS STARTED). AFTER THE CHECK IS MADE THE TIMER IS STARTED, THEN RESET TO ENSURE THAT THE TIMER CAN BE RESET WHILE RUNNING. IF NO ERRORS ARE FOUND, ROUTINE 5 IS STARTED.

ROUTINE 5:
THIS ROUTINE FIRST TESTS TO DETERMINE IF THIS SIDE OF THE TWO CHANNEL SWITCH HAS THE COMMON I/O (IF NO ROUTINE 1 IS STARTED), THEN TEST TO DETERMINE IF RESERVES CAN BE ISSUED FROM THIS SIDE (IF NOT ROUTINE 1 IS STARTED). AFTER THE CHECK IS MADE DECIMAL 32 RESERVES WILL BE ISSUED TO THE OTHER PROCESSING UNIT. IF NO ERRORS ARE FOUND, ROUTINE 5 IS STARTED.

TERMINATING SEQUENCE:
1) PREPARE WITH 'I' BIT OFF
2) RESET
3) PROGRAM TERMINATE

07.01.00 TWO CHANNEL SWITCH HALT CODES

3EE1 CAN A RESERVE BE ISSUED FROM DA. = XX
IS DEVICE ADDRESS XX ON ONE PROCESSING UNIT PERMITTED TO ISSUE RESERVES TO THE OTHER PROCESSING UNIT THROUGH THE TWO CHANNEL SWITCH.
(R3 -> EBCDIC DEVICE ADDRESS).

08.00.00 TTY ROUTINE DESCRIPTION ---- TYPE 40

BEFORE EXECUTION OF THIS SYSTEM TEST PROGRAM, THE QUESTION(S) - IS THE ATTACHMENT CARD CONNECTED TO A TTY OR WRAPPED TO A CONNECTOR WILL BE DISPLAYED TO THE OPERATOR. IF THE ANSWER IS YES THERE IS A TTY THEN ROUTINE 5 WILL BE EXECUTED AND ROUTINE 4 WILL NOT. IF THE ANSWER IS YES THE CARD HAS A WRAP CONNECTOR THEN ROUTINE 4 WILL BE EXECUTED AND ROUTINE 5 WILL NOT. ROUTINE ONE THROUGH THREE WILL RUN AUTOMATICALLY WITH THE ATTACHMENT IN DIAGNOSTIC WRAP MODE. ROUTINE 6 WILL ONLY BE EXECUTED AFTER THE X - ON KEY IS PRESSED ON THE TTY KEYBOARD AND WILL BE TERMINATED BY PRESSING THE SAME KEY.

ROUTINE 1:
THIS ROUTINE FIRST GIVES A DIAGNOSTIC RESET AND READ ID TO THE DEVICE, THEN WILL PREPARE THE DEVICE FOR LEVEL 0 THROUGH 2. ON EACH LEVEL A DUMMY WRITE AND A READ TO BLANK THE BUFFER IS GIVEN TO ENSURE THAT ALL LEVELS WILL INTERRUPT CORRECTLY. IF NO ERRORS ARE FOUND ROUTINE 2 IS STARTED.

ROUTINE 2:
THIS ROUTINE FIRST WILL PREPARE (WITH THE 'I' BIT OFF) THE DEVICE THEN GIVE A WRITE TO ENSURE THAT THE DEVICE DOES NOT INTERRUPT. AFTER WHICH THE DEVICE IS PREPARED AND THE DELAYED INTERRUPT IS CHECKED FOR VALIDITY. WHEN THIS IS COMPLETED HEXADECIMAL '0000' AND '00FF' ARE WRITTEN AND READ TO ENSURE DATA INTEGRITY. IF NO ERRORS ARE FOUND, ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE WILL ENSURE THAT ALL ILLEGAL DCB'S WILL GIVE A COMMAND REJECT. AFTER THIS A RESET IS GIVEN TO THE ATTACHMENT CARD. IF NO ERRORS ARE FOUND, ROUTINE 4 IS STARTED.

ROUTINE 4:
THIS ROUTINE WILL VERIFY THAT THE ATTACHMENT CARD HAS A WRAP CABLE CONNECTED. IF NOT ROUTINE 5 IS STARTED. IF ONE IS ATTACHED HEXADECIMAL '00' THROUGH 'FF' ARE WRITTEN TO AND READ FROM THE CARD FOR A VALIDITY CHECK. IF NO ERRORS ARE FOUND, ROUTINE 5 IS STARTED.

ROUTINE 5:
THIS ROUTINE WILL CHECK TO DETERMINE IF A TTY IS ATTACHED. IF NOT ROUTINE 1 IS STARTED. IF IT IS ATTACHED THREE LINES OF DATA ARE WRITTEN TO THE DEVICE (THAT IS THE DEVICE IS USED AS A PRINTER.) IF NO ERRORS ARE FOUND, ROUTINE 1 IS STARTED.

ROUTINE 6:
THIS ROUTINE, STARTED BY PRESSING THE X - ON KEY WHILE ROUTINE FIVE IS PRINTING, WILL ECHO ANY CHARACTER RECEIVED FROM THE TTY UNTIL THE OPERATOR AGAIN PRESSED THE X - ON KEY. THIS WILL THEN CAUSE ROUTINE 1 TO START AGAIN.

TERMINATING SEQUENCE:
1) PREPARE WITH THE 'I' BIT OFF
2) RESET
3) PROGRAM TERMINATE

08.01.00 TTY HALT CODES

40E1 IS THERE A TTY ATTACHED TO DA = XX
DEVICE ADDRESS XX IS ATTACHED TO A TTY (Y OR N).
(R3 -> EBCDIC DEVICE ADDRESS).

40E2 IS THERE A WRAP CABLE CONNECTED TO DA = XX
DEVICE ADDRESS XX IS WRAPPED WITH A CABLE (Y OR N).
(R3 -> EBCDIC DEVICE ADDRESS).

09.00.00 DISPLAY ROUTINE DESCRIPTION (4979) ---- TYPE 44

WHEN EXECUTING THE DISPLAY SYSTEM TEST PROGRAM, FIVE (5) ROUTINES ARE STARTED AUTOMATICALLY. A SIXTH ROUTINE MAY BE STARTED BY THE OPERATOR PRESSING THE ATTENTION KEY WHILE EITHER ROUTINE 3 OR 4 (SHIFT UP OR DOWN TEST) IS ACTIVE. THE AUTO TEST CAN BE CONTINUED BY A SECOND DEPRESSION OF THE ATTENTION KEY. EACH DEPRESSION OF THE ATTENTION KEY AFTER THIS WILL EITHER GO IN OR OUT OF THE ECHO TEST.

****
*
* NOTE: AN ERROR IS INDICATED WHILE TESTING, BY AUTOMATICALLY *
* ENTERING AND TERMINATING THE ECHO TEST (NOT EXPECTED I/O *
* INTERRUPT(S) EQUAL TO THAT OF THE ATTENTION KEY) *
*
****

THE DESCRIPTION OF EACH TEST (ROUTINE) IS AS FOLLOWS:

ROUTINE 1:
THIS ROUTINE FIRST WILL PREPARE THE DEVICE TO LEVEL ZERO (0) THEN DOES A RESET AND READ ID TO THE DEVICE AFTER WHICH A DUMMY WRITE IS GIVEN TO ENSURE THE DEVICE WILL INTERRUPT ON THE PREPARED LEVEL. THIS SAME PROCEDURE IS FOLLOWED FOR LEVELS 1 AND 2. AFTER THE ABOVE IS COMPLETED A DIAGNOSTIC READ IS GIVEN FROM LEVEL ONE AND THE CHECKSUH VALUE IS INSPECTED FOR VALIDITY. IF NO ERRORS ARE FOUND, ROUTINE TWO (2) IS STARTED.

ROUTINE 2:
THIS ROUTINE WILL FIRST BLANK THE SCREEN THEN WRITE EACH CHARACTER TO EACH SCREEN LOCATION. THIS IS PERFORMED BY SENDING A WRITE COMMAND CHAINED TO A READ COMMAND. THE WRITTEN DATA IS THEN COMPARED TO THE DATA RECEIVED BY THE READ. IF NO ERRORS ARE FOUND ROUTINE THREE (3) IS STARTED.

ROUTINE 3:
THIS ROUTINE WILL FIRST BLANK THE SCREEN. THEN DATA IS WRITTEN ON THE BOTTOM LINE WITH A SHIFT UP, UNTIL IT IS AT THE TOP. THIS IS DONE BY EXECUTING A WRITE TO THE BOTTOM LINE WITH A SHIFT UP. IF NO ERRORS ARE FOUND, ROUTINE FOUR (4) IS STARTED.

ROUTINE 4:
THE TEST IS EQUAL TO THAT OF ROUTINE THREE (3) WITH THE EXCEPTION OF WRITING TO THE TOP LINE WITH A DOWNWARD SHIFT. IF NO ERRORS ARE FOUND, ROUTINE FIVE (5) IS STARTED.

ROUTINE 5:
THIS ROUTINE WILL FORCE ERRORS THAT THE ATTACHMENT CARD SHOULD REJECT. ON EACH TYPE OF ERROR THE RESPONSE IS CHECKED FOR VALIDITY IN ADDITION TO THE CYCLE STEAL RESIDUAL ADDRESS. IF NO ERRORS ARE FOUND, ROUTINE ONE (1) WILL BE STARTED.

ROUTINE 6:
THIS ROUTINE, ENTERED BY PRESSING THE ATTENTION KEY WHILE EITHER ROUTINE 3 OR 4 IS ACTIVE, WILL ECHO TEST THE DISPLAY. THAT IS TO SAY, ANY CHARACTERS ENTERED FROM THE KEYBOARD TO THE FIRST SCREEN POSITION WILL BE DISPLAYED ON ALL OTHER LINES FOLLOWING THE DEPRESSION OF THE ENTER KEY. IF ANY PROGRAM FUNCTION (PF) KEY IS PRESSED THE SCREEN WILL SHOW THE ISB RECEIVED FROM THAT INTERRUPT, ANY INTERRUPT IS EXPECTED AND THEREFORE ANY ERROR WILL BE INDICATED ON THE SCREEN.

TERMINATING SEQUENCE
1) RESET
2) START I/O - BLANK SCREEN
3) PREPARE WITH 'I' BIT OFF
4) RESET
5) PROGRAM TERMINATE

10.00.00 DISPLAY ROUTINE DESCRIPTION (4978) ---- TYPE 45

WHEN EXECUTING THE DISPLAY SYSTEM TEST PROGRAM, FIVE (5) ROUTINES ARE STARTED AUTOMATICALLY. THE DESCRIPTION OF EACH TEST (ROUTINE) IS AS FOLLOWS:

ROUTINE 1:
THIS ROUTINE WILL PREPARE THE DEVICE TO LEVEL ZERO (0) THEN DOES A RESET AND READ ID TO THE DEVICE, THEN A DUMMY WRITE IS GIVEN TO ENSURE THE DEVICE WILL INTERRUPT ON THE PREPARED LEVEL. THIS SAME PROCEDURE IS FOLLOWED FOR LEVELS 1 AND 2. IF NO ERRORS ARE FOUND, ROUTINE TWO (2) IS STARTED.

ROUTINE 2:
THIS ROUTINE WILL FIRST BLANK THE SCREEN THEN WRITE EACH CHARACTER TO EACH SCREEN LOCATION. THIS IS PERFORMED BY SENDING A WRITE COMMAND CHAINED TO A READ COMMAND. THE WRITTEN DATA IS COMPARED TO THE DATA RECEIVED BY THE READ. IF NO ERRORS ARE FOUND ROUTINE THREE (3) IS STARTED.

ROUTINE 3:
THIS ROUTINE WILL BLANK THE SCREEN. DATA IS WRITTEN ON THE BOTTOM LINE WITH A SHIFT UP, UNTIL IT IS AT THE TOP. AFTER A SHIFT THE DATA IS COMPARED WITH THE WRITTEN DATA TO CHECK VALIDITY. THIS IS DONE BY EXECUTING A WRITE TO THE BOTTOM LINE WITH A SHIFT UP, THEN A SEPARATE READ IS GIVEN FOR THE TOP LINE. THE DATA IS THEN COMPARED CHARACTER FOR CHARACTER. IF NO ERRORS ARE FOUND, ROUTINE FOUR (4) IS STARTED.

ROUTINE 4:
THE TEST IS EQUAL TO THAT OF ROUTINE THREE (3) WITH THE EXCEPTION OF WRITING TO THE TOP LINE WITH A DOWNWARD SHIFT. IF NO ERRORS ARE FOUND, ROUTINE FIVE (5) IS STARTED.

ROUTINE 5:
THIS ROUTINE WILL FORCE ERRORS THAT THE ATTACHMENT CARD SHOULD REJECT. ON EACH TYPE OF ERROR THE RESPONSE IS CHECKED FOR VALIDITY IN ADDITION TO THE CYCLE STEAL RESIDUAL ADDRESS. IF NO ERRORS ARE FOUND, ROUTINE ONE (1) WILL BE STARTED.

TERMINATING SEQUENCE

1) RESET
2) START I/O - BLANK SCREEN
3) PREPARE WITH 'I' BIT OFF
4) RESET
5) PROGRAM TERMINATE

11.00.00 DISKETTE UNIT ROUTINE DESCRIPTION (4962/4964) ---- TYPE 48

WHEN EXECUTING THE DISKETTE UNIT SYSTEM TEST PROGRAM, FIVE (5) ROUTINES ARE STARTED AUTOMATICALLY. THE DESCRIPTION OF EACH TEST (ROUTINE) IS AS FOLLOWS:

****
* *
* NOTE: WHEN AN ERROR OCCURS DEV1 AND DEV2 CONTAIN THE SECTOR ID *
* INFORMATION. *
* *
****

ROUTINE 1:
THIS ROUTINE FIRST GIVES A RESET AND READ ID TO THE DEVICE, THEN WILL PREPARE THE DEVICE FOR LEVELS 0 THROUGH 2. ON EACH LEVEL A DUMMY SEEK IS GIVEN TO ENSURE THAT THE DEVICE WILL INTERRUPT ON ALL LEVELS. AFTER THIS IS COMPLETED, THE DEVICE IS PREPARED TO LEVEL ONE AND THE DISKETTE UNIT IS RECALIBRATED. IF NO ERRORS ARE FOUND, ROUTINE 2 IS STARTED.

ROUTINE 2:
THIS ROUTINE, STARTED AFTER A RECALIBRATE (ROUTINE 1), FIRST SEEKS CYLINDER 0 THEN SEEKS 76, 1, 75, 2, 74 AND 3. ON EACH CYLINDER THE SECTOR ID WILL BE READ FOR BOTH TRACK ZERO AND ONE TO CHECK HEAD SELECT. WHEN THE ROUTINE IS COMPLETED, A RECALIBRATE IS PERFORMED. IF NO ERRORS ARE FOUND, ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE STARTED AFTER A RECALIBRATE (ROUTINE 2), FIRST SEEKS TO CYLINDER ZERO. THEN IN SEQUENCE WILL SEEK CYLINDER 76, 1, 75, 2, 74, 3, 73, 4, ----- 40, 37, 39, 38. ON EACH CYLINDER THE SECTOR ID FOR TRACK ZERO IS READ AND VERIFIED. IF NO ERRORS ARE FOUND, ROUTINE 4 IS STARTED.

****
* *
* NOTE: THE SEEK AND READ ID IS A DCB CHAINED OPERATION. *
* *
****

ROUTINE 4:
THIS ROUTINE WILL FORCE ERRORS THAT THE ATTACHMENT CARD SHOULD REJECT. ON EACH ERROR A READ CYCLE STEAL STATUS OPERATION IS PERFORMED AND THE RESIDUAL ADDRESS IS COMPARED TO THE EXPECTED VALUE. IF NO ERRORS ARE FOUND, ROUTINE 5 IS STARTED.

ROUTINE 5:
THIS ROUTINE WILL FIRST SEEK TO TRACK ELEVEN TO ENSURE THAT THE DISKETTE IS A DIAGNOSTIC DISKETTE (IF THE DISKETTE IS NOT ROUTINE 1 IS STARTED). AFTER THIS A 128 BYTE RECORD IS FIRST WRITTEN THEN READ BACK FOR COMPARISON. THIS IS DONE FOR BOTH HEAD ZERO AND ONE. IF NO ERRORS ARE FOUND, ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE

(1) RESET
(2) RECALIBRATE DEVICE
(3) PREPARE WITH 'I' BIT OFF
(4) RESET
(5) PROGRAM TERMINATE

12.00.00 DISKETTE UNIT ROUTINE DESCRIPTION (4966) ---- TYPE 4A

WHEN EXECUTING THE DISKETTE UNIT SYSTEM TEST PROGRAM, FIVE (6) ROUTINES ARE STARTED AUTOMATICALLY. THE DESCRIPTION OF EACH TEST (ROUTINE) IS AS FOLLOWS:

ROUTINE 1:
THIS ROUTINE FIRST GIVES A RESET AND READ ID TO THE DEVICE, THEN WILL PREPARE THE DEVICE FOR LEVELS 0 THROUGH 2. ON EACH LEVEL A DUMMY SEEK IS GIVEN TO ENSURE THAT THE DEVICE WILL INTERRUPT ON ALL LEVELS. IF NO ERRORS ARE FOUND, ROUTINE 2 IS STARTED.

ROUTINE 2:
THIS ROUTINE FIRST SEEKS CYLINDER 0 THEN SEEKS 76, 1, 75, 2, 74 AND 3. ON EACH CYLINDER THE SECTOR ID WILL BE READ FOR BOTH TRACK ZERO AND ONE TO CHECK HEAD SELECT. IF NO ERRORS ARE FOUND, ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE FIRST SEEKS TO CYLINDER ZERO. THEN IN SEQUENCE WILL SEEK CYLINDER 76, 1, 75, 2, 74, 3, 73, 4, ----- 40, 37, 39, 38. ON EACH CYLINDER THE SECTOR ID FOR TRACK ZERO IS READ AND VERIFIED. IF NO ERRORS ARE FOUND, ROUTINE 4 IS STARTED.

****
*
*
* NOTE: THE SEEK AND READ ID IS A DCB CHAINED OPERATION.
*
*
****

ROUTINE 4:
THIS ROUTINE WILL FORCE ERRORS THAT THE ATTACHMENT CARD SHOULD REJECT. ON EACH ERROR A READ CYCLE STEAL STATUS OPERATION IS PERFORMED AND THE RESIDUAL ADDRESS IS COMPARED TO THE EXPECTED VALUE. IF NO ERRORS ARE FOUND, ROUTINE 5 IS STARTED.

ROUTINE 5:
THIS ROUTINE WILL SEEK TO ALL DISKETTES ATTACHED TO THE DEVICE. AS PER THE QUESTIONS (I.E. 3,13,23). THIS FIRST SEEK IS DONE IN SEQUENCE STARTING FROM ONE TO N DISKETTES. THEN HALF WAY SEEKS ARE TRIED FOLLOWED BY FULL SIDE TO SIDE SEEKS. IF NO ERRORS ARE FOUND, ROUTINE 6 IS STARTED.

ROUTINE 6:
THIS ROUTINE WILL FIRST SEEK TO TRACK ELEVEN TO ENSURE THAT THE DISKETTE IS A DIAGNOSTIC DISKETTE (IF THE DISKETTE IS NOT ROUTINE 1 IS STARTED). AFTER THIS A 256 BYTE RECORD IS FIRST WRITTEN THEN READ BACK FOR COMPARISON. THIS IS DONE FOR BOTH HEAD ZERO AND ONE. IF NO ERRORS ARE FOUND, ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE

(1) RESET
(2) RECALIBRATE DEVICE
(3) PREPARE WITH 'I' BIT OFF
(4) RESET
(5) PROGRAM TERMINATE

12.01.00 4966 HALT CODES

4AE1 23 DISKETTES LOADED ON DA = XX
IS DEVICE ADDRESS XX LOADED WITH DISKETTES (I.E. 3 IN THE OPENINGS PLUS TWO LOADED CONTAINERS) -- (Y OR N).
(R3 -> EBCDIC DEVICE ADDRESS).

4AE2 13 DISKETTES LOADED ON DA = XX
IS DEVICE ADDRESS XX LOADED WITH 13 DISKETTES (I.E. 3 IN THE OPENINGS PLUS ONE LOADED CONTAINER) -- (Y OR N).
(R3 -> EBCDIC DEVICE ADDRESS).

4AE3 3 DISKETTES LOADED ON DA = XX
IS DEVICE ADDRESS XX LOADED WITH 3 DISKETTES (I.E. 3 IN THE OPENINGS) -- (Y OR N).
(R3 -> EBCDIC DEVICE ADDRESS).

4AE4 SHOULD THERE BE HARDWARE RETRIES - DA = XX
DEVICE ADDRESS XX HAS AUTOMATIC HARDWARE RETRY -- SHOULD IT BE USED (Y OR N).
(R3 -> EBCDIC DEVICE ADDRESS).

4AE5 SHOULD HARDWARE RETRIES BE AN ERROR -- DA = XX
IF HARDWARE RETRIES ARE SELECTED AS AN OPTION FOR DEVICE ADDRESS XX SHOULD RETRIES, IF THEY OCCUR, BE AN ERROR.
(R3 -> EBCDIC DEVICE ADDRESS).

13.00.00 TIMER ROUTINE DESCRIPTION --- TYPE 50

WHEN EXECUTING THE TIMER SYSTEM TEST PROGRAM, SIX (6) ROUTINES ARE STARTED AUTOMATICALLY. TO START THE TIMER TEST THE DEVICE ADDRESS TO INDICATE FOR TEST IS THE EVEN-NUMBERED ADDRESS OF THE SET. THIS IS SO FOR BOTH THE SYSTEM TEST (B *EVEN*) AND THE UTILITY U34F8 (A *EVEN*), THE DESCRIPTION OF EACH TEST (ROUTINE) IS AS FOLLOWS:

ROUTINE 1.
THIS ROUTINE FIRST GIVES A PREPARE TO LEVEL=1 THEN WILL PERFORM A DEVICE READ ID TO DEVICE ZERO AFTER WHICH A READ ID IS PERFORMED FOR DEVICE ONE, BOTH ARE COMPARED TO EXPECTED VALUES. AFTER THIS BOTH THE MODE AND VALUES OF DEVICE ZERO AND ONE ARE READ AND KEPT IN THE FOLLOWING LOCATIONS:

DCB4 = VALUE FOR ZERO
DCB5 = MODE FOR ZERO
DCB7 = VALUE FOR ONE
DCB8 = MODE FOR ONE

IF NO ERRORS ARE FOUND, ROUTINE 2 IS STARTED.

ROUTINE 2:
THIS ROUTINE WILL PREPARE THE DEVICE TO LEVEL 1 THEN RESET DEVICE ZERO AND STOP DEVICE ONE AFTER WHICH THE MODE FOR ZERO IS COMPARED TO ZERO AND THE MODE FOR ONE IS CHECKED FOR NO CHANGE. ALSO THE VALUES FOR ZERO AND ONE ARE READ TO ENSURE THAT THE RESET HAS NOT CHANGED THEIR VALUES. THE ABOVE IS REPEATED BY RESETTING DEVICE ONE AND STOPPING DEVICE ZERO. IF NO ERRORS ARE FOUND, ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE WILL PREPARE THE DEVICE TO LEVEL ONE AND SEND ILLEGAL DCB'S TO BOTH DEVICE ZERO AND ONE, TESTING COMMAND REJECT. IF NO ERRORS ARE FOUND, ROUTINE 4 IS STARTED.

ROUTINE 4:
THIS ROUTINE WILL CHECK THAT DIFFERENT VALUES CAN BE WRITTEN AND READ FROM BOTH DEVICE ZERO AND ONE. IF NO ERRORS ARE FOUND, ROUTINE 5 IS STARTED.

ROUTINE 5:
THIS ROUTINE WILL CHECK THAT DIFFERENT MODE(S) CAN BE WRITTEN AND READ FROM BOTH DEVICE ZERO AND ONE. IF NO ERRORS ARE FOUND, ROUTINE 6 IS STARTED.

ROUTINE 6:
THIS ROUTINE WILL CHECK THAT ALL MODE(S) WILL INTERRUPT ON ALL LEVELS FOR BOTH DEVICE ZERO AND ONE. THAT IS, A MODE IS SELECTED AND IS CHECKED ON EACH LEVEL THEN THE MODE IS CHANGED AND THE LEVEL TEST IS REPEATED. THIS PROCEDURE IS FOLLOWED THROUGH ALL MODE(S). IF NO ERRORS ARE FOUND, ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE

(1) PREPARE WITH 'I' BIT OFF (DEVICE ZERO AND ONE)
(2) RESET (DEVICE ZERO AND ONE)
(3) PROGRAM TERMINATE

14.00.00 TAPE UNIT ROUTINE DESCRIPTION (4969) ---- TYPE 58

WHEN EXECUTING THE TAPE UNIT SYSTEM TEST PROGRAM, SEVEN (7) ROUTINES ARE STARTED AUTOMATICALLY. THE DESCRIPTION OF EACH TEST (ROUTINE) IS AS FOLLOWS:

ROUTINE 1:
THIS ROUTINE FIRST GIVES A RESET AND READ ID TO THE DEVICE, THEN WILL PREPARE THE DEVICE FOR LEVELS 0 THROUGH 2. IF NO ERRORS ARE FOUND, ROUTINE 2 IS STARTED.

ROUTINE 2:
THIS ROUTINE, WILL WRITE 128 RECORDS . THE FIRST RECORD IS TWO (2) BYTES. THE BYTE COUNT IS INCREASED BY TWO AND THE NEXT RECORD IS WRITTEN. THIS CONTINUES FOR THE 128 RECORDS. A SPACE TAPE MARK BACKWARD COMMAND AND A SPACE TAPE MARK FORWARD COMMAND IS ISSUED. THE TAPE SHOULD BE POSITIONED BEFORE THE FIRST RECORD. IF NO ERRORS ARE FOUND, ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE WILL READ THE 128 RECORDS WRITTEN BY ROUTINE 2. EACH RECORD IS DATA COMPARED. A SPACE TAPE MARK BACKWARD COMMAND AND A SPACE TAPE MARK FORWARD COMMAND IS ISSUED. THE TAPE SHOULD BE POSITIONED BEFORE THE FIRST RECORD. IF NO ERRORS ARE FOUND, ROUTINE 4 IS STARTED.

ROUTINE 4:
THIS ROUTINE WILL SKIP MANY RECORDS, READ A RECORD, DATA COMPARE THE RECORD. THE MANY RECORD SKIPS WILL BE BOTH FORWARD AND BACKWARD. THE ROUTINE WILL END WITH THE TAPE POSITIONED BEFORE THE FIRST RECORD. IF NO ERRORS ARE FOUND, ROUTINE 5 IS STARTED.

ROUTINE 5:
THIS ROUTINE WILL ERASE TAPE FOR A COUNT OF THIRTY TWO (32), WRITE A TAPE MARK, SPACE TAPE MARK BACKWARD, SPACE TAPE MARK FORWARD. THIS WILL CAUSE THE TAPE TO PROGRESS TO THE END OF REEL. IF NO ERRORS ARE FOUND, ROUTINE 6 IS STARTED.

ROUTINE 6:
THIS ROUTINE WILL WRITE MANY BYTE RECORDS. THE FIRST RECORD IS HEXADECIMAL 1000 BYTES. THE BYTE COUNT IS INCREASED BY HEXADECIMAL 1000 BYTES UNTIL THE BYTE COUNT EQUALS THE STORAGE SIZE. IF NO ERRORS ARE FOUND, ROUTINE 7 IS STARTED.

ROUTINE 7:
THIS ROUTINE WILL CHANGE THE DCB'S FROM 800 BPI TO PE MODE IF THE DRIVE IS DOUBLE DENSITY. THEN ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE

1) RESET
2) REWIND THE TAPE TO LOAD POINT
3) PREPARE WITH 'I' BIT OFF
4) RESET
5) PROGRAM TERMINATE

15.00.00 PRINTER <MATRIX> ROUTINE DESCRIPTION (4974) ---- TYPE 64

WHEN EXECUTING THE PRINTER SYSTEM TEST PROGRAM, EIGHT (8) ROUTINES ARE STARTED AUTOMATICALLY. THE DESCRIPTION OF EACH TEST (ROUTINE) IS AS FOLLOWS:

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* NOTE: THE FORMS WIDTH USED DURING THIS ROUTINE IS THE WIDTH
* GIVEN BY THE OPERATOR.
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*
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ROUTINE 1:
THIS ROUTINE FIRST GIVES A PREPARE TO LEVEL=0 THEN WILL PERFORM A DEVICE RESET AND READ ID AFTER WHICH A DUMMY WRITE IS GIVEN TO ENSURE THAT AN INTERRUPT IS RECEIVED. THE SAME PROCEDURE IS THEN FOLLOWED FOR BOTH LEVELS 1 AND 2. THEN THE DEVICE IS PREPARED FOR LEVEL 1 AND A DIAGNOSTIC READ IS GIVEN TO OBTAIN AND VERIFY THE CHECKSUM VALUES. IF NO ERRORS ARE FOUND, ROUTINE 2 IS STARTED.

ROUTINE 2:
THIS ROUTINE WILL PREPARE THE DEVICE TO LEVEL 1. IT WILL THEN LOAD THE NEEDED PRINT TABLE TO FORCE EIGHT PRINT LINES PER INCH, THEN PRINT SIXTEEN (16) LINES OF 'HH' OVERPRINTED WITH 'II'. FROM THIS THE OPERATOR CAN DETERMINE THE ALIGNMENT INTEGRITY OF THE HEAD. IF NO ERRORS ARE FOUND, ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE WILL PRINT EACH CHARACTER, IN THE STANDARD CHARACTER SET, TO EACH PRINT LOCATION. IF NO ERRORS ARE FOUND, ROUTINE 4 IS STARTED.

ROUTINE 4:
THIS ROUTINE WILL TEST THE VARIABLE SPACE OPTION OF THE DEVICE. THE ROUTINE WILL SKIP 1 LINE TO WRITE A LINE THEN SKIP 2 LINES TO WRITE A LINE, THEN 3, 4---UP THROUGH AND INCLUDING 8 LINES. IF NO ERRORS ARE FOUND, ROUTINE 5 IS STARTED.

ROUTINE 5:
THIS ROUTINE WRITES A LINE OF DATA THEN GIVES A READ CYCLE STEAL STATUS TO CHECK THE RESIDUAL ADDRESS. IF CORRECT, A 2ND READ CYCLE STEAL STATUS IS GIVEN TO ENSURE THAT THE FIRST READ DID NOT DESTROY THE RESIDUAL ADDRESS. IF NO ERRORS ARE FOUND, ROUTINE 6 IS STARTED.

ROUTINE 6:
THIS ROUTINE ATTEMPTS TO WRITE A LINE OF DATA WITH AN ILLEGAL BYTE NUMBER. THEREFORE, AN ERROR IS EXPECTED AND THE MESSAGE SHOULD NOT BE PRINTED. IF THE DEVICE DOES NOT REJECT THE MESSAGE, AN ERROR WILL BE PRINTED AND THE MESSAGE 'BYTE NUMBER IN ERROR TEST' WILL APPEAR AT THE DEVICE. IF NO ERRORS ARE FOUND, ROUTINE 7 IS STARTED.

ROUTINE 7:
THIS ROUTINE WRITES THE 'ROM' WITH EXECUTABLE CODE, READS IT, THEN WILL COMPARE THE WRITTEN VALUE WITH THE READ VALUE. IF NO ERRORS ARE FOUND, ROUTINE 8 IS STARTED.

ROUTINE 8:
THIS ROUTINE WILL CHANGE THE PRINT LOCATION OF A FIXED, 8 CHARACTER DATA BUFFER TO TEST THE DEVICE ON CHANGED LENGTH LINES. IF NO ERRORS ARE FOUND ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE

1) RESET
2) ISSUE DIAGNOSTIC TO DELETE 8 LINE PER INCH CODE
3) PREPARE WITH 'I' BIT OFF
4) RESET
5) PROGRAM TERMINATE

15.01.00 4974 PRINTER <MATRIX> HALT CODES

64E1 FORMS WIDTH FOR THE 4974 PRINTER D.A. = XX
(ENTER PRINT POSITIONS I.E. F0132 - AND SO ON.)

THE PRINT POSITIONS SHOULD BE A DECIMAL NUMBER.
THE QUESTION SHOULD BE ANSWERED AS DESCRIBED REMEMBERING THAT MULTIPART PAPER SHOULD NEVER BE USED DURING TEST.
(R3 -> EBCDIC DEVICE ADDRESS)

16.00.00 PRINTER <CHAIN> ROUTINE DESCRIPTION (4973) ---- TYPE 68

WHEN EXECUTING THE PRINTER SYSTEM TEST PROGRAM, NINE (9) ROUTINES ARE STARTED AUTOMATICALLY. THE DESCRIPTION OF EACH TEST (ROUTINE) IS AS FOLLOWS:

ROUTINE 1:
THIS ROUTINE FIRST GIVES A PREPARE TO LEVEL=0 THEN WILL PERFORM A DEVICE RESET AND READ ID AFTER WHICH A DUMMY WRITE IS GIVEN TO ENSURE THAT AN INTERRUPT IS RECEIVED. THE SAME PROCEDURE IS THEN FOLLOWED FOR BOTH LEVELS 1 AND 2. AFTER, THE ABOVE THE DEVICE IS PREPARED FOR LEVEL 1 AND A DIAGNOSTIC READ IS GIVEN TO OBTAIN AND VERIFY THE CHECKSUM VALUES. IF NO ERRORS ARE FOUND, ROUTINE 2 IS STARTED.

ROUTINE 2:
THIS ROUTINE WILL PREPARE THE DEVICE TO LEVEL 1 THEN WILL PRINT (USING THE OPTION OF EIGHT LINES PER INCH) SIXTEEN (16) LINES OF 'HH' OVERPRINTED WITH 'II'. FROM THIS THE OPERATOR CAN DETERMINE THE ALIGNMENT INTEGRITY OF THE HEAD. IF NO ERRORS ARE FOUND, ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE WRITES A LINE OF DATA THEN GIVES A READ CYCLE STEAL STATUS TO CHECK THE RESIDUAL ADDRESS. IF CORRECT, A 2ND READ CYCLE STEAL STATUS IS GIVEN TO ENSURE THAT THE FIRST READ DID NOT DESTROY THE RESIDUAL ADDRESS. IF NO ERRORS ARE FOUND, ROUTINE 4 IS STARTED.

ROUTINE 4:
THIS ROUTINE WILL TEST THE VARIABLE SPACE OPTION OF THE DEVICE. THE ROUTINE WILL SKIP 1 LINE TO WRITE A LINE THEN SKIP 2 LINES TO WRITE A LINE, THEN 3, 4---UP THROUGH AND INCLUDING 8 LINES. IF NO ERRORS ARE FOUND, ROUTINE 5 IS STARTED.

ROUTINE 5:
THIS ROUTINE WILL PRINT EACH CHARACTER, IN THE CHARACTER SET (96 MAXIMUM), TO EACH PRINT LOCATION. IF NO ERRORS ARE FOUND, ROUTINE 6 IS STARTED.

ROUTINE 6:
THIS ROUTINE ATTEMPTS TO WRITE A LINE OF DATA WITH AN ILLEGAL BYTE NUMBER. THEREFORE, AN ERROR IS EXPECTED AND THE MESSAGE SHOULD NOT BE PRINTED. IF THE DEVICE DOES NOT REJECT THE MESSAGE, AN ERROR HAS OCCURRED. IF NO ERRORS ARE FOUND, ROUTINE 7 IS STARTED.

ROUTINE 7:
THIS ROUTINE WRITES THE 'ROM' WITH EXECUTABLE CODE, READS IT AND WILL COMPARE THE WRITTEN VALUE WITH THE READ VALUE. THIS CODE IS WRITTEN TO END ON BOTH ODD-NUMBERED AND EVEN-NUMBERED STORAGE ADDRESSES AND THEREFORE THE CODE WILL AND WILL NOT BE EXECUTED RESPECTIVELY. IF NO ERRORS ARE FOUND, ROUTINE 8 IS STARTED.

ROUTINE 8:
THIS ROUTINE GIVES A MAXIMUM STRESS PRINT PATTERN TO THE PRINT TYPEBELT, TESTING THE TYPEBELT MECHANICALLY FOR EITHER A WEAK OR A WORN AREA. IF NO ERRORS ARE FOUND ROUTINE 9 IS STARTED.

ROUTINE 9:
THIS ROUTINE WRITES A LINE OF 'A' CHARACTERS, ONE PER COMMAND, TO TEST IF EACH PRINT LOCATION WILL FIRE. IF NO ERRORS ARE FOUND, ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE

1) RESET
2) I/O START TO CHANGE TO 6 LINE PER INCH CODE
3) PREPARE WITH 'I' BIT OFF
4) RESET
5) PROGRAM TERMINATE

17.00.00 DISK ROUTINE DESCRIPTION (4962) ---- TYPE 78

WHEN EXECUTING THE DISK SYSTEM TEST PROGRAM, THE QUESTION OF WRITING ON THE DISK WILL BE DISPLAYED TO THE OPERATOR. IF THE ANSWER TO THE QUESTION IS YES, ROUTINE 3 WILL BE EXECUTED. IF NO ONLY ROUTINES 1, 2 AND 4 WILL BE EXECUTED.

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* NOTE: (1) SYSTEM TEST WILL BE TERMINATED UNTIL THE QUESTION *
* IS ANSWERED (ONE PER DISK DEVICE ADDRESS). *
* (2) WHEN AN ERROR OCCURS DEV1, DEV2 AND DEV3 CONTAIN *
* THE READ SECTOR ID INFORMATION. *
* *
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ROUTINE 1:
THIS ROUTINE FIRST GIVES A RESET AND READ ID TO THE DEVICE. THEN WILL PREPARE THE DEVICE FOR LEVEL 0 THROUGH 2. ON EACH LEVEL A DUMMY SEEK IS PERFORMED TO ENSURE THAT ALL LEVELS WILL INTERRUPT CORRECTLY. THE DEVICE ID THAT IS VALID IS TAKEN TO BE THE ID PRESENT IN THE CONFIGURATION TABLE. IF NO ERRORS ARE FOUND, ROUTINE 2 IS STARTED.

ROUTINE 2:
THIS ROUTINE RECALIBRATES THE DISK THEN SEEKS TO CYLINDER 0, 302, 1, 301, 2, 300, 3, --- 152, 151. EACH SEEK IS CHAINED TO A READ SECTOR ID AND THE SEEK IS THEN CHECKED FOR VALIDITY. HEAD SELECT FOR EACH SEEK IS:

1) FOR TWO HEAD DISK --- 0,1,0,1,0,1,0,1 ----
2) FOR THREE HEAD DISK --- 0,1,0,2,0,1,0,2,0,1,0,2 ----

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* *
* NOTE: AN ERROR IS INDICATED FOR THE FOLLOWING THREE CONDITIONS. *
* 1) A FAILING SECTOR FOUND ON THE IPL TRACK. *
* 2) A SECTOR ON CYLINDER ONE HAVING AN ALTERNATE. *
* 3) A TRACK FOUND TO HAVE NO GOOD SECTORS. *
* IF NO ERRORS ARE FOUND, ROUTINE 3 IS STARTED. *
* *
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ROUTINE 3:
THIS ROUTINE WILL VERIFY THAT THE DISK CAN BE WRITTEN. IF YES CONTINUE, IF NO ROUTINE 4 IS STARTED. IN CONTINUING THE ROUTINE WILL RECALIBRATE THEN SEEK TO TRACK 302 (CE TRACK). AFTER THE SEEK THE SECTOR ID IS READ AND TESTED, IF GOOD A 256 BYTE SECTOR IS WRITTEN, READ BACK AND COMPARED. THIS IS PERFORMED ON ALL BUT FIXED HEAD(S).

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* NOTE: AN ERROR IS INDICATED IF THERE IS NOT A GOOD SECTOR ON *
* THE CE TRACK WHEN A WRITE IS INDICATED. *
* IF NO ERRORS ARE FOUND, ROUTINE 4 IS STARTED. *
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ROUTINE 4:
THIS ROUTINE WILL FORCE ERRORS THAT THE ATTACHMENT CARD SHOULD REJECT. ON EACH ERROR A READ CYCLE STEAL STATUS OPERATION IS PERFORMED AND THE RESIDUAL ADDRESS IS COMPARED TO AN EXPECTED VALUE. IF NO ERRORS ARE FOUND, ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE

(1) PREPARE WITH THE 'I' BIT OFF
(2) RESET
(3) PROGRAM TERMINATE

17.01.00 DISK HALT CODES

78E1 CAN THE 4962 C.E. TRACK BE WRITTEN ON DA = XX
CAN A 256 BYTE SECTOR BE WRITTEN AT DEVICE ADDRESS XX CYLINDER (DECIMAL) 302.
(R3 -> EBCDIC DEVICE ADDRESS)

18.00.00 DISK ROUTINE DESCRIPTION (4963) ---- TYPE 7A

WHEN EXECUTING THE DISK SYSTEM TEST PROGRAM, THE QUESTION OF WRITING ON THE DISK WILL BE DISPLAYED TO THE OPERATOR. IF THE ANSWER TO THE QUESTION IS YES, ROUTINE 4 WILL BE EXECUTED. IF NO ONLY ROUTINES 1, 2, 3 AND 5 WILL BE EXECUTED.

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* NOTE (1) SYSTEM TEST WILL BE TERMINATED UNTIL THE QUESTION IS *
* ANSWERED (ONE PER DISK DEVICE ADDRESS). *
* (2) WHEN AN ERROR OCCURS, DEV1 AND DEV2 WILL CONTAIN THE *
* READ SECTOR ID INFORMATION. *
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*
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ROUTINE 1:
THIS ROUTINE FIRST GIVES A RESET AND READ ID TO THE DEVICE. THEN WILL PREPARE THE DEVICE FOR LEVEL 0 THROUGH 2. ON EACH LEVEL A DUMMY SEEK IS PERFORMED TO ENSURE THAT ALL LEVELS WILL INTERRUPT CORRECTLY. THEN A START CYCLE STEAL STATUS IS GIVEN TO OBTAIN THE NUMBER OF HEAD(S) AND SIZE OF THE UNIT. IF NO ERRORS ARE FOUND, ROUTINE 2 IS STARTED.

ROUTINE 2:
THIS ROUTINE RECALIBRATES THE DISK THEN SEEKS TO CYLINDER 0, 302, 1, 301, 2, 300, 3, --- , 152, 151. EACH SEEK IS CHAINED TO A READ SECTOR ID AND THE SEEK IS THEN CHECKED FOR VALIDITY. ON EACH CYLINDER THE FIRST GOOD SECTOR IS LOCATED AND A READ AND VERIFY IS ISSUED FOR THAT SECTOR. A GOOD SECTOR IS VERIFIED FOR EACH TRACK OF EACH CYLINDER. IF NO ERRORS ARE FOUND, ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE RECALIBRATES THE DISK THEN SEEKS TO CYLINDER 0, 359, 1, 358, 2, 357, 3, --- , 180, 179. EACH SEEK IS CHAINED TO A READ SECTOR ID AND THE SEEK IS THEN CHECKED FOR VALIDITY. IF NO ERRORS ARE FOUND, ROUTINE 4 IS STARTED.

ROUTINE 4:
THIS ROUTINE WILL VERIFY THAT THE DISK CAN BE WRITTEN. IF YES CONTINUE, IF NO ROUTINE 5 IS STARTED. IN CONTINUING THE ROUTINE WILL RECALIBRATE THEN SEEK TO TRACK 359 (CE TRACK). AFTER THE SEEK THE SECTOR ID IS READ AND TESTED, IF GOOD A 256 BYTE SECTOR IS WRITTEN, READ BACK AND COMPARED. THIS IS PERFORMED ON ALL BUT FIXED HEAD(S). ROUTINE 5 IS STARTED.

ROUTINE 5:
THIS ROUTINE WILL FORCE ERRORS THAT THE ATTACHMENT CARD SHOULD REJECT. ON EACH ERROR A READ CYCLE STEAL STATUS OPERATION IS PERFORMED AND THE RESIDUAL ADDRESS IS COMPARED TO AN EXPECTED VALUE. IF NO ERRORS ARE FOUND. ROUTINE 1 IS STARTED.

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* NOTE: AN ERROR IS INDICATED IF THERE IS NOT A GOOD SECTOR *
* FOUND ON THE CE TRACK WHEN A WRITE IS INDICATED. *
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TERMINATING SEQUENCE
(1) PREPARE WITH THE 'I' BIT OFF
(2) RESET
(3) PROGRAM TERMINATE

18.01.00 DISK HALT CODES

7AE1 CAN THE 4963 C.E. TRACK BE WRITTEN ON DA = XX
CAN A 256 BYTE SECTOR BE WRITTEN AT DEVICE ADDRESS XX ON THE C.E. CYLINDER.
(R3 -> EBCDIC DEVICE ADDRESS)

7AE2 DO YOU WANT 4963 HARDWARE RETRIES ON DA = XX
DEVICE ADDRESS XX HAS AUTOMATIC HARDWARE RETRY -- SHOULD IT BE USED (Y OR N).
(R3 -> EBCDIC DEVICE ADDRESS).

7AE3 IS A 4963 HARDWARE RETRY AN ERROR ON DA = XX
IF HARDWARE RETRIES ARE SELECTED AS AN OPTION FOR DEVICE ADDRESS XX SHOULD RETRIES, IF THEY OCCUR, BE AN ERROR.
(R3 -> EBCDIC DEVICE ADDRESS).

19.00.00 IDIDO ROUTINE DESCRIPTION --- TYPE A0

WHEN EXECUTING THE IDIDO SYSTEM TEST PROGRAM, THE QUESTION IS THE DEVICE WRAPPED OR NOT WILL BE DISPLAYED TO THE OPERATOR. IF THE ANSWER TO THE QUESTION IS YES THEN BOTH ROUTINES 3 AND 6 WILL BE EXECUTED. IF NOT WRAPPED BOTH OF THESE ROUTINES WILL NOT BE ACTIVE.

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* NOTE: SYSTEM TEST WILL BE TERMINATED UNTIL THE QUESTION IS *
* ANSWERED. (ONE PER IDIDO DEVICE). *
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ROUTINE 1:
THIS ROUTINE GIVES A RESET THEN READS THE ID OF ALL FOUR DEVICE ADDRESSES ASSOCIATED WITH THIS ATTACHMENT CARD. AFTER WHICH THE DEVICE IS THEN PREPARED ON LEVELS 0 THROUGH 2. ON EACH INTERRUPT LEVEL A ARM PI AND SET TEST 1 IS GIVEN TO ENSURE THAT THE DEVICE WILL INTERRUPT ON ALL LEVELS. IF NO ERRORS ARE FOUND ROUTINE 2 IS STARTED

ROUTINE 2:
THIS ROUTINE ENSURES THAT THE TWO DI'S WILL GIVE A COMMAND REJECT TO ALL ILLEGAL DCB'S. AFTER THIS THE DI'S ARE RESET AND IF NO ERRORS ARE FOUND ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE WILL FIRST DETERMINE IF THE CARD IS WRAPPED, IF NOT ROUTINE 4 IS STARTED. IF THE CARD IS WRAPPED THEN THIS ROUTINE GIVES THE SAME DCB'S AS DOES ROUTINE 2 BUT ONLY TO THE TWO DO'S ASSOCIATED WITH THE CARD. IF NO ERRORS ARE FOUND ROUTINE 4 IS STARTED

ROUTINE 4:
THIS ROUTINE WILL PREPARE THE DEVICE TO LEVEL ONE, THEN RESET BOTH DI'S. AFTER THIS BOTH DI'S ARE GIVEN A SET TEST 1 THEN THE STATUS AND DI REGISTERS ARE READ AND COMPARED TO EXPECTED DATA. IF NO ERRORS ARE FOUND ROUTINE 5 IS STARTED.

ROUTINE 5:
THIS ROUTINE FIRST WILL PREPARE (WITH THE 'I' BIT OFF) THE DEVICE AND THEN GIVES A RESET TO BOTH DI'S. THE 'ARM PI' AND 'SET TEST 0' DCB'S ARE GIVEN TO BOTH DI'S. A READ STATUS IS THEN GIVEN AND CHECKED AGAINST EXPECTED VALUES. IF NO ERRORS ARE FOUND ROUTINE 6 IS STARTED

ROUTINE 6:
THIS ROUTINE WILL FIRST DETERMINE IF THE ATTACHMENT CARD IS WRAPPED, IF NOT ROUTINE 1 IS STARTED. IF THE CARD IS WRAPPED A RESET IS GIVEN TO ALL ADDRESSES AND THE CARD IS PREPARED TO LEVEL 1. DATA IS THEN WRITTEN TO BOTH DO'S AND READ THROUGH BOTH DI'S TO BE CHECKED. THE DATA PATTERN WRITTEN IS HEXADECIMAL '1111', '2222', '3333' ---- THROUGH ----- 'FFFF'. IF NO ERRORS ARE FOUND ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE:
1) PREPARE WITH 'I' BIT OFF (ALL FOUR)
2) RESET (ALL FOUR)
3) PROGRAM TERMINATE

19.01.00 IDIDO HALT CODE

A0E1 IS THERE A WRAP CABLE CONNECTED TO DA = XX
DOES THE DEVICE ADDRESS XX HAVE A WRAP CABLE CONNECTED (Y OR N)
(R3 -> EBCDIC DEVICE ADDRESS)

20.00.00 OEMIA ROUTINE DESCRIPTION ---- TYPE A3

WHEN EXECUTING THIS SYSTEM TEST PROGRAM, FOUR (4) ROUTINES WILL BE EXECUTED AUTOMATICALLY. THE DESCRIPTION OF EACH TEST (ROUTINE) IS AS FOLLOWS:

ROUTINE 1:
THIS ROUTINE GIVES A RESET THEN READS THE ID ASSOCIATED WITH THIS ATTACHMENT CARD. AFTER WHICH THE DEVICE IS THEN PREPARED ON LEVELS 0 THROUGH 2. ON EACH INTERRUPT LEVEL A ARM PI IS PERFORMED TO ENSURE THAT THE DEVICE WILL INTERRUPT ON ALL LEVELS. IF NO ERRORS ARE FOUND ROUTINE 2 IS STARTED

ROUTINE 2:
THIS ROUTINE ENSURES THAT THE CONFIGURATION TABLE IS CORRECT. THEN WRITES ALL VALUES FROM '0000' TO 'FFFF' THROUGH THE WRITE REGISTER, THEN READ AND COMPARE THESE VALUES. IF NO ERRORS ARE FOUND, ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE FIRST DOES A DIAGNOSTIC RESET THEN A SET DIAGNOSTIC MODE 1. ALL VALUES ARE COMPARED TO WHAT IS IN THE CONFIGURATION TABLE. IF NO ERRORS ARE FOUND ROUTINE 4 IS STARTED.

ROUTINE 4:
THIS ROUTINE WILL PREPARE THE DEVICE TO LEVEL ONE THEN SET MODE 2 AND SET MODE 3 ARE TESTED TO ENSURE THERE CORRECT OPERATION. IF NO ERRORS ARE FOUND ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE:
1) CHANGE FROM DIAGNOSTIC MODE TO NORMAL MODE
2) PREPARE WITH 'I' BIT OFF
3) RESET
4) PROGRAM TERMINATE

21.00.00 SENSOR I/O ROUTINE DESCRIPTION (4982) ---- TYPE A4

WHEN EXECUTING THE SENSOR I/O SYSTEM TEST PROGRAM, FOUR (4) ROUTINES WILL BE EXECUTED AUTOMATICALLY. THE DESCRIPTION OF EACH TEST (ROUTINE) IS AS FOLLOWS:

ROUTINE 1:
THIS ROUTINE GIVES A RESET THEN READS THE ID ASSOCIATED WITH THIS ATTACHMENT CARD. AFTER WHICH THE DEVICE IS THEN PREPARED ON LEVELS 0 THROUGH 2. ON EACH INTERRUPT LEVEL A ARM PI IS PERFORMED TO ENSURE THAT THE DEVICE WILL INTERRUPT ON ALL LEVELS. IF NO ERRORS ARE FOUND ROUTINE 2 IS STARTED

ROUTINE 2:
THIS ROUTINE ENSURES THAT THE CONFIGURATION TABLE IS CORRECT. THEN WRITES ALL VALUES FROM '0000' TO 'FFFF' THROUGH THE WRITE REGISTER. THEN READ AND COMPARE THESE VALUES. IF NO ERRORS ARE FOUND, ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE FIRST DOES A DIAGNOSTIC RESET THEN A SET DIAGNOSTIC MODE 1. ALL VALUES ARE COMPARED TO WHAT IS IN THE CONFIGURATION TABLE. IF NO ERRORS ARE FOUND ROUTINE 4 IS STARTED.

ROUTINE 4:
THIS ROUTINE WILL PREPARE THE DEVICE TO LEVEL ONE THEN SET MODE 2 AND SET MODE 3 ARE TESTED TO ENSURE THERE CORRECT OPERATION. IF NO ERRORS ARE FOUND ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE:
1) CHANGE FROM DIAGNOSTIC MODE TO NORMAL MODE
2) PREPARE WITH 'I' BIT OFF
3) RESET
4) PROGRAM TERMINATE

22.00.00 PROGRAMMABLE COMMUNICATIONS SUBSYSTEM ---- TYPE E0

WHEN EXECUTING THE PROGRAMMABLE COMMUNICATIONS SUBSYSTEM TEST PROGRAM, FIVE (5) ROUTINES WILL BE EXECUTED AUTOMATICALLY. THE DESCRIPTION OF EACH TEST (ROUTINE) IS AS FOLLOWS:

ROUTINE 1:
THIS ROUTINE GIVES A RESET THEN READS THE ID ASSOCIATED WITH THIS ATTACHMENT CARD. AFTER WHICH THE DEVICE IS THEN PREPARED ON LEVELS 0, ON THIS INTERRUPT LEVEL A POWER ON RESET TEST IS EXECUTED TO ENSURE THAT THE DEVICE WILL INTERRUPT. THIS TEST IS THEN DUPLICATED ON LEVELS ONE AND TWO. IF NO ERRORS ARE FOUND A READ POWER ON RESET RESULTS IS ISSUED AND THE CHECKSUM IS CHECKED. IF NO ERRORS ARE FOUND ROUTINE 2 IS STARTED

ROUTINE 2:
THIS ROUTINE ISSUES FOUR TEST ATTACHMENT TEST IN THE FOLLOWING ORDER:
1) CHANNEL TEST
2) CONTROLLER TEST
3) SCANNER TEST
4) READ SENSE TEST
THE RESULTS ARE THEN COMPARED TO EXPECTED VALUES. IF NO ERRORS ARE FOUND ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE DOES A DIAGNOSTIC MODE WRITE SCAN TABLE COMMAND. THE VALUES WRITTEN ARE HEXADECIMAL '00' THROUGH '1F'. IF NO ERRORS ARE FOUND ROUTINE 4 IS STARTED.

ROUTINE 4:
THIS ROUTINE WILL PREPARE THE DEVICE TO LEVEL ONE THEN WRITE A MICROCODE LOAD TABLE TO THE DEVICE, READ THE TABLE BACK AND COMPARE THE WRITTEN DATA WITH THE RECEIVED DATA. IF NO ERRORS ARE FOUND ROUTINE 5 IS STARTED.

ROUTINE 5:
THIS ROUTINE WILL PREPARE THE DEVICE TO LEVEL ONE THEN WRITE A MICROCODE LOAD TABLE TO THE DEVICE. AFTER THIS THE PARAMETER IS PASSED TO THE ATTACHMENT CARD TO SET UP FOR A CHECK TEST. WHEN THIS IS COMPLETE THE 8, 7, 6 AND 5 BIT TESTS ARE DONE. AFTER EACH TEST IS COMPLETE THE RECEIVED DATA IS COMPARED TO EXPECTED VALUES. IF NO ERRORS ARE FOUND ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE:
1) PREPARE WITH 'I' BIT OFF
2) RESET
3) PROGRAM TERMINATE

23.00.00 5250 ATTACHMENT ---------- TYPE E4

NOTE - BEFORE A 5251 DISPLAY CAN BE USED AS AN ALTERNATE CONSOLE, WRITE THE DATA SET(S) 'E4D0' AND 'E4D1' (OPTIONAL) FROM DISKETTE PART NUMBER 6826590 TO THE SYSTEM TEST DISKETTE PART NUMBER 1635003. USE THE PROGRAMMER OR C E CONSOLE AND THE UTILITY PROGRAM 38F9 TO DISPLAY THE VTOC FOR THE SYSTEM TEST DISKETTE. SEE IF DATA SET(S) 'E4D0' AND 'E4D1' ARE ON THE DISKETTE.

DATA SET 'E4D0' MUST BE WRITTEN ON THE SYSTEM TEST DISKETTE.
DATA SET 'E4D1' IS OPTIONAL. IT IS NOT NECESSARY TO WRITE THIS DATA SET TO THE SYSTEM TEST DISKETTE. IF YOU HAVE DATA SET E4D1 ON DISKETTE 6826590, WRITE IT. IF YOU DO NOT HAVE DATA SET 'E4D1' ON DISKETTE 6826590, IT IS NOT NEEDED BY YOUR SYSTEM.

WHEN EXECUTING THE WORK STATION UNDER SYSTEM TEST EIGHT (8) ROUTINES ARE STARTED AUTOMATICALLY (BUT ONLY ONE STATION ADDRESS OF EACH TYPE MAY BE TESTED AT ANY ONE TIME.) THE DESCRIPTION OF EACH TEST (ROUTINE) IS AS FOLLOWS:

ROUTINE 1:
THIS ROUTINE FIRST WILL PREPARE THE DEVICE TO LEVEL ZERO (0) THEN DOES A RESET AND READ ID TO THE DEVICE AFTER WHICH A START CYCLE STEAL STATUS IS GIVEN TO ENSURE THE DEVICE WILL INTERRUPT ON THE PREPARED LEVEL. THIS SAME PROCEDURE IS FOLLOWED FOR LEVELS 1 AND 2. IF NO ERRORS ARE FOUND, ROUTINE TWO (2) IS STARTED.

ROUTINE 2:
THIS ROUTINE WILL FIRST BLANK THE SCREEN THEN WRITE EACH CHARACTER TO EACH SCREEN LOCATION. THIS IS PERFORMED BY FILLING THE SCREEN WITH EACH CHARACTER. IF NO ERRORS ARE FOUND ROUTINE THREE (3) IS STARTED.

ROUTINE 3:
THIS ROUTINE WILL PREPARE THE DEVICE TO LEVEL 1, PRINT SIXTEEN (16) LINES OF 'HH' OVERPRINTED WITH 'II'. THE OPERATOR CAN DETERMINE THE ALIGNMENT INTEGRITY OF THE HEAD. IF NO ERRORS ARE FOUND ROUTINE FOUR (4) IS STARTED.

ROUTINE 4:
THIS ROUTINE WILL FIRST BLANK THE SCREEN. THEN DATA IS WRITTEN ON THE BOTTOM LINE WITH A SHIFT UP, UNTIL IT IS AT THE TOP. THIS IS DONE BY EXECUTING A WRITE TO THE BOTTOM LINE WITH A SHIFT UP. IF NO ERRORS ARE FOUND, ROUTINE FIVE (5) IS STARTED.

ROUTINE 5:
THIS ROUTINE WILL PRINT EACH CHARACTER, IN A DEFAULT CHARACTER SET, TO EACH PRINT LOCATION. IF NO ERRORS ARE FOUND, ROUTINE SIX (6) IS STARTED.

ROUTINE 6:
THE TEST IS EQUAL TO THAT OF ROUTINE FOUR (4) WITH THE EXCEPTION OF WRITING TO THE TOP LINE WITH A DOWNWARD SHIFT. IF NO ERRORS ARE FOUND, ROUTINE SEVEN (7) IS STARTED.

ROUTINE 7:
THIS ROUTINE WILL CHANGE THE PRINT LOCATION OF A FIXED, 8 CHARACTER DATA BUFFER TO TEST THE DEVICE ON CHANGED LENGTH LINES. IF NO ERRORS ARE FOUND ROUTINE 8 IS STARTED.

ROUTINE 8:
THIS ROUTINE WILL ENSURE THAT ALL ILLEGAL DCB'S WILL GIVE A COMMAND REJECT. AFTER THIS A RESET IS GIVEN TO THE ATTACHMENT CARD. IF NO ERRORS ARE FOUND ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE
1) PREPARE WITH 'I' BIT OFF 2) RESET 3)PROGRAM TERMINATE

23.01.00 5250 ATTACHMENT HALT CODES

E4E1 ENTER STATION ADDRESS FOR DISPLAY (FF = DO NOT TEST) DA = XX

FOR DEVICE ADDRESS XX ENTER THE STATION ADDRESS OF THE DISPLAY STATION TO BE TESTED. IF NO STATION IS DESIRED ENTER FF AS THE STATION ADDRESS.
(R3 -> EBCDIC DEVICE ADDRESS)

E4E2 ENTER STATION ADDRESS FOR PRINTER (FF = DO NOT TEST) DA = XX

FOR DEVICE ADDRESS XX ENTER THE STATION ADDRESS OF THE DISPLAY STATION TO BE TESTED. IF NO STATION IS DESIRED ENTER FF AS THE STATION ADDRESS.
(R3 -> EBCDIC DEVICE ADDRESS)

E4E3 WHAT FORMS WIDTH FOR THE PRINTER D.A. = XX
(ENTER PRINT POSITIONS I.E. F0132 - AND SO ON)

THE PRINT POSITIONS SHOULD BE A DECIMAL NUMBER. THE QUESTION SHOULD BE ANSWERED AS DESCRIBED. REMEMBER THAT MULTIPART PAPER SHOULD NEVER BE USED DURING TEST.
(R3 -> EBCDIC DEVICE ADDRESS)

24.00.00 ACCA SL ROUTINE DESCRIPTION ---- TYPE E8

WHEN EXECUTING THE ACCA SL SYSTEM TEST PROGRAM, FOUR (4) ROUTINES ARE STARTED AUTOMATICALLY. A DESCRIPTION OF EACH TEST (ROUTINE) IS AS FOLLOWS:

ROUTINE 1:
THIS ROUTINE GIVES A RESET THEN READS THE DEVICE ID ON LEVELS 0 THROUGH 2, ON EACH LEVEL A DTR COMMAND IS GIVEN TO OBTAIN AN INTERRUPT. WHEN THIS HAS BEEN DONE CORRECTLY, A DIAGNOSTIC TWO COMMAND IS GIVEN AND A CHECKSUM CHECK IS PERFORMED. IF NO ERRORS ARE FOUND ROUTINE 2 IS STARTED.

ROUTINE 2:
THIS ROUTINE ENSURES THAT THE CYCLE STEAL STATUS RESIDUAL ADDRESS IS CORRECT. IF NO ERRORS ARE FOUND ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE FIRST GIVES A DIAGNOSTIC TWO COMMAND. WILL THEN TEST THE RECEIVED DATA FOR VALIDITY WITH THE LAST DCB AND THE INFORMATION PASSED THROUGH THE CONFIGURATION TABLE. THIS CHECK ONLY INCLUDES DIAGNOSTIC READ DATA WORD 4 THROUGH WORD 17. IF NO ERRORS ARE FOUND ROUTINE 4 IS STARTED.

ROUTINE 4:
THIS ROUTINE GIVES THE DCB'S NECESSARY TO OBTAIN A COMMAND REJECT AND A DCB SPECIFICATION CHECK. IF NO ERRORS ARE FOUND ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE:
1) PREPARE WITH 'I' BIT OFF
2) RESET
3) PROGRAM TERMINATE

25.00.00 ACCA ML ROUTINE DESCRIPTION ---- TYPE E9

WHEN EXECUTING THE ACCA ML SYSTEM TEST PROGRAM THE SAME FOUR (4) ROUTINES ARE EXECUTED AS WITH THE ACCA SL (SEE SECTION 23.00.00 ABOVE). THE DIFFERENCE IS THAT ROUTINE ONE WILL BE EXECUTED FOR DA ONE THEN TWO, THREE, FOUR --> EIGHT THEN ROUTINE TWO IS STARTED FOR DEVICE ADDRESS ONE, TWO --- AND SO ON. EXCEPT FOR THIS ALL TESTING IS THE SAME AS THE ACCA SL ATTACHMENT CARD.

ROUTINE 1:
THIS ROUTINE GIVES A RESET THEN READS THE DEVICE ID ON LEVELS 0, 1 AND 2. ON EACH LEVEL A DTR COMMAND IS GIVEN TO OBTAIN AN INTERRUPT. WHEN THIS HAS BEEN DONE CORRECTLY, A DIAGNOSTIC TWO COMMAND IS GIVEN AND A CHECKSUM CHECK IS PERFORMED. IF NO ERRORS ARE FOUND ROUTINE TWO (2) IS STARTED.

ROUTINE 2:
THIS ROUTINE ENSURES THAT THE CYCLE STEAL STATUS RESIDUAL ADDRESS IS CORRECT. IF NO ERRORS ARE FOUND ROUTINE THREE (3) IS STARTED.

ROUTINE 3:
THIS ROUTINE FIRST GIVES A DIAGNOSTIC TWO COMMAND, THEN TEST THE RECEIVED DATA FOR VALIDITY WITH THE LAST DCB AND THE INFORMATION PASSED THROUGH THE CONFIGURATION TABLE. THIS CHECK ONLY INCLUDES DIAGNOSTIC READ DATA WORD 12. IF NO ERRORS ARE FOUND ROUTINE FOUR (4) IS STARTED.

ROUTINE 4:
THIS ROUTINE GIVES THE DCB'S NECESSARY TO OBTAIN A COMMAND REJECT AND A DCB SPECIFICATION CHECK. IF NO ERRORS ARE FOUND ROUTINE ONE (1) IS STARTED.

TERMINATING SEQUENCE:
1) PREPARE WITH 'I' BIT OFF
2) RESET
3) PROGRAM TERMINATE

26.00.00 FPMLC ROUTINE DESCRIPTION ---- TYPE EA

WHEN EXECUTING THE FEATURE PROGRAMMABLE MULTILINE COMMUNICATIONS ATTACHMENT SYSTEM TEST PROGRAM THE SAME FOUR (4) ROUTINES ARE EXECUTED AS WITH THE ACCA SL (SEE SECTION 23.00.00 ABOVE). THE DIFFERENCE IS THAT ROUTINE ONE WILL BE EXECUTED FOR DA ONE (1), TWO (2), THREE (3) AND FOUR (4) --> EIGHT (8). THEN ROUTINE TWO IS STARTED FOR DA ONE (1), TWO (2), THREE (3) AND FOUR (4) --> EIGHT (8). EXCEPT FOR THIS ALL TESTING IS THE SAME AS THE ACCA SL ATTACHMENT CARD. (WITH THE ADDITION OF A FIFTH (5TH) ROUTINE.)

ROUTINE 1:
THIS ROUTINE GIVES A RESET THEN READS THE DEVICE ID ON LEVELS 0, 1 AND 2. ON EACH LEVEL A RESET COMMAND IS GIVEN TO OBTAIN AN INTERRUPT. WHEN THIS HAS BEEN DONE CORRECTLY, A DIAGNOSTIC ONE COMMAND IS GIVEN AND A CHECKSUM CHECK IS PERFORMED. IF NO ERRORS ARE FOUND ROUTINE TWO (2) IS STARTED.

ROUTINE 2:
THIS ROUTINE ENSURES THAT THE CYCLE STEAL STATUS RESIDUAL ADDRESS IS CORRECT. IF NO ERRORS ARE FOUND ROUTINE THREE (3) IS STARTED.

ROUTINE 3:
THIS ROUTINE FIRST GIVES A DIAGNOSTIC TWO COMMAND, THEN TEST THE RECEIVED DATA FOR VALIDITY WITH THE LAST DCB AND THE INFORMATION PASSED THROUGH THE CONFIGURATION TABLE. THIS CHECK INCLUDES ALL DIAGNOSTIC DATA. IF NO ERRORS ARE FOUND ROUTINE FOUR (4) IS STARTED.

ROUTINE 4:
THIS ROUTINE GIVES THE DCB'S NECESSARY TO OBTAIN A COMMAND REJECT AND A DCB SPECIFICATION CHECK. IF NO ERRORS ARE FOUND ROUTINE FIVE (5) IS STARTED.

ROUTINE 5:
THIS ROUTINE WILL ENSURE THAT ALL ILLEGAL DCB'S WILL GIVE A COMMAND REJECT. AFTER THIS A RESET IS GIVEN TO THE ATTACHMENT CARD. IF NO ERRORS ARE FOUND ROUTINE ONE (1) IS STARTED.

TERMINATING SEQUENCE:
1) PREPARE WITH 'I' BIT OFF
2) RESET
3) PROGRAM TERMINATE

27.00.00 BSCA SL ROUTINE DESCRIPTION ---- TYPE F0

WHEN EXECUTING THE BSCA SL SYSTEM TEST PROGRAM, FOUR (4) ROUTINES ARE STARTED AUTOMATICALLY. THE DESCRIPTION OF EACH TEST (ROUTINE) IS AS FOLLOWS.

ROUTINE 1:
THIS ROUTINE GIVES A RESET THEN READS THE DEVICE ID ON LEVELS 0, 1 AND 2. ON EACH LEVEL A DTR COMMAND IS GIVEN TO OBTAIN AN INTERRUPT. WHEN THIS HAS BEEN DONE CORRECTLY, A DIAGNOSTIC COMMAND IS GIVEN AND A CHECKSUM CHECK IS PERFORMED. IF NO ERRORS ARE FOUND ROUTINE TWO (2) IS STARTED.

ROUTINE 2:
THIS ROUTINE ENSURES THAT THE CYCLE STEAL STATUS RESIDUAL ADDRESS IS CORRECT. IF NO ERRORS ARE FOUND ROUTINE THREE (3) IS STARTED.

ROUTINE 3:
THIS ROUTINE FIRST GIVES A CYCLE STEAL STATUS COMMAND, THEN TEST THE RECEIVED DATA FOR VALIDITY WITH THE INFORMATION PASSED THROUGH THE CONFIGURATION TABLE. IF NO ERRORS ARE FOUND ROUTINE FOUR (4) IS STARTED.

ROUTINE 4:
THIS ROUTINE GIVES THE DCB'S NECESSARY TO OBTAIN A COMMAND REJECT AND A DCB SPECIFICATION CHECK. IF NO ERRORS ARE FOUND ROUTINE ONE (1) IS STARTED.

TERMINATING SEQUENCE:
1) RESET
2) PREPARE WITH 'I' BIT OFF
3) PROGRAM TERMINATE

28.00.00 BSCA ML ROUTINE DESCRIPTION ---- TYPE F1

WHEN EXECUTING THE BSCA ML SYSTEM TEST PROGRAM THE SAME FOUR (4) ROUTINES ARE EXECUTED AS WITH THE BSCA SL (SEE SECTION 26.00.00). THE DIFFERENCE IS THAT ROUTINE ONE WILL BE EXECUTED FOR DA ONE THEN TWO, THREE, FOUR --> EIGHT THEN ROUTINE TWO IS STARTED FOR DEVICE ADDRESS ONE, TWO --- AND SO ON. EXCEPT FOR THIS ALL TESTING IS THE SAME AS WITH THE BSCA SL ATTACHMENT CARD.

ROUTINE 1:
THIS ROUTINE GIVES A RESET THEN READS THE DEVICE ID ON LEVELS 0, 1 AND 2. ON EACH LEVEL A DTR COMMAND IS GIVEN TO OBTAIN AN INTERRUPT. WHEN THIS HAS BEEN DONE CORRECTLY, A DIAGNOSTIC COMMAND IS GIVEN AND A CHECKSUM CHECK IS PERFORMED. IF NO ERRORS ARE FOUND ROUTINE TWO (2) IS STARTED.

ROUTINE 2:
THIS ROUTINE ENSURES THAT THE CYCLE STEAL STATUS RESIDUAL ADDRESS IS CORRECT. IF NO ERRORS ARE FOUND ROUTINE THREE (3) IS STARTED.

ROUTINE 3:
THIS ROUTINE FIRST GIVES A CYCLE STEAL STATUS COMMAND. THEN TESTS THE RECEIVED DATA FOR VALIDITY WITH THE INFORMATION PASSED THROUGH THE CONFIGURATION TABLE. IF NO ERRORS ARE FOUND ROUTINE FOUR (4) IS STARTED.

ROUTINE 4:
THIS ROUTINE GIVES THE DCB'S NECESSARY TO OBTAIN A COMMAND REJECT AND A DCB SPECIFICATION CHECK. IF NO ERRORS ARE FOUND ROUTINE ONE (1) IS STARTED.

TERMINATING SEQUENCE:
1) PREPARE WITH 'I' BIT OFF
2) RESET
3) PROGRAM TERMINATE

29.00.00 SDLC ROUTINE DESCRIPTION ---- TYPE F8

WHEN EXECUTING THE SDLC SYSTEM TEST PROGRAM, THE QUESTION IS THE DEVICE WRAPPED WILL BE DISPLAYED TO THE OPERATOR. IF THE ANSWER TO THE QUESTION IS YES THEN BOTH ROUTINES 3 AND 4 WILL EXPECT DIFFERENT STATUS DATA. IN THIS PROGRAM FOUR (4) ROUTINES ARE STARTED AUTOMATICALLY.

****
*
* NOTE: SYSTEM TEST WILL BE TERMINATED UNTIL THE QUESTION IS ANSWERED.
* (ONE PER SDLC DEVICE).
*
****

ROUTINE 1:
THIS ROUTINE GIVES A RESET THEN READS THE DEVICE ID ON LEVELS 0 THROUGH 2, ON EACH LEVEL A DTR COMMAND IS GIVEN TO OBTAIN AN INTERRUPT. WHEN THIS HAS BEEN DONE CORRECTLY, A DIAGNOSTIC COMMAND IS GIVEN AND A CHECKSUM CHECK IS PERFORMED. IF NO ERRORS ARE FOUND ROUTINE 2 IS STARTED.

ROUTINE 2:
THIS ROUTINE ENSURES THAT THE CYCLE STEAL STATUS RESIDUAL ADDRESS IS CORRECT. THEN GIVES ANOTHER CYCLE STEAL STATUS READ TO ENSURE THAT FIRST CYCLE STEAL READ DID NOT CHANGE THE RESIDUAL ADDRESS. IF NO ERRORS ARE FOUND ROUTINE 3 IS STARTED.

ROUTINE 3:
THIS ROUTINE FIRST GIVES A DIAGNOSTIC TWO COMMAND THEN CHECKS THE STATUS WORDS TO ENSURE THAT THEY ARE CORRECT WITH THE CONFIGURATION TABLE AND THE ATTACHMENT CARD IF WRAPPED. IF NO ERRORS ARE FOUND ROUTINE 4 IS STARTED.

ROUTINE 4:
THIS ROUTINE GIVES THE DCB'S NECESSARY TO OBTAIN A COMMAND REJECT AND A DCB SPECIFICATION CHECK, THEN A DISABLE FOLLOWED BY AN ENABLE. IF NO ERRORS ARE FOUND ROUTINE 1 IS STARTED.

TERMINATING SEQUENCE:
1) PREPARE WITH 'I' BIT OFF
2) RESET
3) PROGRAM TERMINATE

29.01.00 SDLC HALT CODE

F8E1 IS THERE A WRAP CONNECTED TO DA = XX
DOES THE DEVICE ADDRESS XX HAVE A WRAP CABLE CONNECTED (Y OR N)
(R3 -> EBCDIC DEVICE ADDRESS)

FRIEND USER'S GUIDE

TABLE OF CONTENTS

01.00.00 INTRODUCTION.

FREELANCE THE I/O ERRORS - NOT A DIAGNOSTIC

THE PURPOSE OF THIS MAP IS TO DESCRIBE TO THE USER HOW TO ASSEMBLE SPECIFIC I/O TEST ROUTINES THAT WILL MAKE AN ATTEMPT TO DUPLICATE THE FAILURE INDICATED BY THE CUSTOMER PROGRAM.

THESE DEVICE(S) ARE RECOGNIZED BY THE FRIEND SUPERVISOR

DEVICE	DEVICE TYPE
TTY	40
4979--DISPLAY	44
4978--DISPLAY	45
4964--DISKETTE	48
4966--DISKETTE	4A
4969--TAPE	58
4974--PRINTER(MATRIX)	64
4973--PRINTER(CHAIN)	68
4962--DISK	78
4963--DISK	7A
4982--SENSOR I/O (AI)	A8
4982--SENSOR I/O (AO)	A9
4982--SENSOR I/O (DI/PI)	B0
4982--SENSOR I/O (DO)	B4

02.00.00 FRIEND SUPERVISOR LOADING AND RUNNING

SEE MAP 0015 SECTION 02.00.00 TO IPL THE SYSTEM TEST DISKETTE AND COME TO 'RDY ENTER' (HALT CODE 3400).

THE FOLLOWING ECP COMMAND(S) IS/ARE ACTIVE WHILE THE FRIEND SUPERVISOR IS IN STORAGE.

```
 0      A NO REPLY TO A QUESTION
 1      A YES REPLY TO A QUESTION
 6      CONTINUE RUNNING AT THE NEXT SEQUENTIAL INSTRUCTION
 7      STOP TEST
 B      START PROGRAM
 D      DUMP STORAGE
 F      RESPOND TO PROGRAM
```

IF THE ALTERNATE CONSOLE IS BEING TESTED IT MAY BE NECESSARY TO PRESS THE STOP KEY ON THE PROGRAMMER(S) CONSOLE AND STORE THE HEXADECIMAL VALUE 8000 IN STORAGE LOCATION (HEXADECIMAL) 180E. PRESS THE START KEY TO STOP THE TEST.

NOW ENTER, BY THE ALTERNATE CONSOLE, 'B3420'. THIS WILL LOAD THE FRIEND SUPERVISOR AND START A SERIES OF MESSAGES TO PREPARE THE SPECIFIC TEST.

EXAMPLE:

```
 RDY                        THE RDY ENTER IS THE RESULT OF IPL
 ENTER
 B3420
 F3420 LOADED
 ST
 IS A SPECIFIC STORAGE ADDRESS NEEDED FOR DATA?
 ENTER
```

ANY MESSAGE ENDING WITH A QUESTION MARK, FOR EXAMPLE ' IS A SPECIFIC STORAGE ADDRESS NEEDED FOR DATA?' SHOULD BE ANSWERED WITH A YES OR NO DESCRIBED IN MAP 0015 SECTION 03.00.00.

THE MESSAGE 'IS A SPECIFIC STORAGE ADDRESS NEEDED FOR DATA?' IS NECESSARY IF A CYCLE STEAL OF DATA TO OR FROM A SPECIFIC STORAGE ADDRESS IS THE SUSPECTED PROBLEM.

IF THIS IS THE CASE THEN ANSWER YES AND ANSWER THE NEXT QUESTION.

```
 WHAT IS THE ADDRESS
 ENTER
```

REMEMBER THE END OF DATA ADDRESS WILL NOT BE CHECKED THEREFORE IF THE DATA FIELD IS BEYOND THE END OF STORAGE A PROGRAM CHECK MAY OCCUR.
EXTENDED STORAGE IS NOT SUPPORTED.
THE STORAGE PROTECT KEY WILL BE ZERO.

IF A SPECIFIC STORAGE ADDRESS IS NOT NECESSARY THEN ANSWER THE QUESTION NO AND THE FRIEND SUPERVISOR WILL USE ITS OWN SELECTED DATA AREA.
EXAMPLE:

```
 0                  THIS IS A NO (0) RESPONSE.
 DEVICE ADDRESS DEVICE TYPE
 ENTER
 F0040
```

MINIMUM ERROR CHECKING IS PERFORMED ON INPUT THEREFORE THE MESSAGES MUST BE ANSWERED CORRECTLY. WHEN A WRONG ANSWER IS FOUND IT MAY START THE SEQUENCE OVER AGAIN OR END THE TEST.

EACH DEVICE TYPE WILL BE A ROUTINE LOADED BY THE FRIEND SUPERVISOR. WHEN THE ROUTINE HAS BEEN READ INTO STORAGE, CONTROL IS PASSED TO THE ROUTINE. EACH ROUTINE IS MADE FOR A SPECIFIC DEVICE TYPE THEREFORE SPECIFIC MESSAGES WILL BE DISPLAYED FOR THAT DEVICE.

THE FOLLOWING EXAMPLE IS FOR THE TTY SPECIFIED IN THE PRECEDING EXAMPLE.

EXAMPLE:

```
 SELECT COMMAND(S) FOR DA 00
 01 DEFAULT=WRITE DEFAULT PATTERN
 02 PREPARE
 03 READ ID
 04 RESET
 05 DELAY
 06 LOOP START
 07 LOOP END
 08 READ
 09 WRITE
 0A ECHO
 ENTER
```

THE USER MUST ENTER, FROM THE DISPLAYED LIST, THE CORRECT COMMAND (S) TO ASSEMBLE THE TEST. A DETAILED DESCRIPTION OF EACH GROUP OF MESSAGES WILL BE DESCRIBED IN

THE ROUTINE DESCRIPTION FOR EACH DEVICE TYPE.

EXAMPLE:

```
 F020309
```

IN THE PRECEDING EXAMPLE THE COMMAND LIST IS : PREPARE , READ ID,AND WRITE.

WHEN ALL MESSAGES HAVE BEEN CORRECTLY ANSWERED THE ROUTINE WILL RETURN CONTROL TO THE FRIEND SUPERVISOR. NOW THE MAIN OPTION MENU FOR FRIEND SUPERVISOR WILL BE DISPLAYED.

02.01.00 FRIEND SUPERVISOR MAIN OPTION MENU

AN EXAMPLE OF THE MAIN OPTION MENU IS:

```
SELECT THE CORRECT OPTION(S)
01 START TEST
02 STOP AFTER EACH PASS (PRESS START KEY TO CONTINUE)
03 ADD DEVICE TO TEST
04XX STOP DA XX
05XX RETURN DA XX TO TEST
06XXYY CHANGE DA XX TO YY (SAME DEVICE TYPE)
07XX KEEP ON DISKETTE THE TEST MADE(XX MUST BE 00-07)
08XX LOAD YOUR TEST (XX MUST BE 00-07)
09 STOP ON ERROR
0A T/OFF STOP ON ERROR
0B BYPASS ERROR PRINT
0C T/OFF BYPASS ERROR PRINT
0D PRINT PROGRAM,IDCB,DCB
0E TERMINATE PROGRAM
0F MENU PRINT CONTROL
COMMAND(S)
ENTER
```

THE FOLLOWING IS A DESCRIPTION OF EACH OPTION FROM THE FRIEND SUPERVISOR OPTION MENU:

OPTION 01=START TEST, WILL START THE TEST. WHILE THE TEST IS RUNNING THE USER MAY STOP THE TESTING BY ENTERING AN ECP COMMAND OF 7. THE TEST WILL COME TO A NORMAL END AND RETURN CONTROL TO THE FRIEND SUPERVISOR. IF THE ALTERNATE CONSOLE IS BEING TESTED IT MAY BE NECESSARY TO PRESS THE STOP KEY ON THE PROGRAMMER(S) CONSOLE AND STORE THE HEXADECIMAL VALUE 8000 IN STORAGE LOCATION (HEXADECIMAL) 180E. PRESS THE START KEY TO COME TO THE NORMAL END.

OPTION 02=STOP AFTER EACH PASS, WILL INSERT A STOP INSTRUCTION IN THE INSTRUCTIONS. THE STOP INSTRUCTION WILL BE EXECUTED AFTER ONE PASS IS MADE THROUGH THE TEST. TO CONTINUE PRESS THE START KEY ON THE PROGRAMMER'S CONSOLE. THIS WILL PERMIT THE USER TO MAKE ONE PASS AND STOP OR CHANGE THE MODE SWITCH ON THE PROGRAMMER'S CONSOLE TO NORMAL THEN THE TEST WILL LOOP. TO STOP, CHANGE THE MODE SWITCH TO DIAGNOSTIC.

OPTION 03=ADD DEVICE TEST, WILL PERMIT THE USER TO ADD ANOTHER DEVICE TO THE PRESENT TEST.

OPTION 04XX=STOP DA, WILL PERMIT THE USER TO TEMPORARILY STOP TESTING THE DEVICE ADDRESS XX..

OPTION 05XX=RETURN DA XX TO TEST, WILL PERMIT THE USER TO RETURN TO TEST THE DEVICE ADDRESS XX STOPPED BY THE 04XX COMMAND.

OPTION 06XXYY=CHANGE DA XX TO YY, WILL PERMIT THE USER TO CHANGE THE ADDRESS OF A DEVICE UNDER TEST TO ANOTHER DEVICE OF THE SAME DEVICE TYPE. AN EXAMPLE: IF THERE ARE TWO TTY'S,ONE WITH DEVICE ADDRESS OF 00 UNDER TEST AND THE USER WOULD WANT TO SEE IF THE RESULT IS THE SAME ON A TTY WITH THE DEVICE ADDRESS OF 10, THEN THE USER WOULD ENTER F06001001. THIS WILL SELECT OPTION 06 AND CHANGE DEVICE UNDER TEST FROM XX=00 TO DEVICE YY=10 AND OPTION 01 WOULD START THE TEST.

OPTION 07XX KEEP ON THE DISKETTE THE TEST MADE, WILL PERMIT THE USER TO KEEP THIS TEST JUST MADE TO BE RUN AT A LATER TIME. THIS TEST NUMBER XX MUST BE 00-07. THE TEST NUMBERING MUST START AT 00 AND INCREASE BY 01

OPTION 08XX=LOAD YOUR TEST, WILL PERMIT THE USER TO SELECT A TEST THAT WAS MADE AND KEPT USING OPTION 07. THE USER MUST KEEP TRACK OF THE TEST(S) HE HAS MADE AND KEPT.

THE FOLLOWING TABLE IS AVAILABLE TO KEEP TRACK OF YOUR TEST(S).

TEST NUMBER	DATE MADE	DEVICE ADDRESSES INCLUDED IN EACH TEST 8 MAXIMUM							
00		DEV1	DEV2	DEV3	DEV4	DEV5	DEV6	DEV7	DEV8
01		DEV1	DEV2	DEV3	DEV4	DEV5	DEV6	DEV7	DEV8
02		DEV1	DEV2	DEV3	DEV4	DEV5	DEV6	DEV7	DEV8
03		DEV1	DEV2	DEV3	DEV4	DEV5	DEV6	DEV7	DEV8
04		DEV1	DEV2	DEV3	DEV4	DEV5	DEV6	DEV7	DEV8
05		DEV1	DEV2	DEV3	DEV4	DEV5	DEV6	DEV7	DEV8
06		DEV1	DEV2	DEV3	DEV4	DEV5	DEV6	DEV7	DEV8
07		DEV1	DEV2	DEV3	DEV4	DEV5	DEV6	DEV7	DEV8

OPTION 09=STOP ON ERROR, WILL PERMIT THE USER TO STOP TESTING IMMEDIATELY, WHEN THE ERROR IS FOUND.

OPTION 0A=T/OFF STOP ON ERROR, WILL PERMIT THE USER TO TURN OFF THE STOP ON ERROR INDICATOR.

OPTION 0B=BYPASS ERROR PRINT,WILL PERMIT THE USER TO BYPASS THE PRINTING OF ERROR MESSAGES THEREFORE MAKING THE TEST LOOP (ON AN ERROR CONDITION) MUCH QUICKER.

OPTION 0C=T/OFF BYPASS ERROR PRINT,WILL PERMIT THE USER TO TURN OFF THE BYPASS ERROR PRINT INDICATOR.

OPTION 0D=PRINT PROGRAM,IDCB,DCB, THIS WILL PERMIT THE USER TO PRINT THE PROGRAM MADE FOR THE TEST, THE IDCB'S GENERATED, AND THE DCB'S GENERATED. THE PROGRAM PRINT OPTION WILL BE SIMILAR TO A PROGRAM PRINTOUT.
UNDER THE 'ADDRESS' TITLE IS THE REAL STORAGE ADDRESS.
UNDER THE 'OP' TITLE IS THE INSTRUCTION AT THAT STORAGE ADDRESS.
UNDER THE 'OP1' TITLE IS THE FROM FIELD.
UNDER THE 'OP2' TITLE IS THE TO FIELD
UNDER THE 'MACHINE CODE' TITLE IS THE MACHINE CODE FOR THAT INSTRUCTION.
THE FOLLOWING IS AN EXAMPLE:

```
 F0D        THIS IS THE COMMAND TO SELECT THE PRINT ROUTINE
 SELECT AN OPTION
 01 LIST PROGRAM
 02 LIST IDCB TABLE
 03 LIST DCB TABLE
 ENTER
 F01        THIS OPTION IS TO LIST THE PROGRAM
 ADDRESS  OP    OP1   OP2   MACHINE  CODE
 3126     IO    30A2         680C  30A2
 312A     BCC   0007  3132  6F04  3132
```

THE ABOVE WILL CONTINUE FOR ALL INSTRUCTIONS

TO LIST THE IDCB'S FOLLOW THIS EXAMPLE:

```
 F0D        THIS IS THE COMMAND TO SELECT THE PRINT ROUTINE
 SELECT AN OPTION
 01 LIST PROGRAM
 02 LIST IDCB TABLE
 03 LIST DCB TABLE
 ENTER
 F02        THIS OPTION IS TO LIST THE IDCB'S
 ADDRESS IDCB TABLE
 30A6    6001 0005
 30AA    7001 3422
 ENTER
```

TO LIST THE DCB'S FOLLOW THIS EXAMPLE:

```
 F0D        THIS IS THE COMMAND TO SELECT THE PRINT ROUTINE
 SELECT AN OPTION
 01 LIST PROGRAM
 02 LIST IDCB TABLE
 03 LIST DCB TABLE
 ENTER
 F03        THIS OPTION IS TO LIST THE DCB'S
 ADDRESS   DCB TABLE
 3422 0081 4200 0001 0000 0000 0000 0084 35A2
 3432 0007 0000 0000 0000 0000 0000 0000 0000
 ENTER
```

OPTION 0E=TERMINATE PROGRAM, WILL PERMIT THE USER TO TERMINATE THE FRIEND SUPERVISOR TESTING AND RETURN TO SYSTEM TEST SUPERVISOR.
IPL THE DISKETTE TO CONTINUE WITH SYSTEM TEST.

OPTION 0F=MENU PRINT CONTROL,WILL PERMIT THE USER TO T/OFF OR T/ON THIS MENU.

02.02.00 FRIEND SUPERVISOR HALT CODES

3407 ALTERNATE CONSOLE OFF
A TEST FOR ALTERNATE CONSOLE HAS BEEN MADE AND THE TEST HAS JUST STARTED. THE PROGRAMMER'S CONSOLE MUST BE USED FOR INPUT

3408 ALTERNATE CONSOLE ON
THE USER HAS INSERTED A SYSTEM TEST COMMAND OF 7 BY THE PROGRAMMER'S CONSOLE AND THE TESTING HAS TEMPORARILY TERMINATED. THE ALTERNATE CONSOLE IS AVAILABLE FOR USE.

3420 OPTION(S) FOR FRIEND SUPERVISOR
ENTER THE NEEDED OPTION(S) FROM THE MAIN OPTION MENU

3421 OPTION(S) FOR THE PRINT ROUTINE
ENTER A COMMAND TO PRINT THE TEST PROGRAM, THE IDCB'S, OR THE DCB'S

3422 TEST TOO LARGE
THE KEEP OPTION WAS SELECTED BUT THE TEST WAS LARGER THAN THE AREA ON THE DISKETTE

3423 DATA ADDRESS LOW
THE OPTION TO SELECT A STORAGE ADDRESS WAS USED BUT THE ADDRESS SELECTED WAS IN THE AREA USED BY THE SUPERVISOR

3424 DEVICE TO BE TESTED
ENTER THE DEVICE ADDRESS AND DEVICE TYPE FOR THE DEVICE THAT IS TO BE TESTED.

3425 NOT VALID COMMAND
THE USER HAS INSERTED A COMMAND THAT IS NOT RECOGNIZED

3426 NOT VALID DEVICE
THE USER HAS REQUESTED A DEVICE TYPE THAT IS NOT RECOGNIZED

3427 SPECIFIC STORAGE ADDRESS
FOR A CYCLE STEAL OPERATION IS A SPECIFIC STORAGE ADDRESS NEEDED?

3428 WHAT IS THE ADDRESS
ENTER THE SPECIFIC STORAGE ADDRESS

3429 DO YOU WANT TO USE YOUR TEST
DO YOU WANT TO USE A TEST KEPT ON THE DISKETTE(00-07)?

342A WHICH ONE
ENTER THE TEST NUMBER YOU WANT TO USE(00-07)

342B DATA ADDRESS MORE THAN STORAGE
THE STORAGE ADDRESS INSERTED IS MORE THAN THE STORAGE SIZE

342C WRONG TEST NUMBER
THE TEST NUMBER INSERTED FOR THE USER TEST WAS NOT VALID.

342D CAN'T ADD DEVICE
THE DEVICE TABLE IS FULL NO MORE DEVICES WILL BE ADDED

3480 LOOP ON MCK, PCK, POWER THERMAL WARNING
A MACHINE CHECK,PROGRAM CHECK OR A POWER THERMAL WARNING HAS OCCURRED, DO YOU WANT TO LOOP THE TEST TO THE POINT OF FAILURE?

3481 LOST INTERRUPT
A MESSAGE 'LOST INTERRUPT FROM DA 03' WILL BE DISPLAYED

3482 WRONG CONDITION CODE
A MESSAGE 'EXPECTED CC 3 RECEIVED CC 2' WILL BE PRINTED

3483 NOT EXPECTED INTERRUPT
A MESSAGE 'NOT EXPECTED INTERRUPT FROM DA 03' WILL BE PRINTED

3484 NOT CC 7
WHILE TESTING A CONDITION CODE OTHER THAN 7 WAS REPORTED FROM AN OIO INSTRUCTION

3485 READ ID WARNING
THE USER REQUESTED A DEVICE ADDRESS AND TYPE TO BE TESTED, WHEN THE ROUTINE FOR THAT DEVICE TYPE DID A READ ID AN ID OTHER THE ONE EXPECTED WAS RECEIVED.

3486 CYCLE STEAL INTERRUPT LOST
AN ERROR CONDITION CODE WAS RECEIVED FROM A CYCLE STEAL DEVICE. A CYCLE STEAL STATUS COMMAND WAS SENT TO THAT DEVICE BUT THE INTERRUPT WAS NOT RECEIVED

3487 STOPPED ON AN ERROR
AN ERROR CONDITION OCCURRED (SEE SECTION 03.00.00)

3490 STANDARD PATTERN
DOES THE USER WANT TO USE THE DEFAULT PATTERN INTERNAL TO THE DEVICE TYPE ROUTINE?

3491 INTERRUPT LEVEL
ENTER THE LEVEL THE DEVICE IS TO INTERRUPT ON.

3492 DELAY
ENTER THE LENGTH OF DELAY TO BE USED.

3493 DATA
ENTER THE DATA FOR THE TEST.

3494 BYTE COUNT
ENTER THE BYTE COUNT FOR THE TEST.

3495 LOOP NOT STARTED
THE USER HAS INSERTED A COMMAND TO 'LOOP END' BUT THE LOOP WAS NOT STARTED.

3496 LOOP COUNT
HOW MANY TIMES IS THE LOOP TO BE EXECUTED?

3497 I BIT
IS THE INTERRUPT BIT REQUIRED FOR THE PREPARE IDCB

3498 SEEK DIFFERENCE
HOW MANY CYLINDERS FOR THE SEEK?

3499 SEEK DIRECTION
IS THE SEEK POSITIVE?

349A FORMAT WORD
ENTER THE WORD TO BE USED TO FORMAT.

349B CYLINDER NUMBER
ENTER THE CYLINDER NUMBER.

349C SECTOR SIZE
ENTER THE SECTOR SIZE.

349D SECTOR NUMBER
ENTER THE SECTOR NUMBER.

349E HEAD NUMBER
ENTER THE HEAD TO BE USED.

349F FIXED HEAD
A MESSAGE 'IS THIS A FIXED HEAD?' WILL BE DISPLAYED

34A0 CHAINED DCB
IS THE DCB THE ROUTINE IS ASSEMBLING TO BE CHAINED TO ANOTHER DCB?

34A4 FORMS LENGTH AND OVERFLOW LINE
ENTER THE FORMS LENGTH AND THE LINE TO OVERFLOW(DCB WORD 2).

34A5 SKIP AND SPACE MODIFIER
ENTER THE SKIP AND OR SPACE MODIFIER.

34A6 FORMS CONTROL
IS FORMS CONTROL NEEDED FOR THIS TEST?

34A7 RETRY BIT(DCB CONTROL WORD BIT 15)
IS THE RETRY BIT NEEDED FOR THIS TEST?

34A8 DO YOU WANT TO USE THE DATA JUST READ
A WRITE FOLLOWING A READ WAS FOUND. DO YOU WANT TO USE THE DATA READ?

34A9 NUMBER OF DATA WORDS
ENTER THE NUMBER OF DATA WORDS THAT WILL BE ENTERED

34AA CHAINED DCB'S
WILL ANY DCB'S BE CHAINED FOR THIS DEVICE?

34AB COLUMN
WHICH COLUMN IS THE CHARACTER TO BE PRINTED (0001-0132)

34AC 8 LINES PER INCH
DO YOU WANT 8 LINES PER INCH (DEFAULT=6 LINES)

34AD ERASE AFTER BIT?
THIS BIT IS FOR THE DCB FOR A DISPLAY COMMAND

34AE END OF FIELD BIT?
THIS BIT IS FOR THE DCB FOR A DISPLAY COMMAND

34AF END OF LINE BIT?
THIS BIT IS FOR THE DCB FOR A DISPLAY COMMAND

34B0 ERASE BIT?
THIS BIT IS FOR THE DCB FOR A DISPLAY COMMAND

34B1 POST CURSOR BIT?
THIS BIT IS FOR THE DCB FOR A DISPLAY COMMAND

34B2 PRE CURSOR BIT?
THIS BIT IS FOR THE DCB FOR A DISPLAY COMMAND

34B3 SHIFT UP?
THIS BIT IS FOR THE DCB FOR A DISPLAY COMMAND

34B4 SHIFT BIT?
THIS BIT IS FOR THE DCB FOR A DISPLAY COMMAND

34B5 POST CURSOR ADDRESS
THIS ADDRESS IS FOR THE DCB FOR A DISPLAY COMMAND

34B6 PRE CURSOR ADDRESS
THIS ADDRESS IS FOR THE DCB FOR A DISPLAY COMMAND

34B7 UPPER (HI) LINE ADDRESS (0000-0023)
THE LINE NUMBER IS FOR THE DCB FOR A DISPLAY COMMAND

34B8 LOWER (LO) LINE ADDRESS(0000-0023)
THE LINE NUMBER IS FOR THE DCB FOR A DISPLAY COMMAND

34B9 PROTECT/NOT PROTECT BIT?
THIS BIT IS FOR THE DCB FOR A DISPLAY COMMAND

34BA KEYBOARD LOCK OUT BIT
THIS BIT IS FOR THE DCB FOR A DISPLAY COMMAND

34BB BLANK BIT?
THIS BIT IS FOR THE DCB FOR A DISPLAY COMMAND

34BC SHIFT COUNT
THE COUNT IS FOR THE DCB FOR A DISPLAY COMMAND

34BD HOW MANY SECTORS
THE NUMBER OF SECTORS REQUIRED FOR THE READ DCB

34BE SE BIT
IS THE SUPPRESS EXCEPTION BIT REQUIRED FOR THE DCB

34BF AS BIT
IS THE AUTOMATIC SEEK FUNCTION REQUIRED

34C0 FILL BYTE
ENTER THE FILL BYTE FOR THE DCB (00-FF)

34C1 VERIFY BYTE
ENTER THE VERIFY BYTE FOR THE DCB (00-FF)

34C2 WRITE LED'S
DO YOU WANT THE DATA TO BE WRITTEN IN THE CONSOLE LED'S?

34C3 NO DI/PI
THE DI/PI ROUTINE WAS SELECTED BUT DI/PI IS NOT AT THIS ADDRESS

34C4 VOLTAGE
WHAT IS THE VOLTAGE REQUIRED FOR THE SENSOR I/O COMMAND

34C5 WRONG RATE
SAMPLE RATE ENTERED WAS OTHER THAN 0001-0004

34C6 TIMED OUT
AN ARM DI EXTERNAL SYNC OR ARM PI COMMAND WAS SENT AND NO INTERRUPT HAS OCCURRED FOR 13 SECONDS

34C7 POSITIVE VOLTAGE
IS THE VOLTAGE POSITIVE FOR THE SENSOR I/O COMMAND?

40E8 OPTION(S) FOR THE TTY ROUTINE
ENTER THE OPTION(S) FOR THE TTY

44E8 OPTION(S) FOR THE 4979 ROUTINE
ENTER THE OPTION(S) FOR THE 4979

45E8 OPTION(S) FOR THE 4978 ROUTINE

ENTER THE OPTION(S) FOR THE 4978

48E8 OPTION(S) FOR THE 4964 ROUTINE
ENTER THE OPTION(S) FOR THE 4964

4AE8 OPTION(S) FOR THE 4966 ROUTINE
ENTER THE OPTION(S) FOR THE 4966

4AE9 CONTROL AM
IS THE CONTROL AM BIT REQUIRED FOR THE DCB

4AEA MFM BIT
IS THE MFM BIT REQUIRED IN THE DCB

4AEB CONTROL MASK
ENTER THE CONTROL MASK (00-02)

4AEC COMPARE DATA
A READ COMMAND WAS FOLLOWED BY A READ VERIFY (DATA COMPARE)
IS THE DATA FROM THE READ COMMAND TO BE USED FOR THE
COMPARE DATA FOR THE READ VERIFY

4AED DISKETTE POSITION
ENTER THE DISKETTE POSITION FOR THE DCB (DECIMAL NUMBER 0000-0023)

58E8 OPTION(S) FOR THE 4969 ROUTINE
ENTER THE OPTION(S) FOR THE 4969

58E9 REPEAT COUNT
THE REPEAT COUNT IS USED ON SPACE RECORD OR SPACE FILE MARK, FORWARD AND REVERSE, OPERATIONS AND SPECIFIES THE NUMBER OF RECORDS OR FILE MARKS TO SPACE. IT IS ALSO USED FOR REPEAT ERASE.

58EA 800 BPI NRZI
IF THE TAPE DRIVE IS AN 800 BPI (BIT PER INCH) NRZI (NON RETURN TO ZERO) THEN ANSWER THE QUESTION YES (1) IF THE TAPE DRIVE IS A PE (PHASE ENCODED) THEN ANSWER THE QUESTION NO (0).

58EB TEST READ MODE
IF TEST READ MODE IS REQUIRED THEN ANSWER THE QUESTION YES (1) IF TEST READ MODE IS NOT REQUIRED ANSWER THE QUESTION NO (0).

58EC READ THRESHOLD LOW
IF THRESHOLD LOW IS REQUIRED THEN ANSWER THE QUESTION YES (1) IF THRESHOLD LOW IS NOT REQUIRED ANSWER THE QUESTION NO (0).

58ED DATA COMPARE ERROR
A DATA COMPARE ERROR WAS FOUND USING OPTION 13 OF THE TAPE DRIVE MENU.

64E8 OPTION(S) FOR THE 4974 ROUTINE
ENTER THE OPTION(S) FOR THE 4974

68E8 OPTION(S) FOR THE 4973 ROUTINE
ENTER THE OPTION(S) FOR THE 4973

68E9 CHARACTER
WHICH CHARACTER IS TO BE PRINTED IN EACH COLUMN?

78E8 OPTION(S) FOR THE 4962 ROUTINE
ENTER THE OPTION(S) FOR THE 4962

7AE8 OPTION(S) FOR THE 4963 ROUTINE
ENTER THE OPTION(S) FOR THE 4963

7AE9 RECORD 1
ON DATA MOVES THERE ARE TWO RECORDS FOR EACH SECTOR (RECORD 1 AND RECORD 2), IS THE RECORD YOU WANT RECORD 1?

7AEA NUMBER OF RECORDS
ENTER THE NUMBER OF RECORDS TO BE READ

7AEB FLAG BYTE
ENTER THE FLAG BYTE TO BE USED IN THE DCB

A8E8 OPTION(S) FOR THE 4982 AI ROUTINE
ENTER THE OPTION(S) FOR AI

A8E9 WHICH CHANNEL
ENTER THE CHANNEL TO BE USED BY THE SENSOR I/O COMMAND

A8EA NO MULTIPLEXER
A READ ID TO THE SPECIFIED ADDRESS INDICATES THERE IS NOT A MULTIPLEXER CHANNEL AT THIS ADDRESS

A8EB NO AI
A READ ID TO THE SPECIFIED ADDRESS INDICATES THERE IS NOT AN AI FEATURE AT THIS ADDRESS

A8EC WRONG RANGE
THE WRONG VOLTAGE RANGE WAS ENTERED FOR SENSOR I/O

A8ED RANGE
ENTER THE VOLTAGE RANGE FOR SENSOR I/O COMMAND

A8EE ZERO CORRECTION
IS ZERO CORRECTION REQUIRED?

A8EF SAMPLE RATE
WHAT IS THE SAMPLE RATE FOR THE CONVERT AI COMMAND

A9E8 OPTION(S) FOR THE 4982-AO ROUTINE
ENTER THE OPTION(S) FOR AO

B0E8 OPTION(S) FOR THE 4982-DI/PI ROUTINE
ENTER THE OPTION(S) FOR DI/PI

B4E8 OPTION(S) FOR THE 4982-DO ROUTINE
ENTER THE OPTION(S) FOR DO

03.00.00 FRIEND SUPERVISOR ERROR REPORTING

WHEN THE FRIEND SUPERVISOR HAS FOUND AN ERROR, WHILE TESTING, ALL TESTING WILL STOP WHILE THE ERROR IS REPORTED TO THE USER,BY THE ALTERNATE CONSOLE. WHEN THE ERROR REPORTING HAS COMPLETED, THE TESTING WILL CONTINUE WHERE IT LEFT OFF.

NO ERROR REPORTING AND AN IMMEDIATE STOP ON ERROR CAN BE STARTED BY SELECTING THEIR OPTION(S) FROM THE FRIEND SUPERVISOR MAIN OPTION MENU (SEE SECTION 02.01.00 THIS MAP).

WHEN STOP ON ERROR IS SELECTED AND AN ERROR OCCURS THE HALT CODE '3487' IS DISPLAYED IN THE CONSOLE LED'S. PRESS THE CONSOLE STOP KEY AND DISPLAY REGISTER 1. REGISTER 1 WILL CONTAIN A CODE (1-6) THAT INDICATES THE MESSAGE. THE FOLLOWING IS A DESCRIPTION OF EACH CODE. THE DESCRIPTION WILL INDICATE THE VALIDITY OF REGISTERS 0 AND 7 WHEN THE HALT CODE IS DISPLAYED

CODE 1:
REGISTER 0=CC RECEIVED REGISTER 7=ISB
EXPECTED CC 07 RECEIVED CC 02 ON START I/O TO DA 01

THE INTERRUPT ROUTINE EXECUTED AN OIO INSTRUCTION AND EXPECTED TO RECEIVED A CONDITION CODE OF 07 BUT RECEIVED A CONDITION CODE OF 02. THE DEVICE ADDRESS WAS 01

CODE 2:
REGISTER 0=CC RECEIVED REGISTER 7=ISB
EXPECTED CC 03 RECEIVED CC 02 FROM DA 01 IDCB=7001 3A6E

THE DEVICE UNDER TEST WAS EXPECTED TO PRESENT A CONDITION CODE OF 03 BUT RESPONDED WITH A CONDITION CODE OF 02. THE DEVICE ADDRESS WAS 01. THE IDCB WAS 7001 3A6E.

CODE 3:
REGISTER 0=CC RECEIVED REGISTER 7=ISB
NOT EXPECTED INTERRUPT FROM DA 01 CC=03

THE INTERRUPT ROUTINE RECEIVED A NOT EXPECTED INTERRUPT FROM DEVICE ADDRESS 01. THE RECEIVED CONDITION CODE WAS 03.

CODE 4:
REGISTER 0=CC RECEIVED REGISTER 7=ISB
EXPECTED CC 07 RECEIVED CC 02 ON START I/O TO DA 01

THE TESTING PROGRAM EXECUTED AN OIO INSTRUCTION AND EXPECTED TO RECEIVED A CONDITION CODE OF 07 BUT RECEIVED A CONDITION CODE OF 02. THE DEVICE ADDRESS WAS 01

CODE 5:
REGISTER 7=DEVICE ADDRESS
LOST INTERRUPT FROM DA 01

AN INTERRUPTING OIO INSTRUCTION WAS SENT TO DEVICE ADDRESS 01. NO INTERRUPT WAS RECEIVED BY A ALREADY DETERMINED TIME FOR THAT DEVICE.

CODE 6:
REGISTER 7=DEVICE ADDRESS
TIMED OUT DA 65

AN ARM DI EXTERNAL SYNC OR ARM PI COMMAND WAS SENT AND NO INTERRUPT HAS OCCURRED FOR 13 SECONDS

IF A MACHINE CHECK, PROGRAM CHECK OR A POWER THERMAL WARNING OCCURS A SERIES OF MESSAGES WILL BE PRINTED BY THE ECP. THE QUESTION WILL BE:
DO YOU WANT TO LOOP?

A NO (0) REPLY WILL CAUSE FRIEND TO END
A YES (1) REPLY WILL CAUSE A BRANCH TO THE START OF THE TEST

04.00.00 FRIEND SUPERVISOR SAMPLE SESSION

IPL THE SYSTEM TEST DISKETTE PER SECTION 02.00.00 MAP 0015.

A SAMPLE SESSION FOLLOWS:

###----> NOT PART OF THE SESSION (COMMENT)

@@@----> THE NEXT LINE IS USER INPUT

```
RDY
ENTER
@@@         ###LOAD 3420,FRIEND SUPERVISOR
B3420
F3420 LOADED
ST
IS A SPECIFIC STORAGE ADDRESS NEEDED FOR DATA?
ENTER
@@@         *** NO RESPONSE
0
DEVICE ADDRESS DEVICE TYPE
ENTER
@@@         ### USE THE THE TTY
F0040
SELECT COMMAND(S) FOR DA 00
01 DEFAULT=WRITE DEFAULT PATTERN
02 PREPARE
03 READ ID
04 PREPARE
05 DELAY
06 LOOP START
07 LOOP END
08 READ
09 WRITE
0A ECHO
ENTER
@@@         ### ENTER A PREP,READ ID,WRITE
F020308
LEVEL TO INTERRUPT
ENTER
@@@         PREPARE TO LEVEL 2
F0002
IS THE 'I' BIT REQUIRED
ENTER
@@@         TURN ON THE 'I' BIT
1
SELECT THE CORRECT OPTION(S)
01 START
02 STOP AFTER EACH PASS (PRESS START KEY TO CONTINUE)
03 ADD DEVICE TO TEST
04XX STOP DA XX
05XX RETURN DA XX TO TEST
06XXYY CHANGE DA XX TO YY (SAME DEVICE TYPE)
07XX KEEP ON DISKETTE THE TEST MADE(XX MUST BE 00-07)
08XX LOAD YOUR TEST (XX MUST BE 00-07)
09 STOP ON ERROR
0A T/OFF STOP ON ERROR
0B BYPASS ERROR PRINT
0C T/OFF BYPASS ERROR PRINT
0D PRINT PROGRAM,IDCB,DCB
0E TERMINATE PROGRAM
0F MENU PRINT CONTROL
COMMAND(S)
ENTER
@@@           ###SELECT PRINT PROGRAM
F0D
SELECT AN OPTION
01 LIST PROGRAM
02 LIST IDCB TABLE
03 LIST DCB TABLE
ENTER
@@@           ###SELECT THE LIST PROGRAM OPTION
F01
ADDRESS OP    OP1 *  OP2  MACHINE  CODE
3100    NOP                5000
3102    NOP                5000
3104    IO    3080         680C   3080
3108    BCC   0007   3110   6F04   3110
310C    BAL   181C*  R7     6F13   181C
3110    MVWI  1C00   R3     4324   1C00
3114    MVWI  182F   R0     4024   182F
3118    TBT   0000   R0     4800
```

```
311A    JZ    3124         1004
311C    SVC   0002         6002
311E    JCT   3114  R3     BBFA
3120    BAL   1870* R7     6F13  1870
3124    IO    3084         680C  3084
3128    BCC   0007  3130   6F04  3130
312C    BAL   181C* R7     6F13  181C

###AN * FOLLOWING A STORAGE ADDRESS IS ADDRESSING THAT IS NOT D IRECT.

SELECT THE CORRECT OPTION(S)
01 START
02 STOP AFTER EACH PASS (PRESS START KEY TO CONTINUE)
03 ADD DEVICE TO TEST
04XX STOP DA XX
05XX RETURN DA XX TO TEST
06XXYY CHANGE DA XX TO YY (SAME DEVICE TYPE)
07XX KEEP ON DISKETTE THE TEST MADE(XX MUST BE 00-07)
08XX LOAD YOUR TEST (XX MUST BE 00-07)
09 STOP ON ERROR
0A T/OFF STOP ON ERROR
0B BYPASS ERROR PRINT
0C T/OFF BYPASS ERROR PRINT
0D PRINT PROGRAM,IDCB,DCB
0E TERMINATE PROGRAM
0F MENU PRINT CONTROL
COMMAND(S)
ENTER
@@@           ###SELECT PRINT PROGRAM
F0D
SELECT AN OPTION
01 LIST PROGRAM
02 LIST IDCB TABLE
03 LIST DCB TABLE
ENTER
@@@           ###SELECT THE IDCB TABLE
F02
ADDRESS IDCB'S
3080    6000  0005
3084    2000  0000
SELECT THE CORRECT OPTION(S)
01 START
02 STOP AFTER EACH PASS (PRESS START KEY TO CONTINUE)
03 ADD DEVICE TO TEST
04XX STOP DA XX
05XX RETURN DA XX TO TEST
06XXYY CHANGE DA XX TO YY (SAME DEVICE TYPE)
07XX KEEP ON DISKETTE THE TEST MADE(XX MUST BE 00-07)
08XX LOAD YOUR TEST (XX MUST BE 00-07)
09 STOP ON ERROR
0A T/OFF STOP ON ERROR
0B BYPASS ERROR PRINT
0C T/OFF BYPASS ERROR PRINT
0D PRINT PROGRAM,IDCB,DCB
0E TERMINATE PROGRAM
0F MENU PRINT CONTROL
COMMAND(S)
ENTER
@@@           ###ADD A DEVICE TO THE TEST
F03
DEVICE ADDRESS DEVICE TYPE
ENTER
@@@           ### USE THE 4964 THIS TIME
F0248
WILL ANY DCB'S BE CHAINED?
ENTER
@@@           ### ASSUME WE WILL NOT
0             ###NOTE:ECP COMMAND FOR NO
SELECT COMMAND(S) FOR DA 02
01 DEFAULT=RECALIBRATE, SEEK, READ SECTOR ID
02 DEFAULT=RECALIBRATE, SEEK, READ SECTOR ID, WRITE SECTOR ID
03 PREPARE
04 READ ID
05 RESET
06 DELAY
07 LOOP START
08 LOOP END
09 READ DATA
0A WRITE DATA
0B READ SECTOR ID
0C WRITE SECTOR ID
0D SEEK
0E FORMAT TRACK
0F RECALIBRATE
```



```
10 READ VERIFY
ENTER
@@@           ###PREPARE, RECALIBRATE, SEEK, READ DATA, WRITE DATA, READ VERIFY
F030F0D090A10
LEVEL TO INTERRUPT
ENTER
@@@           PREPARE TO LEVEL 2
F0002
IS THE 'I' BIT REQUIRED
ENTER
@@@           TURN ON THE 'I' BIT
1
SEEK DIFFERENCE
ENTER
@@@           ### SEEK TO CYLINDER 64
F0064
FORWARD SEEK?
ENTER
@@@           ###YES,BECAUSE WE JUST RECALIBRATED
1             ###AGAIN AN ECP COMMAND FOR YES
HEAD
ENTER
@@@           ### USE HEAD 1
F0001
SECTOR SIZE
ENTER
@@@           ### USE A SECTOR SIZE OF 256
F0256
SECTOR SIZE
ENTER
@@@           ### USE SECTOR 1
F0001
BYTE COUNT
ENTER
@@@           ### USE A BYTE COUNT OF  256
F0256
DO YOU WANT TO WRITE THE DATA JUST READ?
ENTER
@@@           ###DO YOU WANT TO WRITE THE DATA JUST READ?
1             ###NOTE AN ECP COMMAND FOR YES
SELECT THE CORRECT OPTION(S)
01 START
02 STOP AFTER EACH PASS (PRESS START KEY TO CONTINUE)
03 ADD DEVICE TO TEST
04XX STOP DA XX
05XX RETURN DA XX TO TEST
06XXYY CHANGE DA XX TO YY (SAME DEVICE TYPE)
07XX KEEP ON DISKETTE THE TEST MADE(XX MUST BE 00-07)
08XX LOAD YOUR TEST (XX MUST BE 00-07)
09 STOP ON ERROR
0A T/OFF STOP ON ERROR
0B BYPASS ERROR PRINT
0C T/OFF BYPASS ERROR PRINT
0D PRINT PROGRAM,IDCB,DCB
0E TERMINATE PROGRAM
0F MENU PRINT CONTROL
COMMAND(S)
ENTER
@@@           ###OPTION 4 STOP TESTING DEVICE ADDRESS 00
F0400
SELECT THE CORRECT OPTION(S)
01 START
02 STOP AFTER EACH PASS (PRESS START KEY TO CONTINUE)
03 ADDRESS DEVICE TO TEST
04XX STOP DA XX
05XX RETURN DA XX TO TEST
06XXYY CHANGE DA XX TO YY (SAME DEVICE TYPE)
07XX KEEP ON DISKETTE THE TEST MADE(XX MUST BE 00-07)
08XX LOAD YOUR TEST (XX MUST BE 00-07)
09 STOP ON ERROR
0A T/OFF STOP ON ERROR
0B BYPASS ERROR PRINT
0C T/OFF BYPASS ERROR PRINT
0D PRINT PROGRAM,IDCB,DCB
0E TERMINATE PROGRAM
0F MENU PRINT CONTROL
COMMAND(S)
ENTER
@@@           ###OPTION 1 TO START THE TEST
F01
@@@           ###THE USER CAUSED AN INTERRUPT
ENTER
@@@           ###ENTER THE ECP COMMAND 7 TO STOP DEVICE TESTING
7
```

```
SELECT THE CORRECT OPTION(S)
01 START
02 STOP AFTER EACH PASS (PRESS START KEY TO CONTINUE)
03 ADD DEVICE TO TEST
04XX STOP DA XX
05XX RETURN DA XX TO TEST
06XXYY CHANGE DA XX TO YY (SAME DEVICE TYPE)
07XX KEEP ON DISKETTE THE TEST MADE(XX MUST BE 00-07)
08XX LOAD YOUR TEST (XX MUST BE 00-07)
09 STOP ON ERROR
0A T/OFF STOP ON ERROR
0B BYPASS ERROR PRINT
0C T/OFF BYPASS ERROR PRINT
0D PRINT PROGRAM,IDCB,DCB
0E TERMINATE PROGRAM
0F MENU PRINT CONTROL
COMMAND(S)
ENTER
@@@             ###OPTION 6 CHANGE DEVICE ADDRESS
F062202

SELECT THE CORRECT OPTION(S)
01 START
02 STOP AFTER EACH PASS (PRESS START KEY TO CONTINUE)
03 ADD DEVICE TO TEST
04XX STOP DA XX
05XX RETURN DA XX TO TEST
06XXYY CHANGE DA XX TO YY (SAME DEVICE TYPE)
07XX KEEP ON DISKETTE THE TEST MADE(XX MUST BE 00-07)
08XX LOAD YOUR TEST (XX MUST BE 00-07)
09 STOP ON ERROR
0A T/OFF STOP ON ERROR
0B BYPASS ERROR PRINT
0C T/OFF BYPASS ERROR PRINT
0D PRINT PROGRAM,IDCB,DCB
0E TERMINATE PROGRAM
0F MENU PRINT CONTROL
COMMAND(S)
ENTER
@@@             ###OPTION E TERMINATE FRIEND SUPERVISOR
F0E
PT
ENTER
```


05.00.00 ROUTINE DESCRIPTION (TTY) DEVICE TYPE 40.

WHEN DEVICE TYPE 40 IS SELECTED THE FRIEND SUPERVISOR WILL REQUEST, THE ROUTINE FOR THIS DEVICE TYPE TO BE LOADED INTO STORAGE AT HEXADECIMAL LOCATION 1900. THE FOLLOWING MESSAGES WILL BE DISPLAYED FOR DA 00

```
SELECT COMMAND(S) FOR DA 00
01 DEFAULT=WRITE DEFAULT PATTERN
02 PREPARE
03 READ DEVICE ID
04 RESET
05 DELAY
06 LOOP START
07 LOOP END
08 READ
09 WRITE
0A ECHO
ENTER
```

THE COMMAND(S) NECESSARY FOR THIS TEST MAY BE ENTERED AT THIS TIME. WHEN THE COMMAND(S) HAVE BEEN ENTERED THIS ROUTINE WILL DO A READ ID TO THE DEVICE ADDRESS SPECIFIED. IF THE RESULT OF THE READ ID IS NOT EQUAL TO THE EXPECTED RESULT THE QUESTION WILL BE.

```
READ ID EXPECTED 0010 ID WAS 0020 IS THIS O.K?
ENTER
```

A NO (0) REPLY WILL CAUSE THE ROUTINE TO TERMINATE
A YES (1) REPLY WILL PERMIT THE FOLLOWING MESSAGES

```
LEVEL TO INTERRUPT
ENTER
```

A REPLY OF 0000,0001,0002 IS EXPECTED

IF A PREPARE COMMAND IS NOT NECESSARY FOR THE TEST THE DEVICE WILL BE PREPARED TO LEVEL 2

```
IS THE 'I' BIT REQUIRED
ENTER
```

IF THE DEVICE UNDER TEST IS TO INTERRUPT THE 'I' BIT MUST BE SET ON IN THE PREPARE IDCB

```
LENGTH OF DELAY,IN MILLISECOND(S)
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

A REPLY OF 0001 = 1 MILLISECOND

```
HOW MANY TIMES THROUGH THE LOOP
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

```
DO YOU WANT TO USE THE STANDARD DATA PATTERN?
ENTER
```

A YES (1) REPLY WILL CAUSE THE DEFAULT PATTERN TO BE MOVED TO THE DATA AREA
A NO (0) REPLY WILL CAUSE THE NEXT QUESTION

```
DATA IS
ENTER
```

NOW ENTER THE DATA TO BE WRITTEN

IF OPTION 07 IS SELECTED AND OPTION 06 WAS NOT THEN THE STATEMENT WILL BE

```
LOOP NOT STARTED,START OVER
```

IF OPTION 06 AND 07 WAS SELECTED THE MESSAGE WILL BE

```
LOOP STARTED AT 3268
LOOP ENDED AT 3288
```

WHEN THE MESSAGE(S) HAS BEEN ANSWERED CONTROL WILL BE RETURNED TO THE FRIEND SUPERVISOR

06.00.00 ROUTINE DESCRIPTION (4979) DEVICE TYPE 44.

WHEN DEVICE TYPE 44 IS SELECTED THE FRIEND SUPERVISOR WILL REQUEST, THE ROUTINE FOR THIS DEVICE TYPE,TO BE LOADED INTO STORAGE AT HEXADECIMAL LOCATION 1900. THE FOLLOWING MESSAGES WILL BE DISPLAYED FOR DA 04

```
SELECT COMMAND(S) FOR DA 04
01 DEFAULT= WRITE,SHIFT UP 1
02 DEFAULT=READ,WRITE
03 PREPARE
04 READ DEVICE ID
05 RESET
06 DELAY
07 LOOP START
08 LOOP END
09 READ
0A WRITE
ENTER
```

THE COMMAND(S) NECESSARY FOR THIS TEST MAY BE ENTERED AT THIS TIME. WHEN THE COMMAND(S) HAVE BEEN ENTERED THIS ROUTINE WILL DO A READ ID TO THE DEVICE ADDRESS SPECIFIED. IF THE RESULT OF THE READ ID IS NOT EQUAL TO THE EXPECTED RESULT THE QUESTION WILL BE.

```
READ ID EXPECTED 0406 ID WAS 0020 IS THIS O.K?
ENTER
```

A NO (0) REPLY WILL CAUSE THE ROUTINE TO TERMINATE
A YES (1) REPLY WILL PERMIT THE FOLLOWING MESSAGES

```
LEVEL TO INTERRUPT
ENTER
```

A REPLY OF 0000,0001,0002 IS EXPECTED

IF A PREPARE COMMAND IS NOT NECESSARY FOR THE TEST THE DEVICE WILL BE PREPARED TO LEVEL 2

```
IS THE 'I' BIT REQUIRED
ENTER
```

IF THE DEVICE UNDER TEST IS TO INTERRUPT THE 'I' BIT MUST BE SET ON IN THE PREPARE IDCB

```
WILL ANY DCB'S BE CHAINED?
ENTER
```

A NO (0) REPLY WILL NOT PERMIT ANY MORE MESSAGES CONCERNING A CHAINED DCB
A YES (1) REPLY WILL CAUSE THE FOLLOWING MESSAGE FOR EACH DCB

```
DO YOU WANT THE CHAIN BIT ON?
```

A REPLY OF NO (0) OR YES (1) IS EXPECTED

```
LENGTH OF DELAY,IN MILLISECOND(S)
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

A REPLY OF 0001 = 1 MILLISECOND

```
HOW MANY TIMES THROUGH THE LOOP
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

```
BYTE COUNT
ENTER
```

THIS IS THE BYTE COUNT IN DECIMAL FOR THE DCB

```
DO YOU WANT TO USE THE STANDARD DATA PATTERN?
ENTER
```

A YES (1) REPLY WILL CAUSE THE DEFAULT PATTERN TO BE MOVED TO THE DATA AREA
A NO (0) REPLY WILL CAUSE THE NEXT QUESTION

```
DATA IS
ENTER
```

NOW ENTER THE DATA TO BE WRITTEN

IF OPTION 08 IS SELECTED AND OPTION 07 WAS NOT THEN THE STATEMENT WILL BE

```
LOOP NOT STARTED,START OVER
```

IF OPTION 07 AND 08 WAS SELECTED THE MESSAGE WILL BE


```
LOOP STARTED AT 3268
LOOP ENDED AT 3288
```

WHEN THE MESSAGE(S) HAS BEEN ANSWERED CONTROL WILL BE RETURNED TO THE FRIEND SUPERVISOR

07.00.00 ROUTINE DESCRIPTION (4964) DEVICE TYPE 48.

WHEN DEVICE TYPE 48 IS SELECTED THE FRIEND SUPERVISOR WILL REQUEST, THE ROUTINE FOR THIS DEVICE TYPE,TO BE LOADED INTO STORAGE AT HEXADECIMAL LOCATION 1900. THE FOLLOWING MESSAGES WILL BE DISPLAYED FOR DA 02

```
   SELECT COMMAND(S) FOR DA 02
   01 DEFAULT=RECALIBRATE, SEEK
   02 DEFAULT=RECALIBRATE, SEEK, READ SECTOR ID
   03 PREPARE
   04 READ DEVICE ID
   05 RESET
   06 DELAY
   07 LOOP START
   08 LOOP END
   09 READ DATA
   0A WRITE DATA
   0B READ SECTOR ID
   0C SEEK
   0D FORMAT TRACK
   0E RECALIBRATE
   0F READ VERIFY
   **** CAUTION ****
   SOME COMMAND(S) WHEN USED COULD DESTROY CUSTOMER DATA INTEGRITY
   ENTER
```

THE COMMAND(S) NECESSARY FOR THIS TEST MAY BE ENTERED AT THIS TIME.

WHEN THE COMMAND(S) HAVE BEEN ENTERED THIS ROUTINE WILL DO A READ ID TO THE DEVICE ADDRESS SPECIFIED. IF THE RESULT OF THE READ ID IS NOT EQUAL TO THE EXPECTED RESULT THE QUESTION WILL BE.

```
   READ ID EXPECTED 0106 ID WAS 0020 IS THIS O.K?
   ENTER
```

A NO (0) REPLY WILL CAUSE THE ROUTINE TO TERMINATE
A YES (1) REPLY WILL PERMIT THE FOLLOWING MESSAGES

```
   LEVEL TO INTERRUPT
   ENTER
```

A REPLY OF 0000,0001,0002 IS EXPECTED

IF A PREPARE COMMAND IS NOT NECESSARY FOR THE TEST THE DEVICE WILL BE PREPARED TO LEVEL 2

```
   IS THE 'I' BIT REQUIRED
   ENTER
```

IF THE DEVICE UNDER TEST IS TO INTERRUPT THE 'I' BIT MUST BE SET ON IN THE PREPARE IDCB

```
   WILL ANY DCB'S BE CHAINED?
   ENTER
```

A NO (0) REPLY WILL NOT PERMIT ANY MORE MESSAGES CONCERNING A CHAINED DCB.
A YES (1) REPLY WILL CAUSE THE FOLLOWING MESSAGE FOR EACH DCB

```
   DO YOU WANT THE CHAIN BIT ON?
```

A REPLY OF NO (0) OR YES (1) IS EXPECTED

```
   LENGTH OF DELAY,IN MILLISECOND(S)
   ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

A REPLY OF 0001 = 1 MILLISECOND

```
   HOW MANY TIMES THROUGH THE LOOP

   ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

IF A SEEK COMMAND IS NECESSARY THIS MESSAGE IS DISPLAYED

```
   SEEK DIFFERENCE
   ENTER
ENTER THE NUMBER OF CYLINDERS TO SEEK(DECIMAL NUMBER)

   FORWARD SEEK?
   ENTER
```

A NO (0) REPLY WILL CAUSE A NEGATIVE SEEK
A YES (1) REPLY WILL CAUSE A POSITIVE SEEK


```
      CYLINDER NUMBER
      ENTER
   ENTER THE CYLINDER NUMBER(DECIMAL VALUE)

      SECTOR SIZE
      ENTER
   ENTER THE CORRECT SECTOR SIZE(0128/0256/0512)

      SECTOR NUMBER
      ENTER
   ENTER THE CORRECT SECTOR NUMBER(DECIMAL0001-0015)

      HEAD
      ENTER
   ENTER THE CORRECT HEAD NUMBER(0000 OR 0001)

      FORMAT WORD
      ENTER
   ENTER THE WORD TO USE TO FORMAT THE TRACK

      BYTE COUNT
      ENTER
```

THIS IS THE BYTE COUNT IN DECIMAL FOR THE DCB

```
   DO YOU WANT TO USE THE STANDARD DATA PATTERN?
   ENTER
```

A YES (1) REPLY WILL CAUSE THE DEFAULT PATTERN TO BE MOVED TO THE DATA AREA
A NO (0) REPLY WILL CAUSE THE NEXT QUESTION

```
   HOW MANY WORDS OF DATA
   ENTER
ENTER THE NUMBER OF WORDS OF DATA(DECIMAL NUMBER)

   DATA IS
   ENTER
```

NOW ENTER THE DATA TO BE WRITTEN

IF OPTION 08 IS SELECTED AND OPTION 07 WAS NOT THEN THE STATEMENT WILL BE

```
   LOOP NOT STARTED,START OVER
```

IF OPTION 07 AND 08 WAS SELECTED THE MESSAGE WILL BE

```
   LOOP STARTED AT 3268
   LOOP ENDED AT 3288
```

WHEN THE MESSAGE(S) HAS BEEN ANSWERED CONTROL WILL BE RETURNED TO THE FRIEND SUPERVISOR

08.00.00 ROUTINE DESCRIPTION (4974) DEVICE TYPE 64.

WHEN DEVICE TYPE 64 IS SELECTED THE FRIEND SUPERVISOR WILL REQUEST, THE ROUTINE FOR THIS DEVICE TYPE,TO BE LOADED INTO STORAGE AT HEXADECIMAL LOCATION 1900. THE FOLLOWING MESSAGES WILL BE DISPLAYED FOR DA 01

```
SELECT COMMAND(S) FOR DA 01
01 DEFAULT=PRINT A CHARACTER IN ONE COLUMN
02 PREPARE
03 READ DEVICE ID
04 RESET
05 DELAY
06 LOOP START
07 LOOP END
08 WRITE
ENTER
```

THE COMMAND(S) NECESSARY FOR THIS TEST MAY BE ENTERED AT THIS TIME.

WHEN THE COMMAND(S) HAVE BEEN ENTERED THIS ROUTINE WILL DO A READ ID TO THE DEVICE ADDRESS SPECIFIED. IF THE RESULT OF THE READ ID IS NOT EQUAL TO THE EXPECTED RESULT THE QUESTION WILL BE.

```
READ ID EXPECTED 0206 ID WAS 0020 IS THIS O.K?
ENTER
```

A NO (0) REPLY WILL CAUSE THE ROUTINE TO TERMINATE
A YES (1) REPLY WILL PERMIT THE FOLLOWING MESSAGES

```
LEVEL TO INTERRUPT
ENTER
```

A REPLY OF 0000,0001,0002 IS EXPECTED

IF A PREPARE COMMAND IS NOT NECESSARY FOR THE TEST THE DEVICE WILL BE PREPARED TO LEVEL 2

```
IS THE 'I' BIT REQUIRED
ENTER
```

IF THE DEVICE UNDER TEST IS TO INTERRUPT THE 'I' BIT MUST BE SET ON IN THE PREPARE IDCB

```
WILL ANY DCB'S BE CHAINED?
ENTER
```

A NO (0) REPLY WILL NOT PERMIT ANY MORE MESSAGES CONCERNING A CHAINED DCB.
A YES (1) REPLY WILL CAUSE THE FOLLOWING MESSAGE FOR EACH DCB

```
DO YOU WANT THE CHAIN BIT ON?
```

A REPLY OF NO (0) OR YES (1) IS EXPECTED

```
8 LINES PER INCH?
```

A REPLY OF NO (0) OR YES (1) IS EXPECTED

ENSURE THE MICRO CODE TO SUPPORT 8 LINES MUST BE LOADED BEFORE SELECTING THIS OPTION

A COMMAND OF 01 WILL CAUSE THIS MESSAGE

```
WHICH COLUMN IS THE CHARACTER TO BE PRINTED
ENTER
```

ENTER THE COLUMN NUMBER (DECIMAL NUMBER 0001-0132)

```
WHICH CHARACTER
ENTER
```

ENTER A CHARACTER TO BE PRINTED

```
IS FORMS CONTROL NEEDED?

ENTER
```

ENTER A YES (1) OR NO (0)

```
FORMS LENGTH AND OVER FLOW LINE
ENTER
```

ENTER THE FORMS LENGTH IN BYTE 0 AND THE LINE TO OVERFLOW TO IN BYTE 1

```
SKIP MODIFIER OR SPACE MODIFIER
ENTER
```

ENTER THE SKIP MODIFIER IN BYTE 0 OR THE SPACE MODIFIER IN BYTE 1
THE FOLLOWING IS A SKIP OF 0 AND A SPACE OF 2 LINES

```
F0002

IS THE RETRY BIT NEEDED?
ENTER
```


ENTER A YES (1) OR A NO (0)
IF THE RETRY BIT IS ON IN THE DCB THE ATTACHMENT WILL ATTEMPT TO COMPLETE THE LAST I/O COMMAND.

```
LENGTH OF DELAY,IN MILLISECOND(S)
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

A REPLY OF 0001 = 1 MILLISECOND

```
HOW MANY TIMES THROUGH THE LOOP
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

```
BYTE COUNT
ENTER
```

THIS IS THE BYTE COUNT IN DECIMAL FOR THE DCB

```
DO YOU WANT TO USE THE STANDARD DATA PATTERN?
ENTER
```

A YES (1) REPLY WILL CAUSE THE DEFAULT PATTERN TO BE MOVED TO THE DATA AREA
A NO (0) REPLY WILL CAUSE THE NEXT QUESTION

```
DATA IS
ENTER
```

NOW ENTER THE DATA TO BE WRITTEN

IF OPTION 07 IS SELECTED AND OPTION 06 WAS NOT THEN THE STATEMENT WILL BE

```
LOOP NOT STARTED,START OVER
```

IF OPTION 06 AND 07 WAS SELECTED THE MESSAGE WILL BE

```
LOOP STARTED AT 3268
LOOP ENDED AT 3288
```

WHEN THE MESSAGE(S) HAS BEEN ANSWERED CONTROL WILL BE RETURNED TO THE FRIEND SUPERVISOR

09.00.00 ROUTINE DESCRIPTION (4973) DEVICE TYPE 68.

WHEN DEVICE TYPE 68 IS SELECTED THE FRIEND SUPERVISOR WILL REQUEST, THE ROUTINE FOR THIS DEVICE TYPE,TO BE LOADED INTO STORAGE AT HEXADECIMAL LOCATION 1900. THE FOLLOWING MESSAGES WILL BE DISPLAYED FOR DA 05

```
   SELECT COMMAND(S) FOR DA 05
   01 DEFAULT=PRINT A CHARACTER IN ONE COLUMN
   02 DEFAULT=PRINT ONE CHARACTER IN EVERY COLUMN
   03 PREPARE
   04 READ DEVICE ID
   05 RESET
   06 DELAY
   07 LOOP START
   08 LOOP END
   09 WRITE
   ENTER
```

THE COMMAND(S) NECESSARY FOR THIS TEST MAY BE ENTERED AT THIS TIME. WHEN THE COMMAND(S) HAVE BEEN ENTERED THIS ROUTINE WILL DO A READ ID TO THE DEVICE ADDRESS SPECIFIED. IF THE RESULT OF THE READ ID IS NOT EQUAL TO THE EXPECTED RESULT THE QUESTION WILL BE.

```
   READ ID EXPECTED 0306 ID WAS 0020 IS THIS O.K?
   ENTER
```

A NO (0) REPLY WILL CAUSE THE ROUTINE TO TERMINATE
A YES (1) REPLY WILL PERMIT THE FOLLOWING MESSAGES

```
   LEVEL TO INTERRUPT
   ENTER
```

A REPLY OF 0000,0001,0002 IS EXPECTED

IF A PREPARE COMMAND IS NOT NECESSARY FOR THE TEST THE DEVICE WILL BE PREPARED TO LEVEL 2

```
   IS THE 'I' BIT REQUIRED
   ENTER
```

IF THE DEVICE UNDER TEST IS TO INTERRUPT THE 'I' BIT MUST BE SET ON IN THE PREPARE IDCB

```
   WILL ANY DCB'S BE CHAINED?
   ENTER
```

A NO (0) REPLY WILL NOT PERMIT ANY MORE MESSAGES CONCERNING A CHAINED DCB.
A YES (1) REPLY WILL CAUSE THE FOLLOWING MESSAGE FOR EACH DCB

```
   DO YOU WANT THE CHAIN BIT ON?
```

A REPLY OF NO (0) OR YES (1) IS EXPECTED

```
   8 LINES PER INCH?
```

A REPLY OF NO (0) OR YES (1) IS EXPECTED

```
A COMMAND OF 01 WILL CAUSE THIS MESSAGE
   WHICH COLUMN IS THE CHARACTER TO BE PRINTED
   ENTER
ENTER THE COLUMN NUMBER (DECIMAL NUMBER 0001-0132)

   WHICH CHARACTER
   ENTER
ENTER A CHARACTER TO BE PRINTED

   IS FORMS CONTROL NEEDED?

   ENTER
ENTER A YES (1) OR NO (0)

   FORMS LENGTH AND OVERFLOW LINE
   ENTER
ENTER THE FORMS LENGTH IN BYTE 0 AND THE LINE TO OVERFLOW TO IN BYTE 1

   SKIP MODIFIER OR SPACE MODIFIER
   ENTER
ENTER THE SKIP MODIFIER IN BYTE 0 OR THE SPACE MODIFIER IN BYTE 1
THE FOLLOWING IS A SKIP OF 0 AND A SPACE OF 2 LINES
   F0002

   IS THE RETRY BIT NEEDED?
   ENTER
ENTER A YES (1) OR A NO (0)
IF THE RETRY BIT IS ON IN THE DCB THE ATTACHMENT WILL ATTEMPT TO COMPLETE THE
LAST I/O COMMAND.
```



```
   LENGTH OF DELAY,IN MILLISECOND(S)
   ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

A REPLY OF 0001 = 1 MILLISECOND

```
   HOW MANY TIMES THROUGH THE LOOP
   ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

```
   BYTE COUNT
   ENTER
```

THIS IS THE BYTE COUNT IN DECIMAL FOR THE DCB

```
   DO YOU WANT TO USE THE STANDARD DATA PATTERN?

   ENTER
```

A YES (1) REPLY WILL CAUSE THE DEFAULT PATTERN TO BE MOVED TO THE DATA AREA
A NO (0) REPLY WILL CAUSE THE NEXT QUESTION

```
   DATA IS
   ENTER
```

NOW ENTER THE DATA TO BE WRITTEN

IF OPTION 08 IS SELECTED AND OPTION 07 WAS NOT THEN THE STATEMENT WILL BE

```
   LOOP NOT STARTED,START OVER
```

IF OPTION 07 AND 08 WAS SELECTED THE MESSAGE WILL BE

```
   LOOP STARTED AT 3268
   LOOP ENDED AT 3288
```

WHEN THE MESSAGE(S) HAS BEEN ANSWERED CONTROL WILL BE RETURNED TO THE FRIEND SUPERVISOR

10.00.00 ROUTINE DESCRIPTION (4962) DEVICE TYPE 78.

WHEN DEVICE TYPE 78 IS SELECTED THE FRIEND SUPERVISOR WILL REQUEST, THE ROUTINE FOR THIS DEVICE TYPE,TO BE LOADED INTO STORAGE AT HEXADECIMAL LOCATION 1900. THE FOLLOWING MESSAGES WILL BE DISPLAYED FOR DA 03

```
   SELECT COMMAND(S) FOR DA 03
   01 DEFAULT=RECALIBRATE, SEEK, READ SECTOR ID
   02 DEFAULT=RECALIBRATE, SEEK, READ SECTOR ID, WRITE SECTOR ID
   03 PREPARE
   04 READ DEVICE ID
   05 RESET
   06 DELAY
   07 LOOP START
   08 LOOP END
   09 READ DATA
   0A WRITE DATA
   0B READ SECTOR ID
   0C WRITE SECTOR ID
   0D READ SECTOR ID SKEW
   0E WRITE SECTOR ID SKEW
   0F SEEK
   10 RECALIBRATE
   11 READ VERIFY
   **** CAUTION ****
   SOME COMMAND(S) WHEN USED COULD DESTROY CUSTOMER DATA INTEGRITY
   ENTER
```

THE COMMAND(S) NECESSARY FOR THIS TEST MAY BE ENTERED AT THIS TIME. WHEN THE COMMAND(S) HAVE BEEN ENTERED THIS ROUTINE WILL DO A READ ID TO THE DEVICE ADDRESS SPECIFIED. IF THE RESULT OF THE READ ID IS NOT EQUAL TO THE EXPECTED RESULT THE QUESTION WILL BE.

```
   READ ID EXPECTED 00AA ID WAS 0020 IS THIS O.K?
   ENTER
```

A NO (0) REPLY WILL CAUSE THE ROUTINE TO TERMINATE
A YES (1) REPLY WILL PERMIT THE FOLLOWING MESSAGES

```
   LEVEL TO INTERRUPT
   ENTER
```

A REPLY OF 0000,0001,0002 IS EXPECTED

IF A PREPARE COMMAND IS NOT NECESSARY FOR THE TEST THE DEVICE WILL BE PREPARED TO LEVEL 2

```
   IS THE 'I' BIT REQUIRED
   ENTER
```

IF THE DEVICE UNDER TEST IS TO INTERRUPT THE 'I' BIT MUST BE SET ON IN THE PREPARE IDCB

```
   WILL ANY DCB'S BE CHAINED?
   ENTER
```

A NO (0) REPLY WILL NOT PERMIT ANY MORE MESSAGES CONCERNING A CHAINED DCB.
A YES (1) REPLY WILL CAUSE THE FOLLOWING MESSAGE FOR EACH DCB

```
   DO YOU WANT THE CHAIN BIT ON?
```

A REPLY OF NO (0) OR YES (1) IS EXPECTED

IF A SEEK COMMAND IS NECESSARY THIS MESSAGE IS DISPLAYED

```
   SEEK DIFFERENCE
   ENTER
```

ENTER THE NUMBER OF CYLINDERS TO SEEK(DECIMAL NUMBER)

```
   FORWARD SEEK?
   ENTER
```

A NO (0) REPLY WILL CAUSE A NEGATIVE SEEK
A YES (1) REPLY WILL CAUSE A POSITIVE SEEK

```
   CYLINDER NUMBER
   ENTER
```

ENTER THE CYLINDER NUMBER(DECIMAL VALUE)

```
   SECTOR NUMBER
   ENTER
```

ENTER THE CORRECT SECTOR NUMBER(DECIMAL 0000-0059)

```
   IS THIS A FIXED HEAD?
   ENTER
```

A REPLY OF NO (0) OR YES (1)
IF IT IS A FIXED HEAD THEN THE HEAD VALUE IS 0000-0007


```
   HEAD
   ENTER
```

ENTER THE CORRECT HEAD NUMBER(0000 OR 0001)

```
   LENGTH OF DELAY,IN MILLISECOND(S)
   ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

A REPLY OF 0001 = 1 MILLISECOND

```
   HOW MANY TIMES THROUGH THE LOOP
   ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

```
   BYTE COUNT
   ENTER
```

THIS IS THE BYTE COUNT IN DECIMAL FOR THE DCB

```
   DO YOU WANT TO USE THE STANDARD DATA PATTERN?
   ENTER
```

A YES (1) REPLY WILL CAUSE THE DEFAULT PATTERN TO BE MOVED TO THE DATA AREA
A NO (0) REPLY WILL CAUSE THE NEXT QUESTION

```
   DATA IS
   ENTER
```

NOW ENTER THE DATA TO BE WRITTEN

IF OPTION 08 IS SELECTED AND OPTION 07 WAS NOT THEN THE STATEMENT WILL BE

```
   LOOP NOT STARTED,START OVER
```

IF OPTION 07 AND 08 WAS SELECTED THE MESSAGE WILL BE

```
   LOOP STARTED AT 3268
   LOOP ENDED AT 3288
```

WHEN THE MESSAGE(S) HAS BEEN ANSWERED CONTROL WILL BE RETURNED TO THE FRIEND SUPERVISOR

11.00.00 ROUTINE DESCRIPTION (4982 AI) DEVICE TYPE A8.

WHEN DEVICE TYPE A8 IS SELECTED THE FRIEND SUPERVISOR WILL REQUEST, THE ROUTINE FOR THIS DEVICE TYPE,TO BE LOADED INTO STORAGE AT HEXADECIMAL LOCATION 1900. THE FOLLOWING MESSAGES WILL BE DISPLAYED FOR DA 61

```
SELECT COMMAND(S) FOR DA 61
01 PREPARE
02 READ DEVICE ID
03 RESET
04 DELAY
05 LOOP START
06 LOOP END
07 CONVERT AI
08 READ ANALOG DIGITAL CONVERTER
09 CONVERT DIAGNOSTIC ZERO
0A CONVERT DIAGNOSTIC VOLTAGE
ENTER
```

THE COMMAND(S) NECESSARY FOR THIS TEST MAY BE ENTERED AT THIS TIME. WHEN THE COMMAND(S) HAVE BEEN ENTERED THIS ROUTINE WILL DO A READ ID TO THE DEVICE ADDRESS SPECIFIED. IF THE RESULT OF THE READ ID IS NOT EQUAL TO THE EXPECTED RESULT ONE OR BOTH OF THE FOLLOWING QUESTION(S) WILL BE DISPLAYED.

```
NO AI FEATURE AT THE BASE ADDRESS IS THIS O.K?
ENTER

NO MULTIPLEXER AT THIS ADDRESS IS THIS O.K?
ENTER
```

A NO (0) REPLY TO EITHER QUESTION WILL TERMINATE THE ROUTINE
A YES (1) REPLY WILL PERMIT THE FOLLOWING MESSAGES

```
LEVEL TO INTERRUPT
ENTER
```

A REPLY OF 0000,0001,0002 IS EXPECTED

IF A PREPARE COMMAND IS NOT NECESSARY FOR THE TEST THE DEVICE WILL BE PREPARED TO LEVEL 2

```
IS THE 'I' BIT REQUIRED
ENTER
```

IF THE DEVICE UNDER TEST IS TO INTERRUPT THE 'I' BIT MUST BE SET ON IN THE PREPARE IDCB

```
LENGTH OF DELAY,IN MILLISECOND(S)
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

A REPLY OF 0001 = 1 MILLISECOND

```
HOW MANY TIMES THROUGH THE LOOP
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

IF OPTION 06 IS SELECTED AND OPTION 05 WAS NOT THEN THE STATEMENT WILL BE

```
LOOP NOT STARTED,START OVER
```

IF OPTION 05 AND 06 WAS SELECTED THE MESSAGE WILL BE

```
LOOP STARTED AT 3268
LOOP ENDED AT 3288

WHICH CHANNEL
ENTER
```

A REPLY OF 0000-0007 IS EXPECTED FOR THE REED RELAY MULTIPLEXER
A REPLY OF 0000-0015 IS EXPECTED FOR THE SOLID TYPE MULTIPLEXER

```
WHAT IS THE SAMPLE RATE
ENTER
```

A REPLY OF 0001-0004 IS EXPECTED. THE SAMPLE RATE IS THE NUMBER OF TIMES PER SECOND THE CONVERT AI IS EXECUTED. THIS SAMPLE RATE IS VALID FOR THE REED RELAY MULTIPLEXER ONLY

```
IS ZERO CORRECTION REQUIRED?
ENTER
```

A REPLY OF YES (1) OR NO (0) IS EXPECTED. THIS IS VALID FOR THE SOLID TYPE

MULTIPLEXER

```
WHAT IS THE RANGE
ENTER
```

A REPLY OF 0001-0007 IS EXPECTED

RANGE	GAIN	INPUT LEVEL
0001	1	5V (SOLID TYPE) +5V TO -500MV (REED RELAY)
0002	10	500MV
0003	25	200MV
0004	50	100MV
0005	100	50MV
0006	250	20MV
0007	500	10MV

IF OPTION 08 IS SELECTED THE MESSAGE WILL BE

```
DO YOU WANT TO WRITE THE DATA TO THE CONSOLE LED'S?
ENTER
```

A YES (1) OR NO (0) IS EXPECTED
IF YES (1) IS SELECTED THE DATA IN THE CONSOLE LED'S WILL BE: LED 0 IS THE SIGN BIT (0 POSITIVE 1 NEGATIVE),LED'S 1-12 WILL BE A BINARY REPRESENTATION OF THE INPUT VOLTAGE, LED'S 13-15 WILL BE THE RANGE CODE

WHEN THE MESSAGE(S) HAS BEEN ANSWERED CONTROL WILL BE RETURNED TO THE FRIEND SUPERVISOR

12.00.00 ROUTINE DESCRIPTION (4982-AO) DEVICE TYPE A9.

WHEN DEVICE TYPE A9 IS SELECTED THE FRIEND SUPERVISOR WILL REQUEST, THE ROUTINE FOR THIS DEVICE TYPE,TO BE LOADED INTO STORAGE AT HEXADECIMAL LOCATION 1900. THE FOLLOWING MESSAGES WILL BE DISPLAYED FOR DA 62

```
SELECT COMMAND(S) FOR DA 62
01 READ DEVICE ID
02 RESET
03 DELAY
04 LOOP START
05 LOOP END
06 WRITE AO POINT 0
07 WRITE AO POINT 1
**** CAUTION ****
DISCONNECT CUSTOMER INTERFACE
ENTER
```

*****CAUTION*****CAUTION*****CAUTION*****CAUTION*****CAUTION*****

WHEN OPTION 06 OR 07 IS SELECTED AND USED BY FRIEND THE SENSOR I/O SHOULD BE POWERED OFF AND THEN ON BEFORE THE CUSTOMER INTERFACE IS REINSTALLED

THE COMMAND(S) NECESSARY FOR THIS TEST MAY BE ENTERED AT THIS TIME. WHEN THE COMMAND(S) HAVE BEEN ENTERED THIS ROUTINE WILL DO A READ ID TO THE DEVICE ADDRESS SPECIFIED. IF THE RESULT OF THE READ ID IS NOT EQUAL TO THE EXPECTED RESULT THE QUESTION WILL BE.

```
READ ID EXPECTED 8040 ID WAS 0020 IS THIS O.K?
ENTER
```

A NO (0) REPLY WILL CAUSE THE ROUTINE TO TERMINATE
A YES (1) REPLY WILL PERMIT THE FOLLOWING MESSAGES

```
LENGTH OF DELAY,IN MILLISECOND(S)
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

A REPLY OF 0001 = 1 MILLISECOND

```
HOW MANY TIMES THROUGH THE LOOP
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

IF OPTION 05 IS SELECTED AND OPTION 04 WAS NOT THEN THE STATEMENT WILL BE

```
LOOP NOT STARTED,START OVER
```

IF OPTION 04 AND 05 WAS SELECTED THE MESSAGE WILL BE

```
LOOP STARTED AT 3268
LOOP ENDED AT 3288
```

WHEN OPTION 06 OR 07 IS SELECTED THE MESSAGES WILL BE

```
VOLTAGE RANGE +5V TO -5V
WHAT IS THE VOLTAGE
ENTER

F49902344          ### THIS IS THE MAXIMUM POSITIVE VOLTAGE
IS THE VOLTAGE POSITIVE?
ENTER
```

A YES (1) OR A NO (0) IS EXPECTED

2 WORDS OF DATA MUST BE ENTERED FOR THE VOLTAGES

```
EXAMPLE:   FXXXXXXXX = V.VVVVVVV VOLTS
THEREFORE: F50000000 = 5.0000000 VOLTS
AND        F00097656 = 0.0097656 VOLTS
```


AO BIT VALUES IN VOLTS

BIT	+10V TO -10V	+5V TO -5V	0 TO -10V
0	5.000000	2.500000	2.500000
1	2.500000	1.250000	1.250000
2	1.250000	.625000	.625000
3	.625000	.312500	.312500
4	.312500	.156250	.165250
5	.156250	.078125	.078125
6	.078125	.039062	.039062
7	.039062	.019531	.019531
8	.019531	.009765	.009765

*SIGN BIT= '0' POSITIVE VOLTAGES
'1' FOR NEGATIVE VOLTAGES

VOLTAGE RANGE	MAXIMUM VOLTAGE	CENTER VOLTAGE	MINIMUM VOLTAGE
+5V TO -5V	+4.9902344	0	-5
+10V TO -10V	+9.9804688	0	-10
0V TO +10V	+9.9902344	5	0

WHEN THE MESSAGE(S) HAS BEEN ANSWERED CONTROL WILL BE RETURNED TO THE FRIEND SUPERVISOR

13.00.00 ROUTINE DESCRIPTION (4982-DI/PI) DEVICE TYPE B0.

WHEN DEVICE TYPE B0 IS SELECTED THE FRIEND SUPERVISOR WILL REQUEST, THE ROUTINE FOR THIS DEVICE TYPE,TO BE LOADED INTO STORAGE AT HEXADECIMAL LOCATION 1900. THE FOLLOWING MESSAGES WILL BE DISPLAYED FOR DA 63

```
SELECT COMMAND(S) FOR DA 63
01 PREPARE
02 READ DEVICE ID
03 RESET
04 DELAY
05 LOOP START
06 LOOP END
07 ARM DI EXTERNAL SYNC
08 READ DI
09 ARM PI
0A READ PI
0B READ PI WITH RESET
0C READ STATUS
ENTER
```

THE COMMAND(S) NECESSARY FOR THIS TEST MAY BE ENTERED AT THIS TIME. WHEN THE COMMAND(S) HAVE BEEN ENTERED THIS ROUTINE WILL DO A READ ID TO THE DEVICE ADDRESS SPECIFIED. IF THE RESULT OF THE READ ID IS NOT EQUAL TO THE EXPECTED RESULT THE QUESTION WILL BE.

```
NO DI/PI FEATURE AT THIS ADDRESS IS THIS O.K?
ENTER
```

A NO (0) REPLY WILL CAUSE THE ROUTINE TO TERMINATE
A YES (1) REPLY WILL PERMIT THE FOLLOWING MESSAGES

```
LEVEL TO INTERRUPT
ENTER
```

A REPLY OF 0000,0001,0002 IS EXPECTED

IF A PREPARE COMMAND IS NOT NECESSARY FOR THE TEST THE DEVICE WILL BE PREPARED TO LEVEL 2

```
IS THE 'I' BIT REQUIRED
ENTER
```

IF THE DEVICE UNDER TEST IS TO INTERRUPT THE 'I' BIT MUST BE SET ON IN THE PREPARE IDCB

```
LENGTH OF DELAY,IN MILLISECOND(S)
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

A REPLY OF 0001 = 1 MILLISECOND

```
HOW MANY TIMES THROUGH THE LOOP
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

IF OPTION 06 IS SELECTED AND OPTION 05 WAS NOT THEN THE STATEMENT WILL BE

```
LOOP NOT STARTED,START OVER
```

IF OPTION 05 AND 06 WAS SELECTED THE MESSAGE WILL BE
LOOP STARTED AT 3268
LOOP ENDED AT 3288

IF OPTION 08,0A,0B IS SELECTED THE FOLLOWING MESSAGE WILL BE DISPLAYED

```
DO YOU WANT TO WRITE THE DATA IN THE CONSOLE LED'S?
ENTER
```

A YES (1) OR NO (0) IS EXPECTED
IF YES (1) IS SELECTED THE CONSOLE LED'S WILL CONTAIN THE 16 BITS OF USER DATA INPUT

WHEN THE MESSAGE(S) HAS BEEN ANSWERED CONTROL WILL BE RETURNED TO THE FRIEND SUPERVISOR

14.00.00 ROUTINE DESCRIPTION (4982-DO) DEVICE TYPE B4.

WHEN DEVICE TYPE B4 IS SELECTED THE FRIEND SUPERVISOR WILL REQUEST, THE ROUTINE FOR THIS DEVICE TYPE,TO BE LOADED INTO STORAGE AT HEXADECIMAL LOCATION 1900. THE FOLLOWING MESSAGES WILL BE DISPLAYED FOR DA 64

```
SELECT COMMAND(S) FOR DA 64
01 READ DEVICE ID
02 RESET
03 DELAY
04 LOOP START
05 LOOP END
06 WRITE DO
**** CAUTION ****
DISCONNECT CUSTOMER INTERFACE
ENTER
```

*****CAUTION*****CAUTION*****CAUTION*****CAUTION*****CAUTION*****

WHEN OPTION 06 IS SELECTED AND USED BY FRIEND THE SENSOR I/O SHOULD BE POWERED OFF AND THEN ON BEFORE THE CUSTOMER INTERFACE IS REINSTALLED

THE COMMAND(S) NECESSARY FOR THIS TEST MAY BE ENTERED AT THIS TIME. WHEN THE COMMAND(S) HAVE BEEN ENTERED THIS ROUTINE WILL DO A READ ID TO THE DEVICE ADDRESS SPECIFIED. IF THE RESULT OF THE READ ID IS NOT EQUAL TO THE EXPECTED RESULT THE QUESTION WILL BE.

```
READ ID EXPECTED 8018 ID WAS 0020 IS THIS O.K?
ENTER
```

A NO (0) REPLY WILL CAUSE THE ROUTINE TO TERMINATE
A YES (1) REPLY WILL PERMIT THE FOLLOWING MESSAGES

```
LENGTH OF DELAY,IN MILLISECOND(S)
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

A REPLY OF 0001 = 1 MILLISECOND

```
HOW MANY TIMES THROUGH THE LOOP
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

IF OPTION 05 IS SELECTED AND OPTION 04 WAS NOT THEN THE STATEMENT WILL BE

```
LOOP NOT STARTED,START OVER
```

IF OPTION 04 AND 05 WAS SELECTED THE MESSAGE WILL BE
LOOP STARTED AT 3268
LOOP ENDED AT 3288

IF OPTION 06 IS SELECTED THE MESSAGE WILL BE

```
DATA IS
ENTER
```

ENTER THE DATA TO BE WRITTEN TO THE DO REGISTER. DATA IS EXPECTED TO BE 0000-FFFF

WHEN THE MESSAGE(S) HAS BEEN ANSWERED CONTROL WILL BE RETURNED TO THE FRIEND SUPERVISOR

15.00.00 ROUTINE DESCRIPTION (4978) DEVICE TYPE 45.

WHEN DEVICE TYPE 45 IS SELECTED THE FRIEND SUPERVISOR WILL REQUEST, THE ROUTINE FOR THIS DEVICE TYPE,TO BE LOADED INTO STORAGE AT HEXADECIMAL LOCATION 1900. THE FOLLOWING MESSAGES WILL BE DISPLAYED FOR DA 04

```
SELECT COMMAND(S) FOR DA 04
01 DEFAULT= WRITE,SHIFT UP 1
02 DEFAULT=READ,WRITE
03 PREPARE
04 READ DEVICE ID
05 RESET
06 DELAY
07 LOOP START
08 LOOP END
09 READ
0A WRITE
ENTER
```

THE COMMAND(S) NECESSARY FOR THIS TEST MAY BE ENTERED AT THIS TIME. WHEN THE COMMAND(S) HAVE BEEN ENTERED THIS ROUTINE WILL DO A READ ID TO THE DEVICE ADDRESS SPECIFIED. IF THE RESULT OF THE READ ID IS NOT EQUAL TO THE EXPECTED RESULT THE QUESTION WILL BE.

```
READ ID EXPECTED 040E ID WAS 0020 IS THIS O.K?
ENTER
```

A NO (0) REPLY WILL CAUSE THE ROUTINE TO TERMINATE
A YES (1) REPLY WILL PERMIT THE FOLLOWING MESSAGES

```
LEVEL TO INTERRUPT
ENTER
```

A REPLY OF 0000,0001,0002 IS EXPECTED

IF A PREPARE COMMAND IS NOT NECESSARY FOR THE TEST THE DEVICE WILL BE PREPARED TO LEVEL 2

```
WILL ANY DCB'S BE CHAINED?
ENTER
```

A NO (0) REPLY WILL NOT PERMIT ANY MORE MESSAGES CONCERNING A CHAINED DCB
A YES (1) REPLY WILL CAUSE THE FOLLOWING MESSAGE FOR EACH DCB

```
DO YOU WANT THE CHAIN BIT ON?
```

A REPLY OF NO (0) OR YES (1) IS EXPECTED

```
LENGTH OF DELAY,IN MILLISECOND(S)
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED
A REPLY OF 0001 = 1 MILLISECOND

```
HOW MANY TIMES THROUGH THE LOOP
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

```
BYTE COUNT
ENTER
```

THIS IS THE BYTE COUNT IN DECIMAL FOR THE DCB

```
DO YOU WANT TO USE THE STANDARD DATA PATTERN?
ENTER
```

A YES (1) REPLY WILL CAUSE THE DEFAULT PATTERN TO BE MOVED TO THE DATA AREA
A NO (0) REPLY WILL CAUSE THE NEXT QUESTION

```
DATA IS
ENTER
```

NOW ENTER THE DATA TO BE WRITTEN

IF OPTION 08 IS SELECTED AND OPTION 07 WAS NOT THEN THE STATEMENT WILL BE

```
LOOP NOT STARTED,START OVER
```

IF OPTION 07 AND 08 WAS SELECTED THE MESSAGE WILL BE

```
LOOP STARTED AT 3268
LOOP ENDED AT 3288
```

WHEN THE MESSAGE(S) HAS BEEN ANSWERED CONTROL WILL BE RETURNED TO THE FRIEND SUPERVISOR

16.00.00 ROUTINE DESCRIPTION (4966) DEVICE TYPE 4A.

WHEN DEVICE TYPE 4A IS SELECTED THE FRIEND SUPERVISOR WILL REQUEST, THE ROUTINE FOR THIS DEVICE TYPE,TO BE LOADED INTO STORAGE AT HEXADECIMAL LOCATION 1900. THE FOLLOWING MESSAGES WILL BE DISPLAYED FOR DA F0

```
SELECT COMMAND(S) FOR DA F0
01 PREPARE
02 READ DEVICE ID
03 RESET
04 DELAY
05 LOOP START
06 LOOP END
07 SEEK
08 RECALIBRATE HOME
09 RECALIBRATE HEAD
0A RECALIBRATE HEAD NOT LOADED DISKETTE
0B FORMAT TRACK
0C FORMAT TRACK (BAD TRACK)
0D VERIFY FORMAT TRACK
0E READ DATA
0F READ VERIFY (CRC CHECK)
10 READ VERIFY (DATA COMPARE)
11 READ SECTOR ID (MAP)
12 WRITE DATA (DATA AM)
13 WRITE DATA (READ VERIFY)
**** CAUTION ****
SOME COMMAND(S) WHEN USED COULD DESTROY CUSTOMER DATA INTEGRITY
ENTER
```

THE COMMAND(S) NECESSARY FOR THIS TEST MAY BE ENTERED AT THIS TIME.

WHEN THE COMMAND(S) HAVE BEEN ENTERED THIS ROUTINE WILL DO A READ ID TO THE DEVICE ADDRESS SPECIFIED. IF THE RESULT OF THE READ ID IS NOT EQUAL TO THE EXPECTED RESULT THE QUESTION WILL BE.

```
READ ID EXPECTED 0126 ID WAS 0020 IS THIS O.K?
ENTER
```

A NO (0) REPLY WILL CAUSE THE ROUTINE TO TERMINATE
A YES (1) REPLY WILL PERMIT THE FOLLOWING MESSAGES

```
LEVEL TO INTERRUPT
ENTER
```

A REPLY OF 0000,0001,0002 IS EXPECTED

IF A PREPARE COMMAND IS NOT NECESSARY FOR THE TEST THE DEVICE WILL BE PREPARED TO LEVEL 2

```
IS THE 'I' BIT REQUIRED
ENTER
```

IF THE DEVICE UNDER TEST IS TO INTERRUPT THE 'I' BIT MUST BE SET ON IN THE PREPARE IDCB

```
WILL ANY DCB'S BE CHAINED?
ENTER
```

A NO (0) REPLY WILL NOT PERMIT ANY MORE MESSAGES CONCERNING A CHAINED DCB.
A YES (1) REPLY WILL CAUSE THE FOLLOWING MESSAGE FOR EACH DCB

```
DO YOU WANT THE CHAIN BIT ON?
ENTER
```

A REPLY OF NO (0) OR YES (1) IS EXPECTED

```
LENGTH OF DELAY,IN MILLISECOND(S)
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

A REPLY OF 0001 = 1 MILLISECOND

```
HOW MANY TIMES THROUGH THE LOOP

ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

```
IS SUPPRESS EXCEPTION REQUIRED?
ENTER
```

A NO (0) OR A YES (1) IS EXPECTED

```
IS AUTOMATIC SEEK REQUIRED?
ENTER
```

A NO (0) OR A YES (1) IS EXPECTED

```
IS THE MFM BIT REQUIRED?
ENTER
```

```
A NO (0) OR A YES (1) IS EXPECTED

   IS THIS A CONTROL AM?
   ENTER
A NO (0) OR A YES (1) IS EXPECTED

   CONTROL AM MASK (00,01,02)
   ENTER
ENTER THE CONTROL MASK FOR THE DCB

   SEEK DIFFERENCE
   ENTER
ENTER THE NUMBER OF CYLINDERS TO SEEK(DECIMAL NUMBER)

   FORWARD SEEK?
   ENTER
A NO (0) REPLY WILL CAUSE A NEGATIVE SEEK
A YES (1) REPLY WILL CAUSE A POSITIVE SEEK

   CYLINDER NUMBER
   ENTER
ENTER THE CYLINDER NUMBER(DECIMAL VALUE)

   SECTOR SIZE
   ENTER
ENTER THE CORRECT SECTOR SIZE(0128/0256/0512)

   SECTOR NUMBER
   ENTER
ENTER THE CORRECT SECTOR NUMBER(DECIMAL0001-0015)

   HOW MANY SECTORS
   ENTER
ENTER THE NUMBER OF SECTORS REQUIRED FOR THE COMMAND

   HEAD
   ENTER
ENTER THE CORRECT HEAD NUMBER(0000 OR 0001)

   FORMAT WORD
   ENTER
ENTER THE WORD TO USE TO FORMAT THE TRACK

   BYTE COUNT
   ENTER
THIS IS THE BYTE COUNT IN DECIMAL FOR THE DCB

   DO YOU WANT TO USE THE STANDARD DATA PATTERN?
   ENTER
A YES (1) REPLY WILL CAUSE THE DEFAULT PATTERN TO BE MOVED TO THE DATA AREA
A NO (0) REPLY WILL CAUSE THE NEXT QUESTION

   HOW MANY WORDS OF DATA
   ENTER
ENTER THE NUMBER OF WORDS OF DATA(DECIMAL NUMBER)

   DO YOU WANT TO COMPARE THE DATA JUST READ?
   ENTER
A  READ  COMMAND WAS FOLLOWED BY A READ VERIFY(DATA COMPARE) IS THE DATA FROM THE
READ COMMAND TO BE USED FOR THE COMPARE

   DO YOU WANT TO WRITE THE DATA JUST READ?
   ENTER
A READ COMMAND WAS FOLLOWED BY A WRITE COMMAND IS THE DATA FROM THE READ  COMMAND
TO BE USED FOR THE WRITE COMMAND

   DISKETTE POSITION NUMBER (DECIMAL NUMBER 0001-0023)
   ENTER
ENTER THE DISKETTE POSITION TO BE USED IN THE DCB

   DATA IS
   ENTER
NOW ENTER THE DATA TO BE WRITTEN

   FILL BYTE (00-FF)
   ENTER
ENTER THE FILL BYTE TO BE USED IN A FORMAT COMMAND

   VERIFY BYTE (00-FF)
   ENTER
ENTER THE VERIFY BYTE TO BE USED IN A VERIFY COMMAND

IF OPTION 08 IS SELECTED AND OPTION 07 WAS NOT THEN THE STATEMENT WILL BE
   LOOP NOT STARTED,START OVER
```



```
IF OPTION 07 AND 08 WAS SELECTED THE MESSAGE WILL BE
   LOOP STARTED AT 3268
   LOOP ENDED AT 3288
WHEN  THE  MESSAGE(S)  HAS  BEEN  ANSWERED CONTROL WILL BE RETURNED TO THE FRIEND
SUPERVISOR
```

17.00.00 ROUTINE DESCRIPTION (4963) DEVICE TYPE 7A.

WHEN DEVICE TYPE 7A IS SELECTED THE FRIEND SUPERVISOR WILL REQUEST, THE ROUTINE FOR THIS DEVICE TYPE,TO BE LOADED INTO STORAGE AT HEXADECIMAL LOCATION 1900. THE FOLLOWING MESSAGES WILL BE DISPLAYED FOR DA F0

```
   SELECT COMMAND(S) FOR DA F0
   01 PREPARE
   02 READ DEVICE ID
   03 RESET
   04 DELAY
   05 LOOP START
   06 LOOP END
   07 SEEK
   08 RECALIBRATE
   09 READ VERIFY
   0A READ DATA--0B REPEAT
   0C WRITE DATA--0D REPEAT
   0E READ SECTOR ID--0F EXTENDED
   10 WRITE SECTOR ID WITH READ VERIFY--11 EXTENDED
   12 WRITE DATA WITH READ VERIFY--13 REPEAT
   14 WRITE DATA SECURITY
   15 SCAN EQUAL--16 SCAN LOW/EQUAL--17 SCAN HIGH/EQUAL
   **** CAUTION ****
   SOME COMMAND(S) WHEN USED COULD DESTROY CUSTOMER DATA INTEGRITY
   ENTER
```

THE COMMAND(S) NECESSARY FOR THIS TEST MAY BE ENTERED AT THIS TIME.

WHEN THE COMMAND(S) HAVE BEEN ENTERED THIS ROUTINE WILL DO A READ ID TO THE DEVICE ADDRESS SPECIFIED. IF THE RESULT OF THE READ ID IS NOT EQUAL TO THE EXPECTED RESULT THE QUESTION WILL BE.

```
   READ ID EXPECTED 3X06 ID WAS 0020 IS THIS O.K?
   ENTER
```

A NO (0) REPLY WILL CAUSE THE ROUTINE TO TERMINATE
A YES (1) REPLY WILL PERMIT THE FOLLOWING MESSAGES

```
   LEVEL TO INTERRUPT
   ENTER
```

A REPLY OF 0000,0001,0002 IS EXPECTED

IF A PREPARE COMMAND IS NOT NECESSARY FOR THE TEST THE DEVICE WILL BE PREPARED TO LEVEL 2

```
   IS THE 'I' BIT REQUIRED
   ENTER
```

IF THE DEVICE UNDER TEST IS TO INTERRUPT THE 'I' BIT MUST BE SET ON IN THE PREPARE IDCB

```
   WILL ANY DCB'S BE CHAINED?
   ENTER
```

A NO (0) REPLY WILL NOT PERMIT ANY MORE MESSAGES CONCERNING A CHAINED DCB.
A YES (1) REPLY WILL CAUSE THE FOLLOWING MESSAGE FOR EACH DCB

```
   DO YOU WANT THE CHAIN BIT ON?
   ENTER
```

A REPLY OF NO (0) OR YES (1) IS EXPECTED

```
   LENGTH OF DELAY,IN MILLISECOND(S)
   ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

A REPLY OF 0001 = 1 MILLISECOND

```
   HOW MANY TIMES THROUGH THE LOOP

   ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

```
   IS SUPPRESS EXCEPTION REQUIRED?
   ENTER
```

A NO (0) OR A YES (1) IS EXPECTED

```
   IS AUTOMATIC SEEK REQUIRED?
   ENTER
```

A NO (0) OR A YES (1) IS EXPECTED

```
   FLAG BYTE IS
   ENTER
```

ENTER THE FLAG BYTE TO BE USED IN THE DCB


```
   CYLINDER NUMBER
   ENTER
```

ENTER THE CYLINDER NUMBER(DECIMAL VALUE)

```
   HOW MANY SECTORS
   ENTER
```

ENTER THE NUMBER OF SECTORS FOR THE DCB

```
   SECTOR NUMBER
   ENTER
```

ENTER THE CORRECT SECTOR(EVEN DECIMAL NUMBER 0000-0032)

```
   HEAD
   ENTER
```

ENTER THE CORRECT HEAD NUMBER IN DECIMAL

```
   IS THIS A FIXED HEAD?
   ENTER
```

A NO (0) OR A YES (1) IS EXPECTED

```
   BYTE COUNT
   ENTER
```

THIS IS THE BYTE COUNT IN DECIMAL FOR THE DCB

```
   DO YOU WANT TO USE THE STANDARD DATA PATTERN?
   ENTER
```

A YES (1) REPLY WILL CAUSE THE DEFAULT PATTERN TO BE MOVED TO THE DATA AREA
A NO (0) REPLY WILL CAUSE THE NEXT QUESTION

```
   HOW MANY WORDS OF DATA
   ENTER
```

ENTER THE NUMBER OF WORDS OF DATA(DECIMAL NUMBER)

```
   DO YOU WANT TO WRITE THE DATA JUST READ?
   ENTER
```

A READ COMMAND WAS FOLLOWED BY A WRITE COMMAND IS THE DATA FROM THE READ COMMAND TO BE USED FOR THE WRITE COMMAND

```
   HOW MANY RECORDS
   ENTER
```

ENTER THE NUMBER OF RECORDS TO BE USED FOR THE DCB

```
   IS THIS RECORD 1?
   ENTER
```

EACH SECTOR HAS RECORD 1 AND RECORD 2 DO YOU NEED RECORD RECORD 1 FOR THE DCB?

```
   DATA IS
   ENTER
```

NOW ENTER THE DATA TO BE WRITTEN

IF OPTION 08 IS SELECTED AND OPTION 07 WAS NOT THEN THE STATEMENT WILL BE

```
   LOOP NOT STARTED,START OVER
```

IF OPTION 07 AND 08 WAS SELECTED THE MESSAGE WILL BE

```
   LOOP STARTED AT 3268
   LOOP ENDED AT 3288
```

WHEN THE MESSAGE(S) HAS BEEN ANSWERED CONTROL WILL BE RETURNED TO THE FRIEND SUPERVISOR

18.00.00 ROUTINE DESCRIPTION (4969) DEVICE TYPE 58.

WHEN DEVICE TYPE 58 IS SELECTED THE FRIEND SUPERVISOR WILL REQUEST, THE ROUTINE FOR THIS DEVICE TYPE,TO BE LOADED INTO STORAGE AT HEXADECIMAL LOCATION 1900. THE FOLLOWING MESSAGES WILL BE DISPLAYED FOR DA F0

```
SELECT COMMAND(S) FOR DA F0
01 PREPARE
02 READ DEVICE ID
03 RESET
04 DELAY
05 LOOP START
06 LOOP END
07 READ RECORD
08 WRITE RECORD
09 WRITE TAPE MARK
0A ERASE
0B SPACE RECORD FORWARD
0C SPACE TAPE MARK FORWARD
0D SPACE RECORD REVERSE
0E SPACE TAPE MARK REVERSE
0F REWIND
10 OFFLINE
11 REWIND OFFLINE
12 DEFAULT WRITE
13 DEFAULT READ COMPARE
**** CAUTION ****
SOME COMMAND(S) WHEN USED COULD DESTROY CUSTOMER DATA INTEGRITY
ENTER
```

THE COMMAND(S) NECESSARY FOR THIS TEST MAY BE ENTERED AT THIS TIME.

WHEN THE COMMAND(S) HAVE BEEN ENTERED THIS ROUTINE WILL DO A READ ID TO THE DEVICE ADDRESS SPECIFIED. IF THE RESULT OF THE READ ID IS NOT EQUAL TO THE EXPECTED RESULT THE QUESTION WILL BE.

```
READ ID EXPECTED 3X06 ID WAS 0020 IS THIS O.K?
ENTER
```

A NO (0) REPLY WILL CAUSE THE ROUTINE TO TERMINATE
A YES (1) REPLY WILL PERMIT THE FOLLOWING MESSAGES

```
LEVEL TO INTERRUPT
ENTER
```

A REPLY OF 0000,0001,0002 IS EXPECTED

IF A PREPARE COMMAND IS NOT NECESSARY FOR THE TEST THE DEVICE WILL BE PREPARED TO LEVEL 2

```
IS THE 'I' BIT REQUIRED
ENTER
```

IF THE DEVICE UNDER TEST IS TO INTERRUPT THE 'I' BIT MUST BE SET ON IN THE PREPARE IDCB

```
WILL ANY DCB'S BE CHAINED?
ENTER
```

A NO (0) REPLY WILL NOT PERMIT ANY MORE MESSAGES CONCERNING A CHAINED DCB.
A YES (1) REPLY WILL CAUSE THE FOLLOWING MESSAGE FOR EACH DCB

```
DO YOU WANT THE CHAIN BIT ON?
ENTER
```

A REPLY OF NO (0) OR YES (1) IS EXPECTED

```
LENGTH OF DELAY,IN MILLISECOND(S)
ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

A REPLY OF 0001 = 1 MILLISECOND

```
HOW MANY TIMES THROUGH THE LOOP

ENTER
```

A REPLY FROM 0001 TO 9999 IS EXPECTED

```
IS SUPPRESS EXCEPTION REQUIRED?
ENTER
```

A NO (0) OR A YES (1) IS EXPECTED

```
REPEAT COUNT
ENTER
```

A REPLY FROM 0001 TO 0255 IS EXPECTED

```
IS THIS 800 BPI NRZI?
```



```
ENTER
```

A NO (0) OR A YES (1) IS EXPECTED

```
IS TEST READ MODE REQUIRED?
ENTER
```

A NO (0) OR A YES (1) IS EXPECTED

```
IS READ THRESHOLD LOW REQUIRED?
ENTER
```

A NO (0) OR A YES (1) IS EXPECTED

```
BYTE COUNT
ENTER
```

THIS IS THE BYTE COUNT IN DECIMAL FOR THE DCB

```
DO YOU WANT TO USE THE STANDARD DATA PATTERN?
ENTER
```

A YES (1) REPLY WILL CAUSE THE DEFAULT PATTERN TO BE MOVED TO THE DATA AREA
A NO (0) REPLY WILL CAUSE THE NEXT QUESTION

```
HOW MANY WORDS OF DATA
ENTER
```

ENTER THE NUMBER OF WORDS OF DATA(DECIMAL NUMBER)

```
DO YOU WANT TO WRITE THE DATA JUST READ?
ENTER
```

A READ COMMAND WAS FOLLOWED BY A WRITE COMMAND IS THE DATA FROM THE READ COMMAND TO BE USED FOR THE WRITE COMMAND
A NO (0) OR A YES (1) IS EXPECTED

```
DATA IS
ENTER
```

NOW ENTER THE DATA TO BE WRITTEN

IF OPTION 08 IS SELECTED AND OPTION 07 WAS NOT THEN THE STATEMENT WILL BE

```
LOOP NOT STARTED,START OVER
```

IF OPTION 07 AND 08 WAS SELECTED THE MESSAGE WILL BE

```
LOOP STARTED AT 3268
LOOP ENDED AT 3288
```

IF OPTION 12 IS SELECTED A 2016 BYTE RECORD WILL BE WRITTEN.

********** CAUTION **********
THIS IS A STAND ALONE OPTION NO OTHER OPTION WILL BE SUPPORTED.

IF OPTION 13 IS SELECTED THE 2016 BYTE RECORD WRITTEN BY OPTION 12 WILL BE READ AND DATA COMPARED. IF THE DATA DOES NOT COMPARE THE MESSAGE WILL BE 'DATA COMPARE ERROR' (SEE HALT CODE 58ED SECTION 02.02.00 THIS MAP).

********** CAUTION **********
THIS IS A STAND ALONE OPTION NO OTHER OPTION WILL BE SUPPORTED.

WHEN THE MESSAGE(S) HAS BEEN ANSWERED CONTROL WILL BE RETURNED TO THE FRIEND SUPERVISOR

ERROR RETRIEVAL AND PRINT PROGRAM USER'S GUIDE

TABLE OF CONTENTS

01.00.00 INTRODUCTION.

THE PURPOSE OF THIS MAP IS TO DESCRIBE TO THE USER HOW TO SETUP AND USE THE ERROR RETRIEVAL AN PRINT PROGRAM. EACH RECORD FORMAT ASSEMBLED BY THE REAL TIME PROGRAMMING SYSTEM AND EACH OUTPUT FROM THE ERROR RETRIEVAL AND PRINT PROGRAM WILL BE DESCRIBED.

THE PURPOSE OF THIS PROGRAM IS TO PRESENT THE DATA ASSOCIATED WITH AN ERROR USING A READABLE OUTPUT FOR USE BY THE CUSTOMER OR CE.

THE FOLLOWING RECORD TYPES ARE FORMATTED BY ERROR RETRIEVAL AN PRINT PROGRAM.

CONTROL RECORD

PROCESSING UNIT RECORDS

- MACHINE CHECK
- PROGRAM CHECK
- SOFT EXCEPTION CHECK

DEVICE RECORDS

- DEVICE NOT RECOVERED
- DEVICE RECOVERED
- DEVICE SOFT ERROR
- DEVICE HARD ERROR
- DEVICE TIME-OUT

NOT EXPECTED INTERRUPT RECORDS

SYSTEM TERMINATION RECORDS

USER RECORDS

OTHER SYSTEM RECORDS

02.00.00 ERROR RETRIEVAL AN PRINT PROGRAM LOADING AND RUNNING

SEE MAP 0015 SECTION 02.00.00 TO IPL THE SYSTEM TEST DISKETTE AND COME TO 'RDY ENTER' (MESSAGE CODE 3400).

THE FOLLOWING ECP COMMAND(S) IS/ARE ACTIVE WHILE THE ERROR RETRIEVAL AN PRINT PROGRAM IS IN STORAGE.

```
 0      A NO RESPONSE TO A QUESTION
 1      A YES RESPONSE TO A QUESTION
 6      CONTINUE RUNNING AT THE NEXT SEQUENTIAL INSTRUCTION
 7      STOP PROGRAM
 B      START PROGRAM
 D      DUMP STORAGE
 F      RESPOND TO PROGRAM
```

NOW ENTER, BY THE ALTERNATE CONSOLE, 'B34E0'. THIS WILL LOAD THE ERROR RETRIEVAL AN PRINT PROGRAM AND START A SERIES OF MESSAGES TO SETUP THE PROGRAM TO PROCESS THE ERROR RECORDS FROM THE REAL TIME PROGRAMMING SYSTEM 'SYSTEM ERROR LOG' DATA SET.

```
EXAMPLE:          (ASSUME A DISPLAY IS THE ORIGINAL CONSOLE)
 RDY
 ENTER            THE RDY ENTER IS A RESULT OF THE IPL
 B34E0
 U34E0 LOADED
 ST
 PRINTER CONSOLE IS PREFERRED - IS ONE AVAILABLE?
 ENTER
```

ANY MESSAGE ENDING WITH A QUESTION MARK FOR EXAMPLE 'IS ONE AVAILABLE?' MUST BE ANSWERED WITH A YES OR NO. SEE MAP 0015 SECTION 03.00.00.

THE MESSAGE 'IS ONE AVAILABLE?' IS NECESSARY TO DETERMINE IF A PRINTER OR TTY IS AVAILABLE FOR PRINTING THE ERROR RETRIEVAL AN PRINT PROGRAM OUTPUT. PRINTER IS PREFERRED FOR KEEPING THE ERROR DATA.

IF ONE IS AVAILABLE THEN ANSWER YES AND SUPPLY THE DEVICE ADDRESS.

```
EXAMPLE:
 1                THIS IS A YES (1) RESPONSE.
 ENTER PRINTER CONSOLE ADDRESS
 ENTER
 F01
```

THIS DEVICE ADDRESS MUST BE THE ADDRESS OF ONE OF THE ECP CONSOLE SUPPORTED PRINTER(S) OR TTY. THE ERROR RETRIEVAL AN PRINT PROGRAM WILL VERIFY THE DEVICE ADDRESS BEFORE CONTINUING.

IF A PRINTER CONSOLE IS NOT AVAILABLE ANSWER NO AND ERROR RETRIEVAL AN PRINT PROGRAM USE THE DISPLAY TO OUTPUT THE ERROR DATA. USING SCREEN CONTROL WILL PREVENT THE LOSS OF DATA.

```
EXAMPLE:
 0                THIS IS A NO (0) RESPONSE.
 ENTER SYSTEM DISK ADDRESS
 ENTER
 F03
```

ERROR RETRIEVAL AN PRINT PROGRAM WILL USE THE DEVICE ADDRESS FOR THE DISK WHICH HAS THE SYSTEM ERROR LOG DATA SET. REAL TIME PROGRAMMING SYSTEM DISK FORMAT IS THE ONLY ACCEPTABLE SYSTEM FORMAT.

CONTINUED ON NEXT PAGE.

ANSWER EACH QUESTION CONCERNING RECORD FORMATTING AND THE INITIALIZATION OF THE SYSTEM ERROR LOG DATA SET.

```
EXAMPLE:
 SHOULD ALL RECORDS BE PRINTED?
 ENTER
 1                THIS IS A YES (1) RESPONSE.
 SHOULD SYSTEM ERROR LOG BE INITIALIZED?
 ENTER
 1                THIS IS A YES (1) RESPONSE.
 IS THE VOLUME LABEL CONTAINING SYSTEM ERROR LOG 'SYSERLOG'?
 ENTER
 0                THIS IS A NO (0) RESPONSE.
 ENTER EIGHT CHARACTER VOLUME LABEL CONTAINING ERROR LOG
 ENTER
 FSYSRESVL
 ENTER EIGHT CHARACTER SYSTEM ERROR LOG LABEL
 ENTER
 FSYSERLOG
```

ERROR RETRIEVAL AN PRINT PROGRAM WILL USE THE EIGHT CHARACTER LABELS RECEIVED TO SEARCH WITH TO LOCATE THE TWO DATA SETS.

```
 CONSOLE BEING CHANGED FOR FORMATTING

 ************************************************************
 *                                                          *
 *  AT THIS POINT THE RECORD DATA WILL BE PRINTED.          *
 *  SEE THIS MAP SECTION 05.00.00                           *
 *                                                          *
 ************************************************************

 PT
 ENTER
```

THIS IS THE END OF AN ERROR RETRIEVAL AN PRINT PROGRAM RUN. SEE SECTION 03.00.00 SAMPLE SESSION FOR ANY OPTION THE USER MAY SELECT.

02.01.00 ERROR RETRIEVAL AN PRINT PROGRAM OPERATIONAL MESSAGES AND CODES

34E0 PRINTER CONSOLE PREFERRED - IS ONE AVAILABLE?
IS THERE A PRINTER OR TTY ON THE SYSTEM.

34E1 ENTER PRINTER CONSOLE ADDRESS
ENTER THE DEVICE ADDRESS OF THE PRINTER OR TTY TO BE USED FOR THE PRINTED OUTPUT.

34E2 ENTER THE SYSTEM DISK ADDRESS
ENTER THE DEVICE ADDRESS OF THE DISK THAT HAS THE REAL TIME PROGRAMMING SYSTEM AND THE SYSTEM ERROR LOG DATA SET.

34E3 SHOULD SYSTEM ERROR LOG BE INITIALIZED?
AFTER FORMATTING ALL OF THE RECORDS FOUND ON SYSTEM ERROR LOG DATA SET SHOULD THE CONTROL RECORD BE INITIALIZED TO INDICATE THE DATA SET IS EMPTY.

34E4 SHOULD ALL RECORDS BE PRINTED?
ARE ALL RECORDS TO BE PRINTED OR DO YOU WANT TO PRINT ONLY SELECTED RECORDS FROM THE SYSTEM ERROR LOG DATA SET.

34E5 ENTER RECORD TYPES DESIRED
ENTER FROM THE MENU THE RECORD TYPES TO BE PRINTED (MAXIMUM OF 7 PERMITTED).

34E6 SHOULD ALL DEVICE RECORDS BE PRINTED?
SHOULD ALL OF THE DEVICE RECORDS BE PRINTED OR DO YOU WANT TO PRINT ONLY THE RECORDS FOR SELECTED DEVICE ADDRESSES.

34E7 ENTER DEVICE ADDRESSES DESIRED
ENTER THE DEVICE ADDRESSES FOR THE DEVICE RECORDS TO BE PRINTED (MAXIMUM OF 10 PERMITTED).

34E8 IS THE VOLUME LABEL CONTAINING SYSTEM ERROR LOG 'SYSERLOG'?
AFTER RELEASE 1.1 OF THE REAL TIME PROGRAMMING SYSTEM THIS QUESTION SHOULD BE ANSWERED (YES). BEFORE THIS RELEASE THIS QUESTION SHOULD BE ANSWERED (NO).

34E8 ENTER EIGHT CHARACTER VOLUME LABEL CONTAINING ERROR LOG
ENTER THE LABEL THAT HAS BEEN ASSIGNED TO THE SYSTEM VOLUME WHICH CONTAINS THE SYSTEM ERROR LOG DATA SET (EIGHT CHARACTERS).

34E8 ENTER EIGHT CHARACTER SYSTEM ERROR LOG LABEL
ENTER THE LABEL THAT HAS BEEN ASSIGNED TO THE SYSTEM ERROR LOG DATA SET (EIGHT CHARACTERS).

34E9
THIS IS THE MESSAGE CODE USED WITH EACH LINE OF PRINTED OUTPUT THAT REPRESENTS RECORD DATA.

** THREE ECP MESSAGE CODES ARE USED WHEN THE CONSOLE IS CHANGED **

3401
THIS CODE IS USED TO INDICATE THAT THE DISPLAY CONSOLE FAILED TO RESPOND CORRECTLY WHEN BEING RETURNED ONLINE. THE PROGRAMMER CONSOLE HAS BEEN ASSIGNED.

3407 CONSOLE BEING CHANGED FOR FORMATTING
THE DISPLAY CONSOLE HAS BEEN REMOVED AND WAS EXCHANGED WITH THE PRINTER OR TTY SPECIFIED.

3408 CONSOLE RETURNED
THE DISPLAY CONSOLE HAS BEEN RETURNED AND CAN AGAIN BE USED FOR ECP INPUT.

02.02.00 ERROR RETRIEVAL AN PRINT PROGRAM ERROR MESSAGES AND CODES

34EA PRINTER CONSOLE NOT USABLE
THE PRINTER CONSOLE SPECIFIED DOES NOT RESPOND TO NORMAL OPERATION OR THE CONSOLE ROUTINE COULD NOT BE READ INTO STORAGE. THE PROGRAM WILL BE TERMINATED.

34EB DATA SET ******** NOT FOUND ON DISK

THE'********' FIELD IN THIS MESSAGE WILL BE THE NAME OF A DATA SET WHICH SHOULD BE ON THE REAL TIME PROGRAMMING SYSTEM DISK. ERROR RETRIEVAL AN PRINT PROGRAM COULD NOT FIND THAT DATA SET AND THE PROGRAM WILL BE TERMINATED.

34EC DISK DOES NOT RESPOND TO INITIALIZE COMMANDS
ONE OF THE FOLLOWING ERRORS OCCURRED DURING THE PREPARATORY SETUP OF THE REAL TIME PROGRAMMING SYSTEM DISK.
- BAD OIO CONDITION CODE FROM PREPARE COMMAND.
- BAD OIO CONDITION CODE FROM READ DEVICE ID COMMAND.
- DEVICE ID RETURNED FROM THE REAL TIME PROGRAMMING SYSTEM DEVICE INDICATED WAS NOT A DISK.
- BAD OIO CONDITION CODE FROM RECALIBRATE COMMAND.
- BAD OIO CONDITION CODE FROM READ CYCLE STEAL STATUS COMMAND.
- BAD INTERRUPT CONDITION CODE FROM RECALIBRATE OPERATION.
- BAD INTERRUPT CONDITION CODE FROM READ CYCLE STEAL STATUS OPERATION.

34ED DISK ERROR WHILE SEARCHING FOR DATA SET ********
THE'********' FIELD IN THIS MESSAGE WILL BE THE NAME OF A DATA SET WHICH SHOULD BE ON THE REAL TIME PROGRAMMING SYSTEM DISK. ERROR RETRIEVAL AN PRINT PROGRAM RECEIVED AN ERROR RESPONSE FROM THE DISK WHILE SEARCHING FOR THE DATA SET AND THE PROGRAM WILL BE TERMINATED.

34EE DISK ERROR READING SYSTEM ERROR LOG
ERROR RETRIEVAL AN PRINT PROGRAM RECEIVED AN ERROR RESPONSE FROM THE DISK WHILE READING RECORDS FROM THE SYSTEM ERROR LOG DATA SET.

34EF DISK ERROR WRITING SYSTEM ERROR LOG
ERROR RETRIEVAL AN PRINT PROGRAM RECEIVED AN ERROR RESPONSE FROM THE DISK WHILE WRITING THE CONTROL RECORD IN THE SYSTEM ERROR LOG DATA SET.

03.00.00 ERROR RETRIEVAL AN PRINT PROGRAM SAMPLE SESSION

WILL INDICATE EACH ENTRY TO BE MADE BY THE OPERATOR

03.01.00 SAMPLE SESSION #1

SAMPLE SESSION TO PRINT ALL RECORDS ON A DISPLAY AND NOT INITIALIZE SYSTEM ERROR LOG.

IPL THE SYSTEM TEST DISKETTE PER SECTION 02.00.00 MAP 0015 WITH SCREEN CONTROL ON.

```
 RDY
 ENTER
 B34E0          ###
 U34E0 LOADED
 ST
 PRINTER CONSOLE IS PREFERRED - IS ONE AVAILABLE?
 ENTER
 0              ###
 ENTER SYSTEM DISK ADDRESS
 ENTER
 F03            ###
 SHOULD ALL RECORDS BE PRINTED?
 ENTER
 1              ###
 SHOULD SYSTEM ERROR LOG BE INITIALIZED?
 ENTER
 0              ###
 IS THE VOLUME LABEL CONTAINING SYSTEM ERROR LOG 'SYSERLOG'?
 ENTER
 0              ###
 ENTER EIGHT CHARACTER VOLUME LABEL CONTAINING ERROR LOG
 ENTER
 FSYSRESVL      ###
 ENTER EIGHT CHARACTER SYSTEM ERROR LOG LABEL
 ENTER
 FSYSERLOG      ###

 ************************************************************
 *                                                          *
 *  AT THIS POINT THE RECORD DATA WILL BE DISPLAYED.        *
 *  SEE THIS MAP SECTION 05.00.00                           *
 *                                                          *
 ************************************************************

PT
ENTER
```


03.02.00 SAMPLE SESSION #2

SAMPLE SESSION USING A DISPLAY CONSOLE AND CHANGE TO A PRINTER TO PRINT ALL RECORDS AND INITIALIZE SYSTEM ERROR LOG.

IPL THE SYSTEM TEST DISKETTE PER SECTION 02.00.00 MAP 0015 WITH SCREEN CONTROL ON.

```
 RDY
 ENTER
 B34E0          ###
 U34E0 LOADED
 ST
 PRINTER CONSOLE IS PREFERRED - IS ONE AVAILABLE?
 ENTER
 1              ###
 ENTER PRINTER CONSOLE ADDRESS
 ENTER
 F01            ###
 ENTER SYSTEM DISK ADDRESS
 ENTER
 F03            ###
 SHOULD ALL RECORDS BE PRINTED?
 ENTER
 1              ###
 SHOULD SYSTEM ERROR LOG BE INITIALIZED?
 ENTER
 1              ###
 IS THE VOLUME LABEL CONTAINING SYSTEM ERROR LOG 'SYSERLOG'?
 ENTER
 0              ###
 ENTER EIGHT CHARACTER VOLUME LABEL CONTAINING ERROR LOG
 ENTER
 FSYSRESVL      ###
 ENTER EIGHT CHARACTER SYSTEM ERROR LOG LABEL
 ENTER
 FSYSERLOG      ###
 CONSOLE BEING CHANGED FOR FORMATTING

 ************************************************************
 *                                                          *
 *  AT THIS POINT THE RECORD DATA WILL BE PRINTED ON THE    *
 *  DEVICE WITH AN ADDRESS OF 01.                           *
 *  SEE THIS MAP SECTION 05.00.00                           *
 *                                                          *
 ************************************************************

CONSOLE RETURNED
PT
ENTER
```

03.03.00 SAMPLE SESSION #3

SAMPLE SESSION USING A TTY CONSOLE AND SELECTING TO PRINT ONLY MACHINE CHECK AND SOFT EXCEPTION CHECK RECORDS.

IPL THE SYSTEM TEST DISKETTE PER SECTION 02.00.00 MAP 0015 WITH SCREEN CONTROL ON.

```
 RDY
 ENTER
 B34E0          ###
 U34E0 LOADED
 ST
 ENTER SYSTEM DISK ADDRESS
 ENTER
 F03            ###
 SHOULD ALL RECORDS BE PRINTED?
 ENTER
 0              ###
 ENTER RECORD TYPES DESIRED
 01 - MACHINE CHECK
 02 - PROGRAM CHECK
 03 - SOFT EXCEPTION CHECK
 04 - DEVICE
 05 - NOT EXPECTED INTERRUPT
 06 - SYSTEM TERMINATION
 07 - USER/OTHER SYSTEM
 ENTER
 F0103          ###
 IS THE VOLUME LABEL CONTAINING SYSTEM ERROR LOG 'SYSERLOG'?
 ENTER
 0              ###
 ENTER EIGHT CHARACTER VOLUME LABEL CONTAINING ERROR LOG
 ENTER
 FSYSRESVL      ###
 ENTER EIGHT CHARACTER SYSTEM ERROR LOG LABEL
 ENTER
 FSYSERLOG      ###
**************************************************************
*                                                            *
*  AT THIS POINT THE RECORD DATA WILL BE PRINTED ON THE TTY. *
*  SEE THIS MAP SECTION 05.00.00                             *
*                                                            *
**************************************************************

PT
ENTER
```


03.04.00 SAMPLE SESSION #4

SAMPLE SESSION USING A DISPLAY CONSOLE AND CHANGE TO A PRINTER TO PRINT ONLY DEVICE RECORDS FOR DEVICE ADDRESSES 00, 01, AND 04

IPL THE SYSTEM TEST DISKETTE PER SECTION 02.00.00 MAP 0015 WITH SCREEN CONTROL ON.

```
 RDY
 ENTER
 B34E0          ###
 U34E0 LOADED
 ST
 PRINTER CONSOLE IS PREFERRED - IS ONE AVAILABLE?
 ENTER
 1              ###
 ENTER PRINTER CONSOLE ADDRESS
 ENTER
 F01            ###
 ENTER SYSTEM DISK ADDRESS
 ENTER
 F03            ###
 SHOULD ALL RECORDS BE PRINTED?
 ENTER
 0              ###
 ENTER RECORD TYPES DESIRED
 01 - MACHINE CHECK
 02 - PROGRAM CHECK
 03 - SOFT EXCEPTION CHECK
 04 - DEVICE
 05 - NOT EXPECTED INTERRUPT
 06 - SYSTEM TERMINATION
 07 - USER/OTHER SYSTEM
 ENTER
 F04            ###
 SHOULD ALL DEVICE RECORDS BE PRINTED?
 ENTER
 0              ###
 ENTER DEVICE ADDRESSES DESIRED
 ENTER
 F000104        ###
 IS THE VOLUME LABEL CONTAINING SYSTEM ERROR LOG 'SYSERLOG'?
 ENTER
 0              ###
 ENTER EIGHT CHARACTER VOLUME LABEL CONTAINING ERROR LOG
 ENTER
 FSYSRESVL      ###
 ENTER EIGHT CHARACTER SYSTEM ERROR LOG LABEL
 ENTER
 FSYSERLOG      ###
 CONSOLE BEING CHANGED FOR FORMATTING

**************************************************************
*                                                            *
*  AT THIS POINT THE RECORD DATA WILL BE PRINTED ON THE      *
*  DEVICE WITH AN ADDRESS OF 01.                             *
*  SEE THIS MAP SECTION 05.00.00                             *
*                                                            *
**************************************************************

CONSOLE RETURNED
PT
ENTER
```

04.00.00 FORMAT OF SYSTEM ERROR LOG RECORDS

THIS SECTION WILL DESCRIBE THE FORMAT OF THE VARIOUS RECORDS TO BE FOUND ON THE SYSTEM ERROR LOG DATA SET.

04.01.00 CONTROL RECORD

FLAG FIELD
BIT 10 - CONTROL RECORD

BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8
RECORD LENGTH	PARTITION NUMBER	FLAG FIELD		ACTIVE TCB ADDRESS		ADDRESS KEY REGISTER (AKR)	
TIME OF DAY (HHMMSS)		DATE (YYDDD)		ACTIVE LEVEL	NOT USED		
OLD RECORD ADDRESS RELATIVE RECORD # OLDEST RECORD				NEXT RECORD ADDRESS RELATIVE RECORD # NEXT RECORD SPACE			
CURRENT RECORD ADDRESS RELATIVE RECORD # LAST RECORD READ							

04.02.00 PROCESSING UNIT CHECK RECORDS

FLAG FIELD
BIT 0 - MACHINE CHECK RECORD
BIT 1 - PROGRAM CHECK RECORD
BIT 2 - SOFT EXCEPTION CHECK RECORD

BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8
RECORD LENGTH	PARTITION NUMBER	FLAG FIELD		ACTIVE TCB ADDRESS		ADDRESS KEY REGISTER (AKR)	
TIME OF DAY (HHMMSS)		DATE (YYDDD)		ACTIVE LEVEL	NOT USED		
FAILING ADDRESS		INSTRUCTION ADDRESS REGISTER (IAR)		ADDRESS KEY REGISTER (AKR)		LEVEL STATUS REGISTER (LSR)	
REGISTER 0 (R0)		REGISTER 1 (R1)		REGISTER 2 (R2)		REGISTER 3 (R3)	
REGISTER 4 (R4)		REGISTER 5 (R5)		REGISTER 6 (R6)		REGISTER 7 (R7)	
TERMINATION END CODE (CC)		PROGRAM STATUS WORD (PSW)		ADDRESS KEY (AAK)			

04.03.00 DEVICE RECORDS

04.03.01 DEVICE ERROR/TIME-OUT RECORD

FLAG FIELD
BIT 3 - DEVICE RECORD
BIT 5 - DEVICE TIME-OUT RECORD
BIT 9 - NOT RECOVERED ERROR FLAG
BIT 12 - NOT COMPLETE RECORD (BITS 3 OR 5 ON)

BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8
RECORD LENGTH	PARTITION NUMBER	FLAG FIELD		ACTIVE TCB ADDRESS		ADDRESS KEY REGISTER (AKR)	
TIME OF DAY (HHMMSS)		DATE (YYDDD)		ACTIVE LEVEL	NOT USED		
DEVICE READ ID		IMMEDIATE DEVICE CONTROL BLOCK (IDCB)				DEVICE ADDRESS	RETRY COUNT
OIO CONDITION CODE	INTERRUPT CONDITION CODE	INTERRUPT STATUS BYTE	DEVICE STATUS (6 BYTES)				
	DCB COUNT IN RECORD	CYCLE STEAL STATUS WORDS (CSSW) (10 BYTES)					
DEVICE CONTROL BLOCK(S) 1 TO 5 (DCB) (UP TO FIVE) (16 BYTES EACH)							

04.03.02 DEVICE SOFT ERROR RECORD

FLAG FIELD
BIT 12 - SOFT ERROR RECORD - DISK/DISKETTE

BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8
RECORD LENGTH	PARTITION NUMBER	FLAG FIELD		ACTIVE TCB ADDRESS		ADDRESS KEY REGISTER (AKR)	
TIME OF DAY (HHMMSS)		DATE (YYDDD)		ACTIVE LEVEL	NOT USED		
DEVICE READ ID		IMMEDIATE DEVICE CONTROL BLOCK (IDCB)				DEVICE ADDRESS	RETRY COUNT
OIO CONDITION CODE	INTERRUPT CONDITION CODE	INTERRUPT STATUS BYTE	DCB COUNT IN RECORD				
DEVICE CONTROL BLOCK(S) 1 TO 3 (DCB) (UP TO THREE) (16 BYTES EACH)							
RESIDUAL STATUS BLOCK(S) 1 TO 3 (RSB) (UP TO THREE) (12 BYTES EACH)							

04.03.03 DEVICE HARD ERROR RECORD

FLAG FIELD
BIT 13 - HARD ERROR RECORD - DISK/DISKETTE

BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8
RECORD LENGTH	PARTITION NUMBER	FLAG FIELD		ACTIVE TCB ADDRESS		ADDRESS KEY REGISTER (AKR)	
TIME OF DAY (HHMMSS)				DATE (YYDDD)		ACTIVE LEVEL	NOT USED
DEVICE READ ID		IMMEDIATE DEVICE CONTROL BLOCK (IDCB)				DEVICE ADDRESS	RETRY COUNT
OIO CONDITION CODE	INTERRUPT CONDITION CODE	INTERRUPT STATUS BYTE	DCB COUNT IN RECORD				
DEVICE CONTROL BLOCK(S) 1 TO 3 (DCB) (UP TO THREE) (16 BYTES EACH)							
RESIDUAL STATUS BLOCK(S) 1 TO 2 (RSB) (UP TO TWO) (12 BYTES EACH)							
CYCLE STEAL STATUS WORDS (CSSW) (UP TO 13 WORDS)							

04.03.04 COMMUNICATIONS STATISTICS LOG RECORD

FLAG FIELD
BIT 11 - COMMUNICATIONS STATISTICS LOG RECORD

BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8
RECORD LENGTH	PARTITION NUMBER	FLAG FIELD		LINE TYPE	DEVICE ADDRESS	COUNT OF CORRECT TEXT BLOCKS RECEIVED OR TRANSMITTED	
COUNT OF NAKS RECEIVED		COUNT OF NOT VALID RESPONSES RECEIVED		COUNT OF DATA OVERRUNS		COUNT OF TIME-OUT	
COUNT OF BLOCK CHECK CHARACTER (BCC) ERRORS		COUNT OF MODEM ERRORS		COUNT OF CC/ISB ERRORS		COUNT OF VRC ERRORS	

04.04.00 NOT EXPECTED INTERRUPT RECORDS

FLAG FIELD
BIT 4 - NOT EXPECTED INTERRUPT RECORD

BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8
RECORD LENGTH	PARTITION NUMBER	FLAG FIELD		ACTIVE TCB ADDRESS		ADDRESS KEY REGISTER (AKR)	
TIME OF DAY (HHMMSS)				DATE (YYDDD)		ACTIVE LEVEL	NOT USED
INTERRUPT ID WORD							

04.05.00 SYSTEM TERMINATION RECORDS

FLAG FIELD
BIT 6 - SYSTEM TERMINATION RECORD

BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8
RECORD LENGTH	PARTITION NUMBER	FLAG FIELD		ACTIVE TCB ADDRESS		ADDRESS KEY REGISTER (AKR)	
TIME OF DAY (HHMMSS)				DATE (YYDDD)		ACTIVE LEVEL	NOT USED
TERMINATION END CODE (CC)							

04.06.00 USER/OTHER SYSTEM RECORDS

FLAG FIELD
BIT 7 - USER RECORD
BIT 8 - OTHER SYSTEM RECORD

BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8
RECORD LENGTH	PARTITION NUMBER	FLAG FIELD					
USER/OTHER SYSTEM DATA (124 BYTES MAXIMUM)							

05.00.00 ERROR RETRIEVAL AN PRINT PROGRAM SAMPLE OUTPUT

THIS SECTION WILL DESCRIBE THE PRINTED OUTPUT OF THE VARIOUS RECORDS PRINTED BY THE ERROR RETRIEVAL AN PRINT PROGRAM

THE DATA USED IN THIS SAMPLE IS NOT REAL ERROR DATA AND IS USED TO SHOW FORMAT ONLY.

05.01.00 PROCESSING UNIT MACHINE CHECK

** PROCESSING UNIT MACHINE CHECK LOG SUMMARY **

DATE/ TIME	LVL/ IAR	R0/ R4	R1/ R5	R2/ R6	R3/ R7	LSR/ AKR	PSW	TCB/ CC	AAK/ FADR	PART
77 182	02	0000	1111	2222	3333	0000	0000	0000	00	00
13.45.01	0000	4444	5555	6666	7777	0000		0000	0000	
77 190	--	----								
23.10.20	----	----	----							

MEANING OF LABEL USED

DATE - YEAR DAY (YYDDD)
TIME - HOUR.MINUTE.SECOND (HHMMSS)
LVL - INTERRUPT LEVEL USED
IAR - INSTRUCTION ADDRESS REGISTER
R0 - REGISTER ZERO
R1 - REGISTER ONE
R2 - REGISTER TWO
R3 - REGISTER THREE
R4 - REGISTER FOUR
R5 - REGISTER FIVE
R6 - REGISTER SIX
R7 - REGISTER SEVEN
LSR - LEVEL STATUS REGISTER
AKR - ADDRESS KEY REGISTER
PSW - PROGRAM STATUS WORD
TCB - TASK CONTROL BLOCK
CC - SYSTEM TERMINATION END CODE
AAK - ACTIVE ADDRESS KEY
FADR - FAILING ADDRESS
PART - SYSTEM PARTITION NUMBER

05.02.00 PROCESSING UNIT PROGRAM CHECK

** PROCESSING UNIT PROGRAM CHECK LOG SUMMARY **

DATE/ TIME	LVL/ IAR	R0/ R4	R1/ R5	R2/ R6	R3/ R7	LSR/ AKR	PSW	TCB/ CC	AAK/ FADR	PART
77 182	02	0000	1111	2222	3333	0000	0000	0000	00	00
13.45.01	0000	4444	5555	6666	7777	0000		0000	0000	
77 190	--	----								
23.10.20	----	----	----							

MEANING OF LABEL USED

DATE - YEAR DAY (YYDDD)
TIME - HOUR.MINUTE.SECOND (HHMMSS)
LVL - INTERRUPT LEVEL USED
IAR - INSTRUCTION ADDRESS REGISTER
R0 - REGISTER ZERO
R1 - REGISTER ONE
R2 - REGISTER TWO
R3 - REGISTER THREE
R4 - REGISTER FOUR
R5 - REGISTER FIVE
R6 - REGISTER SIX
R7 - REGISTER SEVEN
LSR - LEVEL STATUS REGISTER
AKR - ADDRESS KEY REGISTER
PSW - PROGRAM STATUS WORD
TCB - TASK CONTROL BLOCK
CC - SYSTEM TERMINATION END CODE
AAK - ACTIVE ADDRESS KEY
FADR - FAILING ADDRESS
PART - SYSTEM PARTITION NUMBER

05.03.00 PROCESSING UNIT SOFT EXCEPTION CHECK

** PROCESSING UNIT SOFT EXCEPTION CHECK LOG SUMMARY **

DATE/ TIME	LVL/ IAR	R0/ R4	R1/ R5	R2/ R6	R3/ R7	LSR/ AKR	PSW	TCB/ CC	AAK/ FADR	PART
77 182	02	0000	1111	2222	3333	0000	0000	0000	00	00
13.45.01	0000	4444	5555	6666	7777	0000		0000	0000	
77 190	--	----								
23.10.20	----	----	----							

MEANING OF LABEL USED

DATE - YEAR DAY (YYDDD)
TIME - HOUR.MINUTE.SECOND (HHMMSS)
LVL - INTERRUPT LEVEL USED
IAR - INSTRUCTION ADDRESS REGISTER
R0 - REGISTER ZERO
R1 - REGISTER ONE
R2 - REGISTER TWO
R3 - REGISTER THREE
R4 - REGISTER FOUR
R5 - REGISTER FIVE
R6 - REGISTER SIX
R7 - REGISTER SEVEN
LSR - LEVEL STATUS REGISTER
AKR - ADDRESS KEY REGISTER
PSW - PROGRAM STATUS WORD
TCB - TASK CONTROL BLOCK
CC - SYSTEM TERMINATION END CODE
AAK - ACTIVE ADDRESS KEY
FADR - FAILING ADDRESS
PART - SYSTEM PARTITION NUMBER

05.04.00 DEVICE ERRORS - ALL TYPES

** DEVICE ERROR LOG **

ADDRESS 09 TYPE BSCA S.L. READ ID 1006

DATE 77 182 LVL 00 TCB 0000 AKR 0000 PART 00
TIME 13.45.01 OIOCC 00 RETRY 00 IDCB 0000 0000
INTCC 00 ISB 00 STATUS 1122334455 66

NOT RECOVERED
CSSW 1111 2222 3333 4444 5555
DCB1 1111 2222 3333 4444 5555 6666 7777 8888
DCB2 1111 2222 3333 4444 5555 6666 7777 8888
DCB3 1111 2222 3333 4444 5555 6666 7777 8888
DCB4 1111 2222 3333 4444 5555 6666 7777 8888
DCB5 1111 2222 3333 4444 5555 6666 7777 8888

DATE 77 190 LVL 00 TCB 0000 AKR 0000 PART 00
TIME 23.10.20 OIOCC 00 RETRY 00 IDCB 0000 0000
TIME-OUT INTCC 00 ISB 00 STATUS 1122334455 66
RECOVERED NOT COMPLETE RECORD

** COMMUNICATIONS STATISTICS COLLECTED COUNTS ***

ADDRESS 09 LINE TYPE BSCA PART 00

COUNT OF RECORDS	10
TEXT BLOCKS XMIT/RCV	123456789
NAKS RCV	12345678
NOT VALID RESPONSE	1234567
DATA OVERRUNS	123456
TIME-OUTS	12345
BCC ERRORS	1234
MODEM ERRORS	123
CC/ISB ERRORS	12
VRC ERRORS	1

ADDRESS 13 TYPE DISK READ ID 3206

DATE 77 182 LVL 00 TCB 0000 AKR 0000 PART 00
TIME 13.45.01 OIOCC 00 RETRY 00 IDCB 0000 0000
INTCC 00 ISB 00

NOT RECOVERED
CSSW 1111 2222 3333 4444 5555 6666 7777 8888
9999 AAAA BBBB CCCC DDDD
RSB1 1111 2222 3333 4444 5555 6666
RSB2 1111 2222 3333 4444 5555 6666
DCB1 1111 2222 3333 4444 5555 6666 7777 8888
DCB2 1111 2222 3333 4444 5555 6666 7777 8888
DCB3 1111 2222 3333 4444 5555 6666 7777 8888

```
 ADDRESS   12          TYPE  DISKETTE          READ ID 3206

 DATE  77 182     LVL   00  TCB   0000  AKR  0000  PART 00
 TIME  13.45.01   OIOCC 00  RETRY   00  IDCB 0000 0000
                  INTCC 00  ISB   00
 RECOVERED
 RSB1 1111 2222 3333 4444 5555 6666
 RSB2 1111 2222 3333 4444 5555 6666
 RSB3 1111 2222 3333 4444 5555 6666
 DCB1 1111 2222 3333 4444 5555 6666 7777 8888
 DCB2 1111 2222 3333 4444 5555 6666 7777 8888
 DCB3 1111 2222 3333 4444 5555 6666 7777 8888

 ADDRESS   00          TYPE  TTY               READ ID 0010

 DATE  77 182     LVL   00  TCB   0000  AKR  0000  PART 00
 TIME  13.45.01   OIOCC 00  RETRY   00  IDCB 0000 0000
                  INTCC 00  ISB   00    STATUS   112233445566
 NOT RECOVERED
```

** DEVICE ERROR SUMMARY **

DEVICE ADDRESS	COUNT OF RECORDS	COUNT OF TIME-OUT	COUNT OF TEMPORARY	COUNT OF PERMANENT	COUNT OF NOT COMPLETE
09	12	01	01	01	01
13	01	00	00	01	00
12	01	00	01	00	00
00	01	00	00	01	00

MEANING OF LABEL USED

```
ADDRESS       - DEVICE ADDRESS
TYPE          - DEVICE NAME
READ ID       - DEVICE READ ID
DATE          - YEAR DAY (YYDDD)
TIME          - HOUR.MINUTE.SECOND (HHMMSS)
LVL           - INTERRUPT LEVEL USED
OIOCC         - OIO INSTRUCTION CONDITION CODE
INTCC         - INTERRUPT CONDITION CODE
TCB           - TASK CONTROL BLOCK
RETRY         - RETRY COUNT (COUNT IN DECIMAL)
ISB           - INTERRUPT STATUS BYTE
IDCB          - IMMEDIATE DEVICE CONTROL BLOCK
AKR           - ADDRESS KEY REGISTER
STATUS        - DEVICE STATUS
PART          - SYSTEM PARTITION NUMBER
TIME-OUT      - DEVICE TIME-OUT ERROR
NOT RECOVERED - PERMANENT (NOT RECOVERED DEVICE ERROR)
RECOVERED     - TEMPORARY (RECOVERED DEVICE ERROR)
NOT COMPLETE
  RECORD      - NOT ENOUGH STORAGE TO ASSEMBLE THE FULL RECORD
CSSW          - CYCLE STEAL STATUS WORDS
RSB1/3        - RESIDUAL STATUS BLOCK (UP TO THREE)
DCB1/5        - DEVICE CONTROL BLOCK (UP TO FIVE)
LINE TYPE     - TYPE OF COMMUNICATION LINE
BCC           - BLOCK CHECK CHARACTER
VRC           - VERTICAL REDUNDANCY CHECK
```


05.05.00 NOT EXPECTED INTERRUPT

** NOT EXPECTED INTERRUPT LOG SUMMARY **

```
  DATE    TIME      LVL  TCB  AKR  PART ID
  77 182  13.45.01  00   0000 0000 00   0000
  77 190  23.10.20  --   ----
```

MEANING OF LABEL USED

```
DATE    - YEAR DAY (YYDDD)
TIME    - HOUR.MINUTE.SECOND (HHMMSS)
LVL     - INTERRUPT LEVEL USED
TCB     - TASK CONTROL BLOCK
AKR     - ADDRESS KEY REGISTER
PART    - SYSTEM PARTITION NUMBER
ID      - INTERRUPT IDENTIFICATION
```

05.06.00 SYSTEM TERMINATION

** SYSTEM TERMINATION LOG SUMMARY **

```
  DATE    TIME      LVL  TCB  AKR  PART TERM CC
  77 182  13.45.01  00   0000 0000 00   0000
  77 190  23.10.20  --   ----
```

MEANING OF LABEL USED

```
DATE     - YEAR DAY (YYDDD)
TIME     - HOUR.MINUTE.SECOND (HHMMSS)
LVL      - INTERRUPT LEVEL USED
TCB      - TASK CONTROL BLOCK
AKR      - ADDRESS KEY REGISTER
PART     - SYSTEM PARTITION NUMBER
TERM CC  - SYSTEM TERMINATION END CODE
```

05.07.00 USER/OTHER SYSTEM DATA

** USER/OTHER SYSTEM LOG *** DUMP OF EACH RECORD FOLLOWS **

```
 0000 7C00 0100 2222 3333 4444 5555 6666 7777
 0010 0000 1111 2222 3333 4444 5555 6666 7777
 0020 0000 1111 2222 3333 4444 5555 6666 7777
 0030 0000 1111 2222 3333 4444 5555 6666 7777
 0040 0000 1111 2222 3333 4444 5555 6666 7777
 0050 0000 1111 2222 3333 4444 5555 6666 7777
 0060 0000 1111 2222 3333 4444 5555 6666 7777
 0070 0000 1111 2222 3333 4444 5555 6666 7777

 0000 7C00 0080 2222 3333 4444 5555 6666 7777
 0010 0000 1111 2222 3333 4444 5555 6666 7777
 0020 0000 1111 2222 3333 4444 5555 6666 7777
 0030 0000 1111 2222 3333 4444 5555 6666 7777
 0040 0000 1111 2222 3333 4444 5555 6666 7777
 0050 0000 1111 2222 3333 4444 5555 6666 7777
 0060 0000 1111 2222 3333 4444 5555 6666 7777
 0070 0000 1111 2222 3333 4444 5555 6666 7777

 0000 1D00 0100 2222 3333 4444 5555 6666 7777
 0010 0000 1111 2222 3333 4444 5555 6666 7777

 0000 1D00 0080 2222 3333 4444 5555 6666 7777
 0010 0000 1111 2222 3333 4444 5555 6666 7777
```

USER/OTHER SYSTEM DATA WILL START WITH THE THIRD WORD OF EACH DUMP (ADDRESS 0004).

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EC375482 PEC755448

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001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'3D'.

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES CKPT = 0000 ?
Y N

004
DOES CKPT = 0001 ?
Y N

005
DOES CKPT = 0002 ?
Y N

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006
DOES FLAG = 0008 ?
Y N

007
SOFT EXCEPTION INTERRUPT ERROR
LEVEL = 3

008
DATA MOVE COMPARE ERROR
SET THEN COPY REGISTERS COMPARE ERROR
LEVEL = 3

009
DOES FLAG = 0008 ?
Y N

010
SOFT EXCEPTION INTERRUPT ERROR
LEVEL = 2

011
DATA MOVE COMPARE ERROR
SET THEN COPY REGISTERS COMPARE ERROR
LEVEL = 2

012
DOES FLAG = 0008 ?
Y N

013
SOFT EXCEPTION INTERRUPT ERROR
LEVEL = 1

014
DATA MOVE COMPARE ERROR
SET THEN COPY REGISTERS COMPARE ERROR
LEVEL = 1

015
DOES FLAG = 0008 ?
Y N

016
SOFT EXCEPTION INTERRUPT ERROR
LEVEL = 0

017
DATA MOVE COMPARE ERROR
SET THEN COPY REGISTERS COMPARE ERROR
LEVEL = 0

018
DOES CKPT = 0000 ?
Y N

019
DOES CKPT = 0001 ?
Y N

020
DOES CKPT = 0002 ?
Y N

021
DOES FLAG = 0008 ?
Y N

022
SOFT EXCEPTION INTERRUPT ERROR
LEVEL = 3

023
DATA MOVE COMPARE ERROR
FLOATING POINT MOVE THEN COPY
REGISTERS COMPARE ERROR
LEVEL = 3

024
DOES FLAG = 0008 ?
Y N

FLOATING POINT

SYSTEM TEST ERROR MAP

025
SOFT EXCEPTION INTERRUPT ERROR
LEVEL = 2

026
DATA MOVE COMPARE ERROR
FLOATING POINT MOVE THEN COPY
REGISTERS COMPARE ERROR
LEVEL = 2

027
DOES FLAG = 0008 ?
Y N

028
SOFT EXCEPTION INTERRUPT ERROR
LEVEL = 1

029
DATA MOVE COMPARE ERROR
FLOATING POINT MOVE THEN COPY
REGISTERS COMPARE ERROR
LEVEL = 1

030
DOES FLAG = 0008 ?
Y N

031
SOFT EXCEPTION INTERRUPT ERROR
LEVEL = 0

032
DATA MOVE COMPARE ERROR
FLOATING POINT MOVE THEN COPY
REGISTERS COMPARE ERROR
LEVEL = 0

033
DOES CKPT = 0000 ?
Y N

034
DOES CKPT = 0001 ?
Y N

035
DOES CKPT = 0002 ?
Y N

036
DOES FLAG = 0008 ?
Y N

037
SOFT EXCEPTION INTERRUPT ERROR
LEVEL = 3

038
DATA MOVE COMPARE ERROR
FLOATING POINT MOVE DOUBLE THEN COPY
REGISTERS COMPARE ERROR
LEVEL = 3

039
DOES FLAG = 0008 ?
Y N

040
SOFT EXCEPTION INTERRUPT ERROR
LEVEL = 2

041
DATA MOVE COMPARE ERROR
FLOATING POINT MOVE DOUBLE THEN COPY
REGISTERS COMPARE ERROR
LEVEL = 2

042
DOES FLAG = 0008 ?
Y N

FLOATING POINT

SYSTEM TEST ERROR MAP

043
SOFT EXCEPTION INTERRUPT ERROR
LEVEL = 1

044
DATA MOVE COMPARE ERROR
FLOATING POINT MOVE DOUBLE THEN COPY
REGISTERS COMPARE ERROR
LEVEL = 1

045
DOES FLAG = 0008 ?
Y N

046
SOFT EXCEPTION INTERRUPT ERROR
LEVEL = 0

047
DATA MOVE COMPARE ERROR
FLOATING POINT MOVE DOUBLE THEN COPY
REGISTERS COMPARE ERROR
LEVEL = 0

TEST ERROR MAP

PAGE 1 OF 3

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'3E'.

NOTE: IF THE EXECUTION COUNT IS HIGHER THAN
ONE THE STATUS OF THE ATTACHMENT IS KEPT IN
AREA LABELED 'DEV1'. ALSO IF THE OTHER
PROCESSING UNIT
IS SENDING RESERVES TO THE CONTROLLING
PROCESSING UNIT THEN NOT EXPECTED INTERRUPTS
OTHER
THAN A RESERVE WILL CAUSE AN ERROR.

DOES RTN = 0001 ?
Y N
002
DOES RTN = 0002 ?
Y N
003
DOES RTN = 0003 ?
Y N
004
DOES RTN = 0004 ?
Y N
005
DOES CKPT = 0000 ?
Y N
006
RESERVE ERROR
CHECK DCB, FLAGS AND ISB
007
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
TURN ON ACK LED
008
DOES CKPT = 0000 ?
Y N
009
DOES IO = 07 ?
Y N
010
COMMAND REJECT FROM ATTACHMENT CARD
RESET OPERATIONS MONITOR
011
START TIMER ERROR
CHECK DCB, FLAGS AND ISB
012
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START TIMER (TEST MODE)
013
DOES CKPT = 0000 ?
Y N
014
DOES CKPT = 0001 ?
Y N
015
DOES CKPT = 0002 ?
Y N

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TEST ERROR MAP

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016
COMMAND REJECT FROM ATTACHMENT CARD
TURN ON ACK LED
017
DOES IO = 07 ?
Y N
018
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 2
START TIMER (TEST MODE)
019
START TIMER (TEST MODE)
CHECK DCB, FLAGS AND ISB
020
DOES IO = 07 ?
Y N
021
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START TIMER (TEST MODE)
022
START TIMER (TEST MODE)
CHECK DCB, FLAGS AND ISB
023
DOES IO = 07 ?
Y N
024
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 0
START TIMER (TEST MODE)
025
START TIMER (TEST MODE)
CHECK DCB, FLAGS AND ISB
026
DOES CKPT = 0000 ?
Y N
027
DOES CKPT = 0001 ?
Y N
028
DOES IO = 07 ?
Y N
029
COMMAND REJECT FROM ATTACHMENT CARD
RESET
030
COMMAND REJECT ERROR
CHECK DCB, FLAGS AND ISB
031
COMMAND REJECT FROM THE ATTACHMENT CARD
FAILED
CHECK DCB, FLAGS AND ISB
032
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
033
DOES CKPT = 0000 ?
Y N
034
DOES IO = 07 ?
Y N
035
COMMAND REJECT FROM ATTACHMENT CARD
READ STATUS

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036
LAST SIX BITS OF STATUS WORD DOES NOT
COMPARE WITH CONFIGURATION TABLE
DEV1 = STATUS OF ATTACHMENT
DEV2 = STATUS EXPECTED

037
DOES DEV3 = 0000 ?
Y N

038
WRONG DEVICE ID RECEIVED
DEV3 = EXPECTED ID
DEV4 = RECEIVED ID
CHECK DCB, FLAGS AND ISB

039
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
RESET
READ DEVICE ID

PAGE 1 OF 6

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'40'.

NOTE: IN THIS MAP
CR = CARRIAGE RETURN
LF = LINE FEED

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES RTN = 0003 ?
Y N

004
DOES RTN = 0004 ?
Y N

005
DOES RTN = 0005 ?
Y N

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006
DOES CKPT = 0000 ?
Y N

007
DOES CKPT = 0001 ?
Y N

008
DOES IO = 07 ?
Y N

009
COMMAND REJECT FROM ATTACHMENT CARD
EITHER A WRITE OR READ

010
WRITE ERROR
CHECK DCB, FLAGS AND ISB

011
DOES IO = 07 ?
Y N

012
COMMAND REJECT FROM ATTACHMENT CARD
EITHER A WRITE OF A CR, LF OR THE
'ENTER' MESSAGE

013
WRITE ERROR
CHECK DCB, FLAGS AND ISB

014
DOES IO = 07 ?
Y N

015
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
READ
WRITE (CR OR LF)

016
WRITE FAILED WHEN WRITING CR OR LF
CHECK DCB, FLAGS AND ISB

017
DOES CKPT = 0000 ?
Y N

018
READ DATA ERROR
DEV3 = RECEIVED DATA
DEV4 = EXPECTED DATA

019
DOES IO = 07 ?
Y N

020
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
WRITE OR READ BUFFER

021
DOES IO = FF ?
Y N

022
WRITE ERROR
CHECK DCB, FLAGS AND ISB

023
WRITE ERROR (LOST INTERRUPT)
CHECK DCB, FLAGS AND ISB

024
DOES CKPT = 0000 ?
Y N

TTY SYSTEM TEST ERROR MAP

PAGE 3 OF 6

025
DOES CKPT = 0001 ?
Y N

026
DOES CKPT = 0002 ?
Y N

027
DOES CKPT = 0003 ?
Y N

028
DOES IO = 07 ?
Y N

029
COMMAND REJECT FROM ATTACHMENT CARD
EITHER CR OR ONE OF TWO LF'S

030
CR OR LF WRITE ERROR
CHECK DCB, FLAGS AND ISB

031
DOES IO = 07 ?
Y N

032
COMMAND REJECT FROM ATTACHMENT CARD
WRITE OF EITHER CR OR LF

033
DOES DEV4 = 0000 ?
Y N

034
WRITE FAILED
ATTEMPTED TO WRITE DATA IN DEV4 FIELD
CHECK DCB, FLAGS AND ISB

035
CR OR LF ERROR
CHECK DCB, FLAGS AND ISB

036
DOES IO = 07 ?
Y N

037
COMMAND REJECT FROM ATTACHMENT CARD
WRITE OF EITHER CR OR LF

038
DOES DEV4 = 0000 ?
Y N

039
WRITE FAILED
ATTEMPTED TO WRITE DATA IN DEV4 FIELD
CHECK DCB, FLAGS AND ISB

040
CR OR LF ERROR
CHECK DCB, FLAGS AND ISB

041
DOES IO = 07 ?
Y N

042
COMMAND REJECT FROM ATTACHMENT CARD
WRITE OF EITHER CR OR LF

043
DOES DEV4 = 0000 ?
Y N

044
WRITE FAILED
ATTEMPTED TO WRITE DATA IN DEV4 FIELD
CHECK DCB, FLAGS AND ISB

TTY SYSTEM TEST ERROR MAP

PAGE 4 OF 6

045
CR OR LF ERROR
CHECK DCB, FLAGS AND ISB

046
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

047
DOES CKPT = 0000 ?
Y N

048
DOES CKPT = 0001 ?
Y N

049
DOES IO = 07 ?
Y N

050
COMMAND REJECT FROM ATTACHMENT CARD
RESET

051
COMMAND REJECT ERROR
CHECK DCB, FLAGS AND ISB

052
COMMAND REJECT FROM ATTACHMENT CARD FAILED
CHECK DCB, FLAGS AND ISB

053
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE = LEVEL 1

054
DOES CKPT = 0000 ?
Y N

055
DOES CKPT = 0001 ?
Y N

056
DOES CKPT = 0002 ?
Y N

057
DOES IO = 07 ?
Y N

058
COMMAND REJECT FROM ATTACHMENT CARD
WRITE OR READ

059
DOES IN = 03 ?
Y N

060
WRITE FAILED
CHECK DCB, FLAGS AND ISB

061
READ DATA ERROR
DEV3 = RECEIVED DATA
DEV4 = EXPECTED DATA

062
DOES IO = 07 ?
Y N

063
COMMAND REJECT FROM ATTACHMENT CARD
WRITE OR READ

064
DOES IN = 03 ?
Y N

065
WRITE FAILED
CHECK DCB, FLAGS AND ISB

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066
READ DATA ERROR
DEV3 = RECEIVED DATA
DEV4 = EXPECTED DATA

067
DOES IO = 07 ?
Y N

068
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 0
READ

069
DELAYED INTERRUPT DID NOT OCCUR
CHECK DCB, FLAGS AND ISB

070
DOES IO = 07 ?
Y N

071
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
PREPARE LEVEL = 1 (I BIT OFF)
WRITE

072
WRITE FAILED (DEVICE INTERRUPTED - NOT PREPARED)
CHECK DCB, FLAGS AND ISB

073
DOES CKPT = 0000 ?
Y N

074
DOES CKPT = 0001 ?
Y N

075
DOES IO = 07 ?
Y N

076
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 2
WRITE DATA
READ (TO CLEAR BUFFER)

077
WRITE FAILED
CHECK DCB, FLAGS AND ISB

078
DOES IO = 07 ?
Y N

079
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
WRITE DATA
READ (TO CLEAR BUFFER)

080
WRITE FAILED
CHECK DCB, FLAGS AND ISB

081
DOES IO = 07 ?
Y N

082
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 0
WRITE DATA
DIAGNOSTIC RESET
READ (TO CLEAR BUFFER)
READ ID

PAGE 6 OF 6

083
DOES IN = 03 ?
Y N

084
WRITE FAILED
CHECK DCB, FLAGS AND ISB

085
WRONG DEVICE ID RECEIVED ON LEVEL 0
DEV3 = ID RECEIVED
DEV4 = ID EXPECTED

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001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'44'.

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES RTN = 0003 ?
Y N

004
DOES RTN = 0004 ?
Y N

005
DOES RTN = 0005 ?
Y N

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006
ALL OTHER ERRORS BUT THOSE INDICATED BY
CHECKPOINT 0, 1 OR 2 WILL BE VISIBLE
AND/OR DISPLAYED ON THE CATHODE RAY TUBE.

DOES CKPT = 0000 ?
Y N

007
DOES CKPT = 0001 ?
Y N

008
DOES IO = 07 ?
Y N

009
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)

010
WRITE ERROR
CHECK DCB, FLAGS AND ISB

011
DOES IO = 07 ?
Y N

012
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (READ)

013
READ ERROR
CHECK DCB, FLAGS AND ISB

014
DOES IO = 07 ?
Y N

015
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (CLEAR SCREEN)

016
CLEAR SCREEN ERROR
CHECK DCB, FLAGS AND ISB

017

ROUTINE FIVE DCB CHECK VALUE

CKPT	VALUE	CKPT	VALUE
1	00B0	8	0040
2	0020	9	0080
3	0020	A	0070
4	0060	B	0090
5	0030	C	0002
6	0060	D	0003
7	0050	E	0003

DOES CKPT = 0000 ?
Y N

018
DOES CKPT = 0001 ?
Y N

019
DOES CKPT = 0002 ?
Y N

020
DOES CKPT = 0003 ?
Y N

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021
DOES CKPT = 0004 ?
Y N

022
DOES CKPT = 0005 ?
Y N

023
DOES CKPT = 0006 ?
Y N

024
DOES CKPT = 0007 ?
Y N

025
DOES CKPT = 0008 ?
Y N

1 0 9 9 8 8 4
M N P Q R S

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026
DOES CKPT = 0009 ?
Y N

027
DOES CKPT = 000A ?
Y N

028
DOES CKPT = 000B ?
Y N

029
DOES CKPT = 000C ?
Y N

030
DOES CKPT = 000D ?
Y N

7 7 6 6 5 5
T U V W X Y

031
DOES IO = 07 ?
Y N
| 032
| COMMAND REJECT FROM ATTACHMENT CARD
| START INPUT/OUTPUT (WRITE)
| START INPUT/OUTPUT (READ CYCLE STEAL
| STATUS)

033
DOES IN = 03 ?
Y N
| 034
| DOES DEV3 = 0000 ?
| Y N
| | 035
| | DCB CHECK VALUE ERROR
| | DEV3 = RECEIVED VALUE
| | DEV4 = EXPECTED VALUE
| 036
| CYCLE STEAL STATUS READ ERROR
| CHECK DCB, FLAGS AND ISB

037
DOES DEV4 = 0000 ?
Y N
| 038
| RESIDUAL ADDRESS ERROR
| DEV4 = EXPECTED ADDRESS
| RSAD = RECEIVED ADDRESS

039
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

040
DOES IO = 07 ?
Y N
| 041
| COMMAND REJECT FROM ATTACHMENT CARD
| START INPUT/OUTPUT (WRITE)
| START INPUT/OUTPUT (READ CYCLE STEAL STATUS)

042
DOES IN = 03 ?
Y N
| 043
| DOES DEV3 = 0000 ?
| Y N
| | 044
| | DCB CHECK VALUE ERROR
| | DEV3 = RECEIVED VALUE
| | DEV4 = EXPECTED VALUE
| 045
| CYCLE STEAL STATUS READ ERROR
| CHECK DCB, FLAGS AND ISB

046
DOES DEV4 = 0000 ?
Y N
| 047
| RESIDUAL ADDRESS ERROR
| DEV4 = EXPECTED ADDRESS
| RSAD = RECEIVED ADDRESS

048
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

049
DOES IO = 07 ?
Y N
| 050
| COMMAND REJECT FROM ATTACHMENT CARD
| START INPUT/OUTPUT (WRITE)
| START INPUT/OUTPUT (READ CYCLE STEAL
| STATUS)

051
DOES IN = 03 ?
Y N
| 052
| DOES DEV3 = 0000 ?
| Y N
| | 053
| | DCB CHECK VALUE ERROR
| | DEV3 = RECEIVED VALUE
| | DEV4 = EXPECTED VALUE
| 054
| CYCLE STEAL STATUS READ ERROR
| CHECK DCB, FLAGS AND ISB

055
DOES DEV4 = 0000 ?
Y N
| 056
| RESIDUAL ADDRESS ERROR
| DEV4 = EXPECTED ADDRESS
| RSAD = RECEIVED ADDRESS

057
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

058
DOES IO = 07 ?
Y N
| 059
| COMMAND REJECT FROM ATTACHMENT CARD
| START INPUT/OUTPUT (WRITE)
| START INPUT/OUTPUT (READ CYCLE STEAL STATUS)

060
DOES IN = 03 ?
Y N
| 061
| DOES DEV3 = 0000 ?
| Y N
| | 062
| | DCB CHECK VALUE ERROR
| | DEV3 = RECEIVED VALUE
| | DEV4 = EXPECTED VALUE
| 063
| CYCLE STEAL STATUS READ ERROR
| CHECK DCB, FLAGS AND ISB

064
DOES DEV4 = 0000 ?
Y N
| 065
| RESIDUAL ADDRESS ERROR
| DEV4 = EXPECTED ADDRESS
| RSAD = RECEIVED ADDRESS

066
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

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067
DOES IO = 07 ?
Y N
| 068
| COMMAND REJECT FROM ATTACHMENT CARD
| START INPUT/OUTPUT (WRITE)
| START INPUT/OUTPUT (READ CYCLE STEAL STATUS)
069
DOES IN = 03 ?
Y N
| 070
| DOES DEV3 = 0000 ?
| Y N
| | 071
| | DCB CHECK VALUE ERROR
| | DEV3 = RECEIVED VALUE
| | DEV4 = EXPECTED VALUE
| 072
| CYCLE STEAL STATUS READ ERROR
| CHECK DCB, FLAGS AND ISB
073
DOES DEV4 = 0000 ?
Y N
| 074
| RESIDUAL ADDRESS ERROR
| DEV4 = EXPECTED ADDRESS
| RSAD = RECEIVED ADDRESS
075
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

076
DOES IO = 07 ?
Y N
| 077
| COMMAND REJECT FROM ATTACHMENT CARD
| START INPUT/OUTPUT (WRITE)
| START INPUT/OUTPUT (READ CYCLE STEAL STATUS)
078
DOES IN = 03 ?
Y N
| 079
| DOES DEV3 = 0000 ?
| Y N
| | 080
| | DCB CHECK VALUE ERROR
| | DEV3 = RECEIVED VALUE
| | DEV4 = EXPECTED VALUE
| 081
| CYCLE STEAL STATUS READ ERROR
| CHECK DCB, FLAGS AND ISB
082
DOES DEV4 = 0000 ?
Y N
| 083
| RESIDUAL ADDRESS ERROR
| DEV4 = EXPECTED ADDRESS
| RSAD = RECEIVED ADDRESS
084
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

PAGE 8 OF 14

085
DOES IO = 07 ?
Y N
| 086
| COMMAND REJECT FROM ATTACHMENT CARD
| START INPUT/OUTPUT (WRITE)
| START INPUT/OUTPUT (READ CYCLE STEAL STATUS)
087
DOES IN = 03 ?
Y N
| 088
| DOES DEV3 = 0000 ?
| Y N
| | 089
| | DCB CHECK VALUE ERROR
| | DEV3 = RECEIVED VALUE
| | DEV4 = EXPECTED VALUE
| 090
| CYCLE STEAL STATUS READ ERROR
| CHECK DCB, FLAGS AND ISB
091
DOES DEV4 = 0000 ?
Y N
| 092
| RESIDUAL ADDRESS ERROR
| DEV4 = EXPECTED ADDRESS
| RSAD = RECEIVED ADDRESS
093
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

094
DOES IO = 07 ?
Y N
| 095
| COMMAND REJECT FROM ATTACHMENT CARD
| START INPUT/OUTPUT (WRITE)
| START INPUT/OUTPUT (READ CYCLE STEAL STATUS)
096
DOES IN = 03 ?
Y N
| 097
| DOES DEV3 = 0000 ?
| Y N
| | 098
| | DCB CHECK VALUE ERROR
| | DEV3 = RECEIVED VALUE
| | DEV4 = EXPECTED VALUE
| 099
| CYCLE STEAL STATUS READ ERROR
| CHECK DCB, FLAGS AND ISB
100
DOES DEV4 = 0000 ?
Y N
| 101
| RESIDUAL ADDRESS ERROR
| DEV4 = EXPECTED ADDRESS
| RSAD = RECEIVED ADDRESS
102
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

103
DOES IO = 07 ?
Y N
104
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)
105
DOES IN = 03 ?
Y N
106
DOES DEV3 = 0000 ?
Y N
107
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE
108
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB
109
DOES DEV4 = 0000 ?
Y N
110
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS
111
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB
112
DOES IO = 07 ?
Y N
113
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)
114
DOES IN = 03 ?
Y N
115
DOES DEV3 = 0000 ?
Y N
116
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE
117
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB
118
DOES DEV4 = 0000 ?
Y N
119
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS
120
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

121
DOES IO = 07 ?
Y N
122
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)
123
DOES IN = 03 ?
Y N
124
DOES DEV3 = 0000 ?
Y N
125
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE
126
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB
127
DOES DEV4 = 0000 ?
Y N
128
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS
129
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB
130
DOES IO = 07 ?
Y N
131
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)
132
DOES IN = 03 ?
Y N
133
DOES DEV3 = 0000 ?
Y N
134
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE
135
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB
136
DOES DEV4 = 0000 ?
Y N
137
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS
138
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

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139
DOES IO = 07 ?
Y N
| 140
| COMMAND REJECT FROM ATTACHMENT CARD
| START INPUT/OUTPUT (WRITE)
| START INPUT/OUTPUT (READ CYCLE STEAL
| STATUS)
141
DOES IN = 03 ?
Y N
| 142
| DOES DEV3 = 0000 ?
| Y N
| | 143
| | DCB CHECK VALUE ERROR
| | DEV3 = RECEIVED VALUE
| | DEV4 = EXPECTED VALUE
| 144
| CYCLE STEAL STATUS READ ERROR
| CHECK DCB, FLAGS AND ISB
145
DOES DEV4 = 0000 ?
Y N
| 146
| RESIDUAL ADDRESS ERROR
| DEV4 = EXPECTED ADDRESS
| RSAD = RECEIVED ADDRESS
147
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

148
DOES IO = 07 ?
Y N
| 149
| COMMAND REJECT FROM ATTACHMENT CARD
| START INPUT/OUTPUT (WRITE)
| START INPUT/OUTPUT (READ CYCLE STEAL STATUS)

150
DOES IN = 03 ?
Y N
| 151
| DOES DEV3 = 0000 ?
| Y N
| | 152
| | DCB CHECK VALUE ERROR
| | DEV3 = RECEIVED VALUE
| | DEV4 = EXPECTED VALUE
| 153
| CYCLE STEAL STATUS READ ERROR
| CHECK DCB, FLAGS AND ISB

154
DOES DEV4 = 0000 ?
Y N
| 155
| RESIDUAL ADDRESS ERROR
| DEV4 = EXPECTED ADDRESS
| RSAD = RECEIVED ADDRESS

156
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

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157
DOES IO = 07 ?
Y N
| 158
| COMMAND REJECT FROM ATTACHMENT CARD
| PREPARE - LEVEL = 1
| START INPUT/OUTPUT (CLEAR SCREEN)
159
CLEAR SCREEN ERROR
CHECK DCB, FLAGS AND ISB

160
DOES CKPT = 0000 ?
Y N
| 161
| DOES IO = 07 ?
| Y N
| | 162
| | COMMAND REJECT FROM ATTACHMENT CARD
| | START INPUT/OUTPUT (WRITE)
| 163
| WRITE ERROR WITH SHIFT DOWN
| CHECK DCB, FLAGS AND ISB
164
DOES IO = 07 ?
Y N
| 165
| COMMAND REJECT FROM ATTACHMENT CARD
| PREPARE - LEVEL = 1
| START INPUT/OUTPUT (CLEAR SCREEN)
166
CLEAR SCREEN ERROR
CHECK DCB, FLAGS AND ISB

167
DOES CKPT = 0000 ?
Y N
| 168
| DOES IO = 07 ?
| Y N
| | 169
| | COMMAND REJECT FROM ATTACHMENT CARD
| | START INPUT/OUTPUT (WRITE)
| 170
| WRITE ERROR WITH SHIFT UP
| CHECK DCB, FLAGS AND ISB
171
DOES IO = 07 ?
Y N
| 172
| COMMAND REJECT FROM ATTACHMENT CARD
| PREPARE - LEVEL = 1
| START INPUT/OUTPUT (CLEAR SCREEN)
173
CLEAR SCREEN ERROR
CHECK DCB, FLAGS AND ISB

174
DOES CKPT = 0000 ?
Y N
| 175
| DOES IO = 07 ?
| Y N
| | 176
| | COMMAND REJECT FROM ATTACHMENT CARD
| | START INPUT/OUTPUT (CHAINED WRITE/READ)

4979 DISPLAY SYSTEM TEST ERROR MAP

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177
DOES IN = 03 ?
Y N

178
CHAINED WRITE/READ ERROR
CHECK DCB, FLAGS AND ISB

179
COMPARE OF WRITE/READ DATA FAILED
DEV1 = WRITE DATA
DEV2 = READ DATA

180
DOES IO = 07 ?
Y N

181
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (CLEAR SCREEN)

182
CLEAR SCREEN ERROR
CHECK DCB, FLAGS AND ISB

183
DOES CKPT = 0000 ?
Y N

184
DOES CKPT = 0001 ?
Y N

185
DOES CKPT = 0002 ?
Y N

186
DOES IO = 07 ?
Y N

187
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (DIAGNOSTIC READ)

188
DOES IN = 03 ?
Y N

189
DIAGNOSTIC READ ERROR
CHECK DCB, FLAGS AND ISB

190
CHECKSUM VALUE ERROR
VALUE IN ERROR STORED
IN DEV3 AND DEV4

191
DOES IO = 07 ?
Y N

192
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 2
RESET
READ DEVICE ID
START INPUT/OUTPUT (WRITE)

193
DOES IN = 03 ?
Y N

194
WRITE ERROR
CHECK DCB, FLAGS AND ISB

195
WRONG ID RECEIVED ON LEVEL - 2
DEV3 = ID RECEIVED
DEV4 = ID EXPECTED

4979 DISPLAY SYSTEM TEST ERROR MAP

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196
DOES IO = 07 ?
Y N

197
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
RESET
READ DEVICE ID
START INPUT/OUTPUT (WRITE)

198
DOES IN = 03 ?
Y N

199
WRITE ERROR
CHECK DCB, FLAGS AND ISB

200
WRONG ID RECEIVED ON LEVEL - 1
DEV3 = ID RECEIVED
DEV4 = ID EXPECTED

201
DOES IO = 07 ?
Y N

202
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 0
RESET
READ DEVICE ID
START INPUT/OUTPUT (WRITE)

203
DOES IN = 03 ?
Y N

204
WRITE ERROR
CHECK DCB, FLAGS AND ISB

205
WRONG ID RECEIVED ON LEVEL - 0
DEV3 = ID RECEIVED
DEV4 = ID EXPECTED

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001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'45'.

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES RTN = 0003 ?
Y N

004
DOES RTN = 0004 ?
Y N

005

ROUTINE FIVE DCB CHECK VALUE

CKPT	VALUE	CKPT	VALUE
1	0020	8	0040
2	0020	9	0080
3	0020	A	0070
4	0060	B	0090
5	0030	C	0002
6	0060	D	0003
7	0050	E	0003

DOES CKPT = 0000 ?
Y N

DOES CKPT = 0000 ?
Y N

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006
DOES CKPT = 0001 ?
Y N

007
DOES CKPT = 0002 ?
Y N

008
DOES CKPT = 0003 ?
Y N

009
DOES CKPT = 0004 ?
Y N

010
DOES CKPT = 0005 ?
Y N

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011
DOES CKPT = 0006 ?
Y N

012
DOES CKPT = 0007 ?
Y N

013
DOES CKPT = 0008 ?
Y N

014
DOES CKPT = 0009 ?
Y N

015
DOES CKPT = 000A ?
Y N

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016
DOES CKPT = 000B ?
Y N

017
DOES CKPT = 000C ?
Y N

018
DOES CKPT = 000D ?
Y N

019
DOES IO = 07 ?
Y N

020
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)

021
DOES IN = 03 ?
Y N

022
DOES DEV3 = 0000 ?
Y N

023
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE

024
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

025
DOES DEV4 = 0000 ?
Y N

026
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

027
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

028
DOES IO = 07 ?
Y N

029
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)

030
DOES IN = 03 ?
Y N

031
DOES DEV3 = 0000 ?
Y N

032
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE

033
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

034
DOES DEV4 = 0000 ?
Y N

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035
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

036
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

037
DOES IO = 07 ?
Y N

038
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)

039
DOES IN = 03 ?
Y N

040
DOES DEV3 = 0000 ?
Y N

041
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE

042
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

043
DOES DEV4 = 0000 ?
Y N

044
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

045
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

046
DOES IO = 07 ?
Y N

047
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)

048
DOES IN = 03 ?
Y N

049
DOES DEV3 = 0000 ?
Y N

050
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE

051
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

052
DOES DEV4 = 0000 ?
Y N

053
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

6
Y

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054
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

055
DOES IO = 07 ?
Y N

056
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)

057
DOES IN = 03 ?
Y N

058
DOES DEV3 = 0000 ?
Y N

059
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE

060
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

061
DOES DEV4 = 0000 ?
Y N

062
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

063
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

064
DOES IO = 07 ?
Y N

065
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)

066
DOES IN = 03 ?
Y N

067
DOES DEV3 = 0000 ?
Y N

068
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE

069
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

070
DOES DEV4 = 0000 ?
Y N

071
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

072
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

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073
DOES IO = 07 ?
Y N

074
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)

075
DOES IN = 03 ?
Y N

076
DOES DEV3 = 0000 ?
Y N

077
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE

078
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

079
DOES DEV4 = 0000 ?
Y N

080
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

081
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

082
DOES IO = 07 ?
Y N

083
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)

084
DOES IN = 03 ?
Y N

085
DOES DEV3 = 0000 ?
Y N

086
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE

087
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

088
DOES DEV4 = 0000 ?
Y N

089
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

090
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

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091
DOES IO = 07 ?
Y N

092
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)

093
DOES IN = 03 ?
Y N

094
DOES DEV3 = 0000 ?
Y N

095
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE

096
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

097
DOES DEV4 = 0000 ?
Y N

098
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

099
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

100
DOES IO = 07 ?
Y N

101
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)

102
DOES IN = 03 ?
Y N

103
DOES DEV3 = 0000 ?
Y N

104
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE

105
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

106
DOES DEV4 = 0000 ?
Y N

107
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

108
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

109
DOES IO = 07 ?
Y N
110
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)
111
DOES IN = 03 ?
Y N
112
DOES DEV3 = 0000 ?
Y N
113
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE
114
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB
115
DOES DEV4 = 0000 ?
Y N
116
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS
117
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB
118
DOES IO = 07 ?
Y N
119
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)
120
DOES IN = 03 ?
Y N
121
DOES DEV3 = 0000 ?
Y N
122
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE
123
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB
124
DOES DEV4 = 0000 ?
Y N
125
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS
126
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

127
DOES IO = 07 ?
Y N
128
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)
129
DOES IN = 03 ?
Y N
130
DOES DEV3 = 0000 ?
Y N
131
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE
132
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB
133
DOES DEV4 = 0000 ?
Y N
134
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS
135
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB
136
DOES IO = 07 ?
Y N
137
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
START INPUT/OUTPUT (READ CYCLE STEAL STATUS)
138
DOES IN = 03 ?
Y N
139
DOES DEV3 = 0000 ?
Y N
140
DCB CHECK VALUE ERROR
DEV3 = RECEIVED VALUE
DEV4 = EXPECTED VALUE
141
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB
142
DOES DEV4 = 0000 ?
Y N
143
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS
144
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

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145
DOES IO = 07 ?
Y N

146
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (CLEAR SCREEN)

147
CLEAR SCREEN ERROR
CHECK DCB, FLAGS AND ISB

148
DOES CKPT = 0000 ?
Y N

149
DOES CKPT = 0001 ?
Y N

150
DOES IO = 07 ?
Y N

151
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (READ)

152
DOES IN = 03 ?
Y N

153
READ ERROR
CHECK DCB, FLAGS AND ISB

154
DATA COMPARE ERROR
DEV1 = WRITE DATA
DEV2 = READ DATA

155
DOES IO = 07 ?
Y N

156
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)

157
WRITE ERROR WITH SHIFT DOWN
CHECK DCB, FLAGS AND ISB

158
DOES IO = 07 ?
Y N

159
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (CLEAR SCREEN)

160
CLEAR SCREEN ERROR
CHECK DCB, FLAGS AND ISB

161
DOES CKPT = 0000 ?
Y N

162
DOES CKPT = 0001 ?
Y N

163
DOES IO = 07 ?
Y N

164
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (READ)

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165
DOES IN = 03 ?
Y N

166
READ ERROR
CHECK DCB, FLAGS AND ISB

167
DATA COMPARE ERROR
DEV1 = WRITE DATA
DEV2 = READ DATA

168
DOES IO = 07 ?
Y N

169
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)

170
WRITE ERROR WITH SHIFT UP
CHECK DCB, FLAGS AND ISB

171
DOES IO = 07 ?
Y N

172
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (CLEAR SCREEN)

173
CLEAR SCREEN ERROR
CHECK DCB, FLAGS AND ISB

174
DOES CKPT = 0000 ?
Y N

175
DOES IO = 07 ?
Y N

176
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (CHAINED WRITE/READ)

177
DOES IN = 03 ?
Y N

178
CHAINED WRITE/READ ERROR
CHECK DCB, FLAGS AND ISB

179
COMPARE OF WRITE/READ DATA FAILED
DEV1 = WRITE DATA
DEV2 = READ DATA

180
DOES IO = 07 ?
Y N

181
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (CLEAR SCREEN)

182
CLEAR SCREEN ERROR
CHECK DCB, FLAGS AND ISB

183
DOES CKPT = 0000 ?
Y N

184
DOES CKPT = 0001 ?
Y N

185
DOES IO = 07 ?
Y N
| 186
| COMMAND REJECT FROM ATTACHMENT CARD
| PREPARE - LEVEL = 2
| RESET
| READ DEVICE ID
| START INPUT/OUTPUT (WRITE)
|
187
DOES IN = 03 ?
Y N
| 188
| WRITE ERROR
| CHECK DCB, FLAGS AND ISB
|
189
WRONG ID RECEIVED ON LEVEL - 2
DEV3 = ID RECEIVED
DEV4 = ID EXPECTED

190
DOES IO = 07 ?
Y N
| 191
| COMMAND REJECT FROM ATTACHMENT CARD
| PREPARE - LEVEL = 1
| RESET
| READ DEVICE ID
| START INPUT/OUTPUT (WRITE)
|
192
DOES IN = 03 ?
Y N
| 193
| WRITE ERROR
| CHECK DCB, FLAGS AND ISB
|
194
WRONG ID RECEIVED ON LEVEL - 1
DEV3 = ID RECEIVED
DEV4 = ID EXPECTED

195
DOES IO = 07 ?
Y N
| 196
| COMMAND REJECT FROM ATTACHMENT CARD
| PREPARE - LEVEL = 0
| RESET
| READ DEVICE ID
| START INPUT/OUTPUT (WRITE)
|
197
DOES IN = 03 ?
Y N
| 198
| WRITE ERROR
| CHECK DCB, FLAGS AND ISB

199
WRONG ID RECEIVED ON LEVEL - 0
DEV3 = ID RECEIVED
DEV4 = ID EXPECTED

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'48'.

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES RTN = 0003 ?
Y N

004
DOES RTN = 0004 ?
Y N

005
DOES CKPT = 0000 ?
Y N

006
DOES CKPT = 0001 ?
Y N

007
DOES IO = 07 ?
Y N

008
COMMAND REJECT FROM ATTACHMENT CARD
EITHER - START INPUT/OUTPUT (SEEK TO
HEAD ONE)
OR ----- START INPUT/OUTPUT (WRITE
DATA)
OR ----- START INPUT/OUTPUT (READ
DATA)

009
DOES IN = 03 ?
Y N

010
SEEK TO HEAD 1 ERROR
WRITE ERROR
OR READ ERROR
CHECK DCB, FLAGS AND ISB

011
DATA COMPARE ERROR
DEV3 -- RECEIVED DATA
DEV4 -- EXPECTED DATA

012
DOES IO = 07 ?
Y N

013
COMMAND REJECT FROM ATTACHMENT CARD
EITHER - START INPUT/OUTPUT (SEEK TO
HEAD ZERO)
OR ----- START INPUT/OUTPUT (WRITE DATA)
OR ----- START INPUT/OUTPUT (READ DATA)

014
DOES IN = 03 ?
Y N

015
SEEK TO HEAD 0 ERROR
WRITE ERROR
OR READ ERROR
CHECK DCB, FLAGS AND ISB

016
DATA COMPARE ERROR
DEV3 -- RECEIVED DATA
DEV4 -- EXPECTED DATA

017
DOES IO = 07 ?
Y N

018
COMMAND REJECT FROM ATTACHMENT CARD
EITHER - PREPARE (LEVEL = ONE)
OR ----- START INPUT/OUTPUT (RECALIBRATE)
OR ----- START INPUT/OUTPUT (SEEK TO TRACK
11 HEAD 0)
OR ----- START INPUT/OUTPUT (READ FIRST
SECTOR)

019
RECALIBRATE ERROR
SEEK ERROR
OR READ ERROR
CHECK DCB, FLAGS AND ISB

020
DOES CKPT = 0000 ?
Y N

021
DOES CKPT = 0001 ?
Y N

022
DOES CKPT = 0002 ?
Y N

023
DOES CKPT = 0003 ?
Y N

024
DOES CKPT = 0004 ?
Y N

025
DOES CKPT = 0005 ?
Y N

026
DOES IO = 07 ?
Y N

027
COMMAND REJECT FROM ATTACHMENT CARD
EITHER - START INPUT/OUTPUT (ILLEGAL DCB)
OR ----- START CYCLE STEAL STATUS

028
DOES IN = 03 ?
Y N

029
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

030
DOES DEV4 = 0000 ?
Y N

031
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

032
READ ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

033
DOES IO = 07 ?
Y N

034
COMMAND REJECT FROM ATTACHMENT CARD
EITHER - START INPUT/OUTPUT (ILLEGAL DCB)
OR ----- START CYCLE STEAL STATUS

035
DOES IN = 03 ?
Y N

036
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

037
DOES DEV4 = 0000 ?
Y N

038
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

039
READ ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

040
DOES IO = 07 ?
Y N

041
COMMAND REJECT FROM ATTACHMENT CARD
EITHER - START INPUT/OUTPUT (ILLEGAL DCB)
OR ----- START CYCLE STEAL STATUS

042
DOES IN = 03 ?
Y N

043
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

044
DOES DEV4 = 0000 ?
Y N

045
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

046
READ ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

047
DOES IO = 07 ?
Y N

048
COMMAND REJECT FROM ATTACHMENT CARD
EITHER - START INPUT/OUTPUT (ILLEGAL DCB)
OR ----- START CYCLE STEAL STATUS

049
DOES IN = 03 ?
Y N

050
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

051
DOES DEV4 = 0000 ?
Y N

052
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

053
READ ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

054
DOES IO = 07 ?
Y N

055
COMMAND REJECT FROM ATTACHMENT CARD
EITHER - START INPUT/OUTPUT (ILLEGAL DCB)
OR ----- START CYCLE STEAL STATUS

056
DOES IN = 03 ?
Y N

057
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

058
DOES DEV4 = 0000 ?
Y N

059
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

060
READ ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

061
DOES IO = 07 ?
Y N

062
COMMAND REJECT FROM ATTACHMENT CARD
EITHER - START INPUT/OUTPUT (ILLEGAL DCB)
OR ----- START CYCLE STEAL STATUS

063
DOES IN = 03 ?
Y N

064
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

065
DOES DEV4 = 0000 ?
Y N

066
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

067
READ ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

068
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

069
DOES CKPT = 0000 ?
Y N

070
DOES IO = 07 ?
Y N

071
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (SEEK CHAINED TO READ SECTOR ID)

072
DOES IN = 03 ?
Y N

073
CHAINED SEEK AND READ SECTOR ID ERROR
CHECK DCB,FLAGS AND ISB

074
WRONG CYLINDER NUMBER
DEV1 = XXCC RECEIVED
DEV4 = XXCC EXPECTED

075
DOES IO = 07 ?
Y N

076
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE = LEVEL 1
START INPUT/OUTPUT (SEEK CYLINDER ZERO)

077
DOES IN = 03 ?
Y N

078
SEEK ERROR -- CHECK DCB, FLAGS AND ISB

079
SEEK CYLINDER ERROR -- DEV1 IS NOT EQUAL TO XX00

080
DOES CKPT = 0000 ?
Y N

081
DOES CKPT = 0001 ?
Y N

082
DOES CKPT = 0002 ?
Y N
- 083
  DOES IO = 07 ?
  Y N
  - 084
    COMMAND REJECT FROM ATTACHMENT CARD
    START INPUT/OUTPUT (RECALIBRATE)
  - 085
    RECALIBRATE ERROR
    CHECK DCB, FLAGS AND ISB
- 086
  DOES IO = 07 ?
  Y N
  - 087
    COMMAND REJECT FROM ATTACHMENT CARD
    START INPUT/OUTPUT (SEEK)
    START INPUT/OUTPUT (READ SECTOR ID)
  - 088
    DOES IN = 03 ?
    Y N
    - 089
      SEEK OR READ SECTOR ID ERROR
      CHECK DCB, FLAGS AND ISB
    - 090
      DOES DEV3 = 0000 ?
      Y N
      - 091
        HEAD SELECT ERROR
        DEV2 = HHXX HEAD RECEIVED
        DEV3 = XXHH HEAD EXPECTED
      - 092
        SEEK ERROR (WRONG CYLINDER)
        DEV1 = XXCC CYLINDER RECEIVED
        DEV4 = XXCC CYLINDER EXPECTED
      - 093
        DOES IO = 07 ?
        Y N
        - 094
          COMMAND REJECT FROM ATTACHMENT CARD
          START INPUT/OUTPUT (READ SECTOR ID)
        - 095
          DOES IN = 03 ?
          Y N
          - 096
            READ SECTOR ID FAILED
            CHECK DCB, FLAGS AND ISB
          - 097
            CYLINDER NUMBER NOT EQUAL TO ZERO
            DEV1 NOT EQUAL TO XX00
- 098
  DOES IO = 07 ?
  Y N
  - 099
    COMMAND REJECT FROM ATTACHMENT CARD
    PREPARE - LEVEL = 1
    START INPUT/OUTPUT (SEEK)
  - 100
    SEEK ERROR (CYLINDER NUMBER NOT EQUAL TO ZERO)
    CHECK DCB, FLAGS AND ISB

101
DOES CKPT = 0000 ?
Y N
- 102
  DOES CKPT = 0001 ?
  Y N
  - 103
    DOES CKPT = 0002 ?
    Y N
    - 104
      DOES IO = 07 ?
      Y N
      - 105
        COMMAND REJECT FROM ATTACHMENT CARD
        PREPARE - LEVEL = 1
        START INPUT/OUTPUT (RECALIBRATE)
      - 106
        RECALIBRATE ERROR
        CHECK DCB, FLAGS AND ISB
    - 107
      DOES IO = 07 ?
      Y N
      - 108
        COMMAND REJECT FROM ATTACHMENT CARD
        PREPARE - LEVEL = 2
        START INPUT/OUTPUT (SEEK)
      - 109
        LEVEL 2 SEEK ERROR
        CHECK DCB, FLAGS AND ISB
  - 110
    DOES IO = 07 ?
    Y N
    - 111
      COMMAND REJECT FROM ATTACHMENT CARD
      PREPARE - LEVEL = 1
      START INPUT/OUTPUT (SEEK)
    - 112
      LEVEL 1 SEEK ERROR
      CHECK DCB, FLAGS AND ISB
- 113
  DOES IO = 07 ?
  Y N
  - 114
    COMMAND REJECT FROM ATTACHMENT CARD
    RESET
    READ ID
    PREPARE - LEVEL = 0
    START INPUT/OUTPUT (SEEK)
  - 115
    DOES DEV4 = 0000 ?
    Y N
    - 116
      WRONG DEVICE ID RECEIVED ON LEVEL 0
      DEV3 = ID RECEIVED
      DEV4 = ID EXPECTED
    - 117
      LEVEL 0 SEEK ERROR
      CHECK DCB, FLAGS AND ISB

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'4A'.

```
**************************************************
**************************************************
**                                              **
**    ANY TIME THAT THE DEV1 FIELD IS EQUAL TO  **
** HEXADECIMAL FFFF --- THE HARDWARE USED ITS   **
** RETRY AND THE OPERATOR WANTED ALL OF THESE   **
** FLAGGED AS AN ERROR.                         **
**                                              **
**************************************************
**************************************************
```

DOES RTN = 0001 ?
Y N

- Y: 002 DOES RTN = 0002 ?
  - Y: 003 DOES RTN = 0003 ?
    - Y: 004 DOES RTN = 0004 ?
      - Y: 005 DOES RTN = 0005 ?
        - Y:
        - N:
      - N:
    - N:
  - N:
- N:

006
DOES CKPT = 0000 ?
Y N

- Y:
- N: 007 DOES CKPT = 0001 ?
  - Y: 008 DOES IO = 07 ?
    - Y: 009 COMMAND REJECT FROM ATTACHMENT CARD
      EITHER - START INPUT/OUTPUT (WRITE DATA)
      OR ----- START INPUT/OUTPUT (READ DATA)

      010 DOES IN = 03 ?
      - Y: 011 WRITE ERROR
        OR READ ERROR
        CHECK DCB, FLAGS AND ISB
      - N: 012 DATA COMPARE ERROR
        DEV3 -- RECEIVED DATA
        DEV4 -- EXPECTED DATA
    - N: 013 DOES IO = 07 ?
      - Y: 014 COMMAND REJECT FROM ATTACHMENT CARD
        EITHER - START INPUT/OUTPUT (WRITE DATA)
        OR ----- START INPUT/OUTPUT (READ DATA)

        015 DOES IN = 03 ?
        - Y: 016 WRITE ERROR
          OR READ ERROR
          CHECK DCB, FLAGS AND ISB
        - N: 017 DATA COMPARE ERROR
          DEV3 -- RECEIVED DATA
          DEV4 -- EXPECTED DATA
      - N: 018 DOES IO = 07 ?
        - Y: 019 COMMAND REJECT FROM ATTACHMENT CARD
          EITHER - PREPARE (LEVEL = ONE)
          OR ----- START INPUT/OUTPUT (READ FIRST SECTOR)

          020 READ ERROR
          CHECK DCB, FLAGS AND ISB
        - N:

021
DOES CKPT = 0000 ?
Y N

- Y: 022 DOES CKPT = 0001 ?
  - Y: 023 DOES IO = 07 ?
    - Y:
    - N:
  - N:
- N:

024
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (READ SECTOR ID)

025
DOES IN = 03 ?
Y N

026
READ SECTOR ID ERROR
CHECK DCB, FLAGS AND ISB

027
SEEK TO DISKETTE ERROR
DEV1 = DDXX EXPECTED DISKETTE POSITION
DEV4 = DDXX RECEIVED DISKETTE POSITION

028
DOES IO = 07 ?
Y N

029
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (SEEK TO DISKETTE)

030
SEEK TO DISKETTE ERROR
CHECK DCB, FLAGS AND ISB

031
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (PREPARE LEVEL 1)

032
DOES CKPT = 0000 ?
Y N

033
DOES CKPT = 0001 ?
Y N

034
DOES CKPT = 0002 ?
Y N

035
DOES CKPT = 0003 ?
Y N

036
DOES CKPT = 0004 ?
Y N

037
DOES IO = 07 ?
Y N

038
COMMAND REJECT FROM ATTACHMENT CARD
EITHER - START INPUT/OUTPUT (ILLEGAL DCB)
OR ----- START CYCLE STEAL STATUS

039
DOES IN = 03 ?
Y N

040
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

041
DOES DEV4 = 0000 ?
Y N

042
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

043
READ ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

044
DOES IO = 07 ?
Y N

045
COMMAND REJECT FROM ATTACHMENT CARD
EITHER - START INPUT/OUTPUT (ILLEGAL DCB)
OR ----- START CYCLE STEAL STATUS

046
DOES IN = 03 ?
Y N

047
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

048
DOES DEV4 = 0000 ?
Y N

049
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

050
READ ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

051
DOES IO = 07 ?
Y N

052
COMMAND REJECT FROM ATTACHMENT CARD
EITHER - START INPUT/OUTPUT (ILLEGAL DCB)
OR ----- START CYCLE STEAL STATUS

053
DOES IN = 03 ?
Y N

054
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

055
DOES DEV4 = 0000 ?
Y N

056
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

057
READ ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

058
DOES IO = 07 ?
Y N

059
COMMAND REJECT FROM ATTACHMENT CARD
EITHER - START INPUT/OUTPUT (ILLEGAL DCB)
OR ----- START CYCLE STEAL STATUS

060
DOES IN = 03 ?
Y N

061
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

062
DOES DEV4 = 0000 ?
Y N

063
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

064
READ ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

065
DOES IO = 07 ?
Y N

066
COMMAND REJECT FROM ATTACHMENT CARD
EITHER - START INPUT/OUTPUT (ILLEGAL DCB)
OR ----- START CYCLE STEAL STATUS

067
DOES IN = 03 ?
Y N

068
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

069
DOES DEV4 = 0000 ?
Y N

070
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

071
READ ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

072
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

073
DOES CKPT = 0000 ?
Y N

074
DOES IO = 07 ?
Y N

075
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (SEEK CHAINED TO READ SECTOR ID)

076
DOES IN = 03 ?
Y N

077
CHAINED SEEK AND READ SECTOR ID ERROR
CHECK DCB,FLAGS AND ISB

078
WRONG CYLINDER NUMBER
DEV1 = XXCC EXPECTED
DEV2 = XXCC RECEIVED

079
DOES IO = 07 ?
Y N

080
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE = LEVEL 1
START INPUT/OUTPUT (SEEK CYLINDER ZERO)
START INPUT/OUTPUT (READ SECTOR ID)

081
SEEK CHAINED TO READ SECTOR ID ERROR
CHECK DCB, FLAGS AND ISB

082
DOES CKPT = 0000 ?
Y N

083
DOES CKPT = 0001 ?
Y N

084
DOES CKPT = 0002 ?
Y N

085
DOES IO = 07 ?
Y N

086
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (RECALIBRATE)

087
RECALIBRATE ERROR
CHECK DCB, FLAGS AND ISB

088
DOES IO = 07 ?
Y N

089
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (SEEK)
START INPUT/OUTPUT (READ SECTOR ID)

090
DOES IN = 03 ?
Y N

091
SEEK OR READ SECTOR ID ERROR
CHECK DCB, FLAGS AND ISB

7 7 7
U V W

092
SEEK ERROR
DEV1 = XXCC CYLINDER EXPECTED
DEV2 = XXCC CYLINDER RECEIVED
CHECK DCB, FLAGS AND ISB

093
DOES IO = 07 ?
Y N

094
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (READ SECTOR ID)

095
DOES IN = 03 ?
Y N

096
READ SECTOR ID FAILED
CHECK DCB, FLAGS AND ISB

097
CYLINDER NUMBER NOT EQUAL TO ZERO
SEEK TO CYLINDER ZERO ERROR

098
DOES IO = 07 ?
Y N

099
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SEEK)

100
SEEK ERROR
CHECK DCB, FLAGS AND ISB

101
DOES CKPT = 0000 ?
Y N

102
DOES CKPT = 0001 ?
Y N

103
DOES IO = 07 ?
Y N

104
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 2
START INPUT/OUTPUT (SEEK)

105
LEVEL 2 SEEK ERROR
CHECK DCB, FLAGS AND ISB

106
DOES IO = 07 ?
Y N

107
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SEEK)

108
LEVEL 1 SEEK ERROR
CHECK DCB, FLAGS AND ISB

109
DOES IO = 07 ?
Y N

110
COMMAND REJECT FROM ATTACHMENT CARD
RESET
READ ID
PREPARE - LEVEL = 0
START INPUT/OUTPUT (SEEK)

111
DOES DEV4 = 0000 ?
Y N

112
WRONG DEVICE ID RECEIVED ON LEVEL 0
DEV3 = ID RECEIVED
DEV4 = ID EXPECTED

113
LEVEL 0 SEEK ERROR
CHECK DCB, FLAGS AND ISB

PAGE 1 OF 6

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'50'.

NOTE: IN THIS MAP DEVICE (0) WILL INDICATE THE
EVEN-NUMBERED DEVICE ADDRESS WHILE DEVICE (1)
WILL INDICATE THE ODD-NUMBERED DEVICE ADDRESS
OF THE TIMER ATTACHMENT CARD

DOES RTN = 0001 ?
Y N
002
DOES RTN = 0002 ?
Y N
003
DOES RTN = 0003 ?
Y N
004
DOES RTN = 0004 ?
Y N
005
DOES RTN = 0005 ?
Y N

PAGE 2 OF 6

006
DOES CKPT = 0000 ?
Y N
007
DOES CKPT = 0001 ?
Y N
008
DOES IO = 07 ?
Y N
009
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 2
WRITE MODE (DEVICE 0 AND 1)
WRITE VALUE (DEVICE 0 AND 1)
START TIMER EXTERNAL GATE (DEVICE 0
AND 1)
010
START TIMER EXTERNAL GATE FAILED
CHECK DCB, FLAGS AND ISB
DEV4 - MODE WHEN FAILURE OCCURRED
011
DOES IO = 07 ?
Y N
012
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
WRITE MODE (DEVICE 0 AND 1)
WRITE VALUE (DEVICE 0 AND 1)
START TIMER EXTERNAL GATE (DEVICE 0 AND
1)
013
START TIMER EXTERNAL GATE FAILED
CHECK DCB, FLAGS AND ISB
DEV4 - MODE WHEN FAILURE OCCURRED
014
DOES IO = 07 ?
Y N
015
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 0
WRITE MODE (DEVICE 0 AND 1)
WRITE VALUE (DEVICE 0 AND 1)
START TIMER EXTERNAL GATE (DEVICE 0 AND 1)
016
START TIMER EXTERNAL GATE FAILED
CHECK DCB, FLAGS AND ISB
DEV4 - MODE WHEN FAILURE OCCURRED
017
DOES CKPT = 0000 ?
Y N
018
DOES CKPT = 0001 ?
Y N
019
DOES CKPT = 0002 ?
Y N
020
DOES CKPT = 0003 ?
Y N
021
READ MODE ERROR
DEV1 = EXPECTED DATA
DCB2 = RECEIVED DATA
ERROR ON TIMER ONE

PAGE 3 OF 6

022
READ MODE ERROR
DEV1 = EXPECTED DATA
DCB2 = RECEIVED DATA
ERROR ON TIMER ZERO

023
COMMAND REJECT FROM ATTACHMENT CARD
READ MODE (DEVICE ZERO AND ONE)

024
COMMAND REJECT FROM ATTACHMENT CARD
WRITE MODE (DEVICE ZERO AND ONE)

025
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
DEVICE ZERO OR ONE

026
DOES CKPT = 0000 ?
Y N

027
DOES CKPT = 0001 ?
Y N

028
DOES CKPT = 0002 ?
Y N

029
DOES CKPT = 0003 ?
Y N

030
READ VALUE ERROR
DEV1 = EXPECTED DATA
DCB2 = RECEIVED DATA
ERROR ON TIMER ONE

031
READ VALUE ERROR
DEV1 = EXPECTED DATA
DCB2 = RECEIVED DATA
ERROR ON TIMER ZERO

032
COMMAND REJECT FROM ATTACHMENT CARD
READ VALUE (DEVICE ZERO AND ONE)

033
COMMAND REJECT FROM ATTACHMENT CARD
WRITE VALUE (DEVICE ZERO AND ONE)

034
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
DEVICE ZERO OR ONE

035
DOES CKPT = 0000 ?
Y N

036
DOES CKPT = 0001 ?
Y N

037
DOES CKPT = 0002 ?
Y N

038
COMMAND REJECT FROM ATTACHMENT CARD
RESET (DEVICE ZERO OR ONE)

039
DOES IN = 03 ?
Y N

040
COMMAND REJECT ERROR
DEVICE ONE

PAGE 4 OF 6

041
CHECK DCB, FLAGS AND ISB
ERROR EXPECTED - GOOD RECEIVED

042
DOES IN = 03 ?
Y N

043
COMMAND REJECT ERROR
DEVICE ZERO

044
CHECK DCB, FLAGS AND ISB
ERROR EXPECTED - GOOD RECEIVED

045
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE = LEVEL 1
(DEVICE ZERO OR ONE)

046
DOES CKPT = 0000 ?
Y N

047
DOES CKPT = 0001 ?
Y N

048
DOES CKPT = 0002 ?
Y N

049
DOES CKPT = 0003 ?
Y N

050
DOES CKPT = 0004 ?
Y N

P 4 Q 4 R 4 S 4 T 4 U 4 TIMER SYSTEM TEST ERROR MAP

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051
DOES IO = 07 ?
Y N
052
COMMAND REJECT FROM ATTACHMENT CARD
READ VALUE (DEVICE ZERO OR ONE)
053
DATA ERROR FROM READ VALUE
IF DEVICE ZERO - DCB2 IS NOT EQUAL TO DCB4
IF DEVICE ONE -- DCB2 IS NOT EQUAL TO DCB7
054
DOES IO = 07 ?
Y N
055
COMMAND REJECT FROM ATTACHMENT CARD
READ MODE (DEVICE ZERO OR ONE)
056
DATA ERROR FROM READ MODE
IF DEVICE ZERO - DCB2 IS NOT EQUAL TO HEXADECIMAL'0000'
IF DEVICE ONE -- DCB2 IS NOT EQUAL TO HEXADECIMAL'0000'
057
COMMAND REJECT FROM ATTACHMENT CARD
RESET (DEVICE ONE)
STOP (DEVICE ZERO)
058
DOES IO = 07 ?
Y N
059
COMMAND REJECT FROM ATTACHMENT CARD
READ VALUE (DEVICE ZERO OR ONE)
060
DATA ERROR FROM READ VALUE
IF DEVICE ZERO - DCB2 IS NOT EQUAL TO DCB4
IF DEVICE ONE -- DCB2 IS NOT EQUAL TO DCB7
061
DOES IO = 07 ?
Y N
062
COMMAND REJECT FROM ATTACHMENT CARD
READ MODE (DEVICE ZERO OR ONE)
063
DATA ERROR FROM READ MODE
IF DEVICE ZERO - DCB2 IS NOT EQUAL TO HEXADECIMAL'0000'
IF DEVICE ONE -- DCB2 IS NOT EQUAL TO DCB8
064
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
RESET (DEVICE ZERO)
STOP (DEVICE ONE)

A 1 TIMER SYSTEM TEST ERROR MAP

PAGE 6 OF 6

065
DOES CKPT = 0000 ?
Y N
066
DOES CKPT = 0001 ?
Y N
067
DOES CKPT = 0002 ?
Y N
068
COMMAND REJECT FROM ATTACHMENT CARD
READ MODE DEVICE ONE
READ VALUE DEVICE ONE
069
COMMAND REJECT FROM ATTACHMENT CARD
READ MODE DEVICE ZERO
READ VALUE DEVICE ZERO
070
DOES IO = 07 ?
Y N
071
COMMAND REJECT FROM ATTACHMENT CARD
READ ID DEVICE ONE
072
WRONG ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
(DEVICE ONE)
073
DOES IO = 07 ?
Y N
074
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1 (DEVICE ZERO OR ONE)
READ ID DEVICE ZERO
075
WRONG ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
(DEVICE ZERO)

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'58'.

DOES RTN = FFFF ?
Y N

002
DOES RTN = 0000 ?
Y N

003
DOES RTN = 0001 ?
Y N

004
DOES RTN = 0002 ?
Y N

005
DOES RTN = 0003 ?
Y N

006
DOES RTN = 0004 ?
Y N

007
DOES RTN = 0005 ?
Y N

008
DOES RTN = 0006 ?
Y N

009
ERROR ON A WRITE TAPE MARK.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

010
ERROR WHILE WRITING LONG RECORDS FROM
STORAGE.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

011
DOES CKPT = 0000 ?
Y N

012
DOES CKPT = 0001 ?
Y N

013
DOES CKPT = 0002 ?
Y N

014
ERROR WHILE A SPACE TAPE MARK FORWARD
WAS EXECUTING.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

015
ERROR WHILE A SPACE TAPE MARK BACKWARD
WAS EXECUTING.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

016
ERROR WHILE A WRITE TAPE MARK WAS
EXECUTING.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

017
ERROR WHILE MANY ERASE COMMANDS WERE
EXECUTING.
GO TO PAGE 7, STEP 058, ENTRY POINT B.

018
DOES CKPT = 0000 ?
Y N

019
DOES CKPT = 0001 ?
Y N

020
DOES CKPT = 0002 ?
Y N

021
DOES CKPT = 0003 ?
Y N

022
DOES CKPT = 0004 ?
Y N

PAGE 3 OF 10

023
ERROR WHILE A SPACE TAPE MARK FORWARD WAS EXECUTING.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

024
ERROR WHILE A SPACE TAPE MARK BACKWARD WAS EXECUTING.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

025
ERROR WHILE A SPACE RECORD BACKWARD WAS EXECUTING.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

026
DATA COMPARE ERROR AFTER A READ COMMAND.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

027
ERROR WHILE A READ COMMAND WAS EXECUTING.
GO TO PAGE 7, STEP 058, ENTRY POINT B.

028
ERROR WHILE A SPACE RECORD FORWARD WAS EXECUTING.
GO TO PAGE 7, STEP 058, ENTRY POINT B.

PAGE 4 OF 10

029
DOES CKPT = 0000 ?
Y N

030
DOES CKPT = 0001 ?
Y N

031
DOES CKPT = 0002 ?
Y N

032
ERROR WHILE A SPACE TAPE MARK FORWARD WAS EXECUTING.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

033
ERROR WHILE A SPACE TAPE MARK BACKWARD WAS EXECUTING.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

034
DATA COMPARE ERROR AFTER A READ COMMAND.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

035
ERROR WHILE A READ COMMAND WAS EXECUTING.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

036
DOES CKPT = 0000 ?
Y N

037
DOES CKPT = 0001 ?
Y N

038
ERROR WHILE A SPACE TAPE MARK FORWARD WAS EXECUTING.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

039
ERROR WHILE A SPACE TAPE MARK BACKWARD WAS EXECUTING.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

040
ERROR WHILE A WRITE WAS EXECUTING.

INSPECT THE STATUS IN DEV1 FOR ERROR ANALYSIS.

041
ERROR WHILE A READ ID WAS EXECUTING.

DEV3=EXPECTED DEVICE ID.
DEV4=RECEIVED DEVICE ID.

042
DOES CKPT = 0000 ?
Y N

043
ERROR DURING A REWIND.
GO TO PAGE 7, STEP 058, ENTRY POINT B.

044
ERROR DURING A WRITE TAPEMARK.
GO TO PAGE 7, STEP 058, ENTRY POINT B.

045
DOES CKPT = 0000 ?
Y N

046
DOES CKPT = 0001 ?
Y N

047
DOES CKPT = 0002 ?
Y N

048
DOES CKPT = 0003 ?
Y N

049
DOES CKPT = 0004 ?
Y N

050
DOES CKPT = 0005 ?
Y N

051
THE DEVICE IS NOT READY OR OFF LINE.

052
ERROR DURING A WRITE TAPE MARK.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

053
FILE PROTECT BIT IS ON.

054
LOAD POINT INDICATOR NOT ON AFTER A REWIND.

055
ERROR DURING A START STATUS.
GO TO PAGE 7, STEP 058,
ENTRY POINT B.

056
ERROR DURING A REWIND.
GO TO PAGE 7, STEP 058, ENTRY POINT B.

057
ERROR ON A DEVICE RESET.
GO TO PAGE 7, STEP 058, ENTRY POINT B.

058
(ENTRY POINT B)
DOES IO=07 ?
Y N
| 059
| DOES IO=06 ?
| Y N
| | 060
| | DOES IO=05 ?
| | Y N
| | | 061
| | | DOES IO=03 ?
| | | Y N
| | | | 062
| | | | DOES IO=02 ?
| | | | Y N
| | | | | |

8 8 8 8 8 8
U V W X Y Z

| | | | | | | 063
| | | | | | | DOES IO=01 ?
| | | | | | | Y N
| | | | | | | | 064
| | | | | | | | DEVICE NOT ATTACHED.
| | | | | | | 065
| | | | | | | DEVICE BUSY.
| | | | | | 066
| | | | | | BUSY AFTER RESET.
| | | | | 067
| | | | | COMMAND REJECT.
| | | | 068
| | | | INTERFACE DATA CHECK.
| | | 069
| | | CONTROLLER BUSY.
| | 070
| | DOES IN=02 ?
| | Y N
| | | 071
| | | DOES IN=07 ?
| | | Y N
| | | | 072
| | | | DOES IN=06 ?
| | | | Y N
| | | | | 073
| | | | | DOES IN=04 ?
| | | | | Y N
| | | | | | 074
| | | | | | DOES IN=03 ?
| | | | | | Y N
| | | | | | | 075
| | | | | | | CONTROLLER END.
| | | | | | 076
| | | | | | DEVICE END RECEIVED.
| | | | | | IS BIT 1 IN THE FLAGS FIELD OFF ?
| | | | | | Y N
| | | | | | | 077
| | | | | | | INSPECT DEV4
| | | | | | | BITS 0-7 IS THE DATA READ
| | | | | | | BITS 8-15 IS THE DATA WRITTEN
| | | | | | 078
| | | | | | GO TO PAGE 9, STEP 099,
| | | | | | ENTRY POINT D.
| | | | | 079
| | | | | ATTENTION.
| | | | 080
| | | | ATTENTION AND EXCEPTION.
| | | 081
| | | ATTENTION AND DEVICE END.
| | 082
| | IS BIT 0 OF THE ISB OFF ?
| | Y N
| | | 083
| | | IS BIT 2 OF THE ISB OFF ?
| | | Y N
| | | | 084
| | | | NOT CORRECT LENGTH ERROR.
| | | 085
| | | IS CS-4 BIT 10 OF THE ISB OFF ?
| | | Y N
| | | | |

9 9 9
A A A
A B C

086
IS CS-5 EQUAL TO FFFF ?
Y N

087
THE BITS IN CS-5 ARE AS FOLLOWS.
BIT 0 = TIMER.
BIT 1 = TAPE CONTROLLER ERROR.
BIT 2 = CORRECTED ERROR.
BIT 3 = CRC PARITY ERROR.

BIT 4 = TAPE CONTROLLER COMMAND REJECT.
BIT 5 = ATTACHMENT B PARITY ERROR.
BIT 6 = BUFFER PARITY ERROR.
BIT 7 = TAPE CONTROLLER PARITY ERROR.

BIT 8 = EQUIPMENT CHECK.
BIT 9 = ATTACHMENT A PARITY ERROR.
BIT 10 = ATTACHMENT LOCAL TIMEOUT.
BIT 11 = C/S STATUS ERROR.

BIT 12-15 = RETRY COUNT.
INSPECT CS-5 FOR ERROR BITS.
ARE ALL OF THE BITS 0-11 IN CS-5 OFF ?
Y N

088
CAUTION IF BITS 1 AND 7 ARE THE ONLY
BITS ON IN CS-5
SUSPECT A POSSIBLE MEDIA PROBLEM.
ANALYZE BITS 0-11 FOR ERROR
INFORMATION.

089
GO TO STEP 099,
ENTRY POINT D.

090
GO TO PAGE 10, STEP 114,
ENTRY POINT C.

091
IS CS-4 BIT 0 ON ?
Y N

092
TAPE DRIVE NOT READY.

093
IS CS-4 BIT 2 OFF ?
Y N

094
FILE PROTECT INDICATOR ON.

095
IS CS-4 BIT 4 OFF ?
Y N

096
END OF TAPE IS PRESENT.

097
IS CS-4 BIT 5 OFF ?
Y N

098
TAPE MARK WAS PRESENT DURING THE LAST DATA
MOVE.

099
(ENTRY POINT D)

THIS MAP CANNOT DETERMINE THE PROBLEM.
USE THE ERROR OUTPUT YOU HAVE BEEN USING
FOR THIS MAP, AS YOUR ERROR INDICATIONS AND
GO TO MAP 0070 ENTRY POINT A.

100
IS BIT 1 OF THE ISB OFF ?
Y N

101
DELAYED COMMAND REJECT.

102
IS BIT 2 OF THE ISB OFF ?
Y N

103
NOT CORRECT LENGTH ERROR.

104
IS BIT 3 OF THE ISB OFF ?
Y N

105
DCB SPECIFICATION CHECK.

106
IS BIT 4 OF THE ISB OFF ?
Y N

107
STORAGE DATA CHECK.

108
IS BIT 5 OF THE ISB OFF ?
Y N

109
NOT VALID STORAGE ADDRESS.

110
IS BIT 6 OF THE ISB OFF ?
Y N

111
PROTECT CHECK.

112
IS BIT 7 OF THE ISB OFF ?
Y N

113
INTERFACE DATA CHECK.

114
(ENTRY POINT C)
IS BIT 0 OF THE FLAGS OFF ?
Y N

115
NOT EXPECTED INTERRUPT.

116
IS BIT 5 OF THE FLAGS OFF ?
Y N

117
WRONG INTERRUPT LEVEL.

118
IS BIT 6 OF THE FLAGS OFF ?
Y N

119
LOST INTERRUPT.

120
PROTECT CHECK.

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'68'.

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES RTN = 0003 ?
Y N

004
DOES RTN = 0004 ?
Y N

005
DOES RTN = 0005 ?
Y N

006
DOES RTN = 0006 ?
Y N

007
DOES RTN = 0007 ?
Y N

008
DOES RTN = 0008 ?
Y N

009
DOES CKPT = 0000 ?
Y N

010
DOES IO = 07 ?
Y N

011
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)

012
WRITE ERROR (SINGLE CHARACTER)
CHECK DCB, FLAGS AND ISB

013
DOES IO = 07 ?
Y N

014
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SKIP TO ONE)

015
SKIP TO ONE ERROR
CHECK DCB, FLAGS AND ISB

016
DOES CKPT = 0000 ?
Y N

017
DOES IO = 07 ?
Y N

018
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)

019
WRITE ERROR (STRESS PATTERN)
CHECK DCB, FLAGS AND ISB

020
DOES IO = 07 ?
Y N

021
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SKIP TO ONE)

022
SKIP TO ONE ERROR
CHECK DCB, FLAGS AND ISB

023
DOES CKPT = 0000 ?
Y N

024
DOES CKPT = 0001 ?
Y N

025
DOES CKPT = 0002 ?
Y N

026
DOES CKPT = 0003 ?
Y N
027
DOES CKPT = 0004 ?
Y N
028
DOES CKPT = 0005 ?
Y N
029
READ ROM DATA ERROR
RECEIVED DATA IN DEV1 AND DEV2
EXPECTED DATA IN DEV3 AND DEV4
COMPLETE EXPECTED DATA EQUAL
HEXADECIMAL'FFFE42FFBC00F001DC01'
030
DOES IO = 07 ?
Y N
031
COMMAND REJECT FROM ATTACHMENT
CARD
START INPUT/OUTPUT (READ FORM)
032
READ ROM ERROR
CHECK DCB, FLAGS AND ISB
033
DOES IO = 07 ?
Y N
034
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE FORM)
035
WRITE ROM ERROR
CHECK DCB, FLAGS AND ISB
036
READ ROM DATA ERROR
RECEIVED DATA IN DEV1 AND DEV2
EXPECTED DATA IN DEV3 AND DEV4
COMPLETE EXPECTED DATA EQUAL
HEXADECIMAL'42FE42FFBC00F001DC01'
037
DOES IO = 07 ?
Y N
038
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (READ FORM)
039
READ ROM ERROR
CHECK DCB, FLAGS AND ISB
040
DOES IO = 07 ?
Y N
041
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE FORM)
042
WRITE ROM ERROR
CHECK DCB, FLAGS AND ISB
043
DOES IO = 07 ?
Y N
044
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SKIP TO ONE)

045
SKIP TO ONE ERROR
CHECK DCB, FLAGS AND ISB
046
DOES CKPT = 0000 ?
Y N
047
DOES IO = 07 ?
Y N
048
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
049
WRITE ERROR (ERROR EXPECTED - GOOD
RECEIVED)
CHECK DCB, FLAGS AND ISB
050
DOES IO = 07 ?
Y N
051
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SKIP TO ONE)
052
SKIP TO ONE ERROR
CHECK DCB, FLAGS AND ISB
053
DOES CKPT = 0000 ?
Y N
054
DOES IO = 07 ?
Y N
055
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)
056
WRITE ERROR
CHECK DCB, FLAGS AND ISB
057
DOES IO = 07 ?
Y N
058
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SKIP TO ONE)
059
SKIP TO ONE ERROR
CHECK DCB, FLAGS AND ISB
060
DOES CKPT = 0000 ?
Y N
061
DOES IO = 07 ?
Y N
062
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT WRITE
(LINE SKIP TEST)
063
WRITE FAILED (LINE SKIP TEST)
CHECK DCB, FLAGS AND ISB
064
DOES IO = 07 ?
Y N

065
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SKIP TO ONE)

066
SKIP TO ONE ERROR
CHECK DCB, FLAGS AND ISB

067
DOES CKPT = 0000 ?
Y N

068
DOES CKPT = 0001 ?
Y N

069
DOES CKPT = 0002 ?
Y N

070
DOES IO = 07 ?
Y N

071
COMMAND REJECT FROM ATTACHMENT CARD
SECOND READ OF THE CYCLE STEAL STATUS

072
DOES IN = 03 ?
Y N

073
READ CYCLE STEAL STATUS ERROR
CHECK DCB, FLAGS AND ISB

074
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

075
DOES IO = 07 ?
Y N

076
COMMAND REJECT FROM ATTACHMENT CARD
FIRST READ OF THE CYCLE STEAL STATUS

077
DOES IN = 03 ?
Y N

078
READ CYCLE STEAL STATUS ERROR
CHECK DCB, FLAGS AND ISB

079
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

080
DOES IO = 07 ?
Y N

081
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)

082
WRITE ERROR
CHECK DCB, FLAGS AND ISB

083
DOES IO = 07 ?
Y N

084
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SKIP TO ONE)

085
SKIP TO ONE ERROR
CHECK DCB, FLAGS AND ISB

086
DOES CKPT = 0000 ?
Y N

087
DOES CKPT = 0001 ?
Y N

088
DOES IO = 07 ?
Y N

089
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)

090
WRITE FAILED
CHECK DCB, FLAGS AND ISB
DEV1 AND DEV2 CONTAIN DATA TO WRITE

091
DOES IO = 07 ?
Y N

092
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)

093
WRITE FAILED
CHECK DCB, FLAGS AND ISB
DEV1 AND DEV2 CONTAIN DATA TO WRITE

094
DOES IO = 07 ?
Y N

095
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SKIP TO ONE)

096
SKIP TO ONE ERROR
CHECK DCB, FLAGS AND ISB

097
DOES CKPT = 0000 ?
Y N

098
DOES CKPT = 0001 ?
Y N

099
DOES CKPT = 0002 ?
Y N

100
DOES IO = 07 ?
Y N

101
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (DIAGNOSTIC READ)

102
DOES IN = 03 ?
Y N

103
DIAGNOSTIC READ ERROR
CHECK DCB, FLAGS AND ISB

104
CHECKSUM VALUE ERROR
VALUE IN ERROR STORE
IN DEV3 AND DEV4

105
DOES IO = 07 ?
Y N

106
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 2
RESET
READ ID
START INPUT/OUTPUT (WRITE)

107
DOES IN = 03 ?
Y N

108
WRITE FAILED
CHECK DCB, FLAGS AND ISB
LEVEL = 2

109
WRONG ID RECEIVED ON LEVEL - 2
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID

110
DOES IO = 07 ?
Y N

111
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
RESET
READ ID
START INPUT/OUTPUT (WRITE)

112
DOES IN = 03 ?
Y N

113
WRITE FAILED
CHECK DCB, FLAGS AND ISB
LEVEL = 1

114
WRONG ID RECEIVED ON LEVEL - 1
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID

115
DOES IO = 07 ?
Y N

116
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 0
RESET
READ ID
START INPUT/OUTPUT (WRITE)

117
DOES IN = 03 ?
Y N

118
WRITE FAILED
CHECK DCB, FLAGS AND ISB
LEVEL = 0

119
WRONG ID RECEIVED ON LEVEL - 0
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'64'.

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES RTN = 0003 ?
Y N

004
DOES RTN = 0004 ?
Y N

005
DOES RTN = 0005 ?
Y N

006
DOES RTN = 0006 ?
Y N

007
DOES RTN = 0007 ?
Y N

008
DOES CKPT = 0000 ?
Y N

009
DOES CKPT = 0001 ?
Y N

010
DOES IO = 07 ?
Y N

011
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)

012
WRITE ERROR (INCREASING LINE LENGTH)
CHECK DCB, FLAGS AND ISB

013
DOES IO = 07 ?
Y N

014
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)

015
WRITE ERROR (DECREASING LINE LENGTH)
CHECK DCB, FLAGS AND ISB

016
DOES IO = 07 ?
Y N

017
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SKIP TO ONE)

018
SKIP TO ONE ERROR
CHECK DCB, FLAGS AND ISB

019
DOES CKPT = 0000 ?
Y N

020
DOES CKPT = 0001 ?
Y N

021
DOES IO = 07 ?
Y N

022
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (READ)

023
DOES IN = 03 ?
Y N

024
READ ROM ERROR
CHECK DCB, FLAGS AND ISB

025
READ ROM DATA ERROR
RECEIVED DATA IN DEV1 TO DEV4
EXPECTED DATA =
HEXADECIMAL'23456789ABCDF001'

026
DOES IO = 07 ?
Y N
027
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)

028
WRITE ERROR
CHECK DCB, FLAGS AND ISB

029
DOES IO = 07 ?
Y N
030
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SKIP TO ONE)

031
SKIP TO ONE ERROR
CHECK DCB, FLAGS AND ISB

032
DOES CKPT = 0000 ?
Y N
033
DOES IO = 07 ?
Y N
034
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)

035
WRITE ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

036
DOES IO = 07 ?
Y N
037
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SKIP TO ONE)

038
SKIP TO ONE ERROR
CHECK DCB, FLAGS AND ISB

039
DOES CKPT = 0000 ?
Y N
040
DOES CKPT = 0001 ?
Y N
041
DOES CKPT = 0002 ?
Y N
042
DOES IO = 07 ?
Y N
043
COMMAND REJECT FROM ATTACHMENT CARD
SECOND READ OF THE CYCLE STEAL STATUS

044
DOES IN = 03 ?
Y N
045
READ CYCLE STEAL STATUS ERROR
CHECK DCB, FLAGS AND ISB

046
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

047
DOES IO = 07 ?
Y N
048
COMMAND REJECT FROM ATTACHMENT CARD
FIRST READ OF THE CYCLE STEAL STATUS

049
DOES IN = 03 ?
Y N
050
READ CYCLE STEAL STATUS ERROR
CHECK DCB, FLAGS AND ISB

051
RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

052
DOES IO = 07 ?
Y N
053
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE)

054
WRITE ERROR
CHECK DCB, FLAGS AND ISB

055
DOES IO = 07 ?
Y N
056
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SKIP TO ONE)

057
SKIP TO ONE ERROR
CHECK DCB, FLAGS AND ISB

058
DOES CKPT = 0000 ?
Y N
059
DOES IO = 07 ?
Y N
060
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT WRITE (LINE SKIP TEST)

061
WRITE FAILED (LINE SKIP TEST)
CHECK DCB, FLAGS AND ISB

062
DOES IO = 07 ?
Y N
063
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SKIP TO ONE)

064
SKIP TO ONE ERROR
CHECK DCB, FLAGS AND ISB

065
DOES CKPT = 0000 ?
Y N
- 066
  DOES IO = 07 ?
  Y N
  - 067
    COMMAND REJECT FROM ATTACHMENT CARD
    START INPUT/OUTPUT (WRITE)
  - 068
    WRITE ERROR
    CHECK DCB, FLAGS AND ISB
- 069
  DOES IO = 07 ?
  Y N
  - 070
    COMMAND REJECT FROM ATTACHMENT CARD
    PREPARE - LEVEL = 1
    START INPUT/OUTPUT (SKIP TO ONE)
  - 071
    SKIP TO ONE ERROR
    CHECK DCB, FLAGS AND ISB

072
DOES CKPT = 0000 ?
Y N
- 073
  DOES CKPT = 0001 ?
  Y N
  - 074
    DOES IO = 07 ?
    Y N
    - 075
      COMMAND REJECT FROM ATTACHMENT CARD
      START INPUT/OUTPUT (WRITE)
    - 076
      WRITE FAILED
      CHECK DCB, FLAGS AND ISB
      DEV1 AND DEV2 CONTAIN DATA TO WRITE
  - 077
    DOES IO = 07 ?
    Y N
    - 078
      COMMAND REJECT FROM ATTACHMENT CARD
      START INPUT/OUTPUT (WRITE)
  - 079
    WRITE FAILED
    CHECK DCB, FLAGS AND ISB
    DEV1 AND DEV2 CONTAIN DATA TO WRITE

080
DOES IO = 07 ?
Y N
- 081
  COMMAND REJECT FROM ATTACHMENT CARD
  PREPARE - LEVEL = 1
  START INPUT/OUTPUT (SKIP TO ONE)
  START INPUT/OUTPUT (LOAD 8 LINE / INCH CODE
- 082
  SKIP TO ONE ERROR
  LOAD 8 LINE CODE ERROR
  CHECK DCB, FLAGS AND ISB

083
DOES CKPT = 0000 ?
Y N

084
DOES CKPT = 0001 ?
Y N
- 085
  DOES CKPT = 0002 ?
  Y N
  - 086
    DOES IO = 07 ?
    Y N
    - 087
      COMMAND REJECT FROM ATTACHMENT CARD
      PREPARE - LEVEL = 1
      START INPUT/OUTPUT (DIAGNOSTIC READ)
    - 088
      DOES IN = 03 ?
      Y N
      - 089
        DIAGNOSTIC READ ERROR
        CHECK DCB, FLAGS AND ISB
      - 090
        CHECKSUM VALUE ERROR
        VALUE IN ERROR STORE
        IN DEV3 AND DEV4
    - 091
      DOES IO = 07 ?
      Y N
      - 092
        COMMAND REJECT FROM ATTACHMENT CARD
        PREPARE - LEVEL = 2
        RESET
        READ ID
        START INPUT/OUTPUT (WRITE)
      - 093
        DOES IN = 03 ?
        Y N
        - 094
          WRITE FAILED
          CHECK DCB, FLAGS AND ISB
          LEVEL = 2
        - 095
          WRONG ID RECEIVED ON LEVEL - 2
          DEV3 = RECEIVED ID
          DEV4 = EXPECTED ID
    - 096
      DOES IO = 07 ?
      Y N
      - 097
        COMMAND REJECT FROM ATTACHMENT CARD
        PREPARE - LEVEL = 1
        RESET
        READ ID
        START INPUT/OUTPUT (WRITE)
      - 098
        DOES IN = 03 ?
        Y N
        - 099
          WRITE FAILED
          CHECK DCB, FLAGS AND ISB
          LEVEL = 1
        - 100
          WRONG ID RECEIVED ON LEVEL - 1
          DEV3 = RECEIVED ID
          DEV4 = EXPECTED ID

101
DOES IO = 07 ?
Y N

102
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 0
RESET
READ ID
START INPUT/OUTPUT (WRITE)

103
DOES IN = 03 ?
Y N

104
WRITE FAILED
CHECK DCB, FLAGS AND ISB
LEVEL = 0

105
WRONG ID RECEIVED ON LEVEL - 0
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID

PAGE 1 OF 7

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'78'.

DOES RTN = 0001 ?
Y N
002
DOES RTN = 0002 ?
Y N
003
DOES RTN = 0003 ?
Y N
004
DOES CKPT = 0000 ?
Y N
005
DOES CKPT = 0001 ?
Y N

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006
DOES CKPT = 0002 ?
Y N
007
DOES CKPT = 0003 ?
Y N
008
DOES CKPT = 0004 ?
Y N
009
DOES CKPT = 0005 ?
Y N
010
DOES IO = 07 ?
Y N
011
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (ILLEGAL DCB)
START INPUT/OUTPUT (START CYCLE
STEAL STATUS)
012
DOES IN = 03 ?
Y N
013
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB
014
DOES DEV4 = 0000 ?
Y N
015
CYCLE STEAL STATUS RESIDUAL ADDRESS
ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS
016
COMMAND ERROR (ERROR EXPECTED - GOOD
RECEIVED)
CHECK DCB, FLAGS AND ISB
017
DOES IO = 07 ?
Y N
018
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (ILLEGAL DCB)
START INPUT/OUTPUT (START CYCLE STEAL
STATUS)
019
DOES IN = 03 ?
Y N
020
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB
021
DOES DEV4 = 0000 ?
Y N
022
CYCLE STEAL STATUS RESIDUAL ADDRESS
ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS
023
COMMAND ERROR (ERROR EXPECTED - GOOD
RECEIVED)
CHECK DCB, FLAGS AND ISB

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024
DOES IO = 07 ?
Y N

025
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (ILLEGAL DCB)
START INPUT/OUTPUT (START CYCLE STEAL STATUS)

026
DOES IN = 03 ?
Y N

027
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

028
DOES DEV4 = 0000 ?
Y N

029
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

030
COMMAND ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

031
DOES IO = 07 ?
Y N

032
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (ILLEGAL DCB)
START INPUT/OUTPUT (START CYCLE STEAL STATUS)

033
DOES IN = 03 ?
Y N

034
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

035
DOES DEV4 = 0000 ?
Y N

036
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

037
COMMAND ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

038
DOES IO = 07 ?
Y N

039
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (ILLEGAL DCB)
START INPUT/OUTPUT (START CYCLE STEAL STATUS)

040
DOES IN = 03 ?
Y N

041
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

PAGE 4 OF 7

042
DOES DEV4 = 0000 ?
Y N

043
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

044
COMMAND ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

045
DOES IO = 07 ?
Y N

046
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (ILLEGAL DCB)
START INPUT/OUTPUT (START CYCLE STEAL STATUS)

047
DOES IN = 03 ?
Y N

048
CYCLE STEAL STATUS READ ERROR
CHECK DCB, FLAGS AND ISB

049
DOES DEV4 = 0000 ?
Y N

050
CYCLE STEAL STATUS RESIDUAL ADDRESS ERROR
DEV4 = EXPECTED ADDRESS
RSAD = RECEIVED ADDRESS

051
COMMAND ERROR (ERROR EXPECTED - GOOD RECEIVED)
CHECK DCB, FLAGS AND ISB

052
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1

053
DOES CKPT = 0000 ?
Y N

054
DOES CKPT = 0001 ?
Y N

055
DOES CKPT = 0002 ?
Y N

056
DOES IO = 07 ?
Y N

057
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE SECTOR CHAINED TO READ SECTOR)

058
DOES IN = 03 ?
Y N

059
WRITE SECTOR CHAINED TO READ SECTOR FAILED
CHECK DCB, FLAGS AND ISB

PAGE 5 OF 7

060
READ ERROR
DEV4 = XXYY WHERE:
XX = READ DATA
YY = WRITE DATA
CHECK DCB, FLAGS AND ISB

061
DOES IO = 07 ?
Y N

062
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (SEEK C.E. TRACK)

063
DOES IN = 03 ?
Y N

064
SEEK FAILED
CHECK DCB, FLAGS AND ISB

065
RECALIBRATE FAILED OR C.E. TRACK IS BAD
DEV1 SHOULD BE EQUAL TO XX00
DEV2 SHOULD BE EQUAL TO 012E

066
DOES IO = 07 ?
Y N

067
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (READ SECTOR ID)

068
READ SECTOR ID ERROR
CHECK DCB, FLAGS AND ISB

069
DOES IO = 07 ?
Y N

070
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (RECALIBRATE)

071
RECALIBRATE FAILED
CHECK DCB, FLAGS AND ISB

072
DOES CKPT = 0000 ?
Y N

073
DOES CKPT = 0001 ?
Y N

074
DOES CKPT = 0002 ?
Y N

075
DOES CKPT = 0003 ?
Y N

076
DOES CKPT = 0004 ?
Y N

6 6 6 6 6 6
Q R S T U V

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077
DOES CKPT = 0005 ?
Y N

078
GOOD ALTERNATE SECTOR FOUND NOT ON CYLINDER ONE
DEV4 = CYLINDER NUMBER (OTHER THEN ONE)

079
ALL SECTORS MARKED BAD ON TRACK ZERO
DEV4 = CYLINDER NUMBER

080
SEEK ERROR (WRONG CYLINDER NUMBER)
DEV4 = EXPECTED NUMBER
DEV2 = RECEIVED NUMBER

081
DOES IO = 07 ?
Y N

082
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (SEEK CHAINED TO READ SECTOR ID)
START INPUT/OUTPUT (READ SECTOR ID)

083
SEEK CHAINED TO READ SECTOR ID FAILED OR READ SECTOR ID FAILED
CHECK DCB, FLAGS AND ISB

084
DOES IO = 07 ?
Y N

085
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (READ SECTOR ID)

086
DOES IN = 03 ?
Y N

087
READ SECTOR ID FAILED
CHECK DCB, FLAGS AND ISB

088
SECTOR FLAG BYTE OR CYLINDER NOT EQUAL TO ZERO
DEV1 NOT EQUAL TO XX00 AND/OR
DEV2 NOT EQUAL TO 0000
CHECK DCB, FLAGS AND ISB

089
DOES IO = 07 ?
Y N

090
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (SEEK)

091
SEEK FAILED - (CYLINDER ZERO)
CHECK DCB, FLAGS AND ISB

092
DOES IO = 07 ?
Y N

093
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (RECALIBRATE)

094
RECALIBRATE FAILED
CHECK DCB, FLAGS AND ISB

4962 DISK SYSTEM TEST ERROR MAP

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095
DOES CKPT = 0000 ?
Y N

096
DOES CKPT = 0001 ?
Y N

097
DOES IO = 07 ?
Y N

098
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 2
START INPUT/OUTPUT (SEEK)

099
SEEK FAILED
CHECK DCB, FLAGS AND ISB

100
DOES IO = 07 ?
Y N

101
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (SEEK)

102
SEEK FAILED
CHECK DCB, FLAGS AND ISB

103
DOES IO = 07 ?
Y N

104
COMMAND REJECT FROM ATTACHMENT CARD
RESET
READ DEVICE ID
PREPARE - LEVEL = 0
START INPUT/OUTPUT (SEEK)

105
DOES IN = FF ?
Y N

106
SEEK FAILED
CHECK DCB, FLAGS AND ISB

107
WRONG ID RECEIVED ON LEVEL - 0
DEV4 = ID EXPECTED
CS-8 = ID RECEIVED

PAGE 1 OF 5

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'7A'.

****
****
**
** ANY TIME THAT THE DEV1 FIELD IS EQUAL TO **
** HEXADECIMAL FFFF --- THE HARDWARE USED ITS **
** RETRY AND THE OPERATOR WANTED ALL OF THESE **
** FLAGGED AS AN ERROR. **
**
****
****

DOES RTN = 0001 ?
Y N
002
DOES RTN = 0002 ?
Y N
003
DOES RTN = 0003 ?
Y N
004
DOES RTN = 0004 ?
Y N
005
DOES CKPT = 0000 ?
Y N

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006
DOES IO = 07 ?
Y N
007
CYCLE STEAL STATUS RESIDUAL ADDRESS
ERROR
DEV3 = EXPECTED ADDRESS
DEV4 = RECEIVED ADDRESS
CHECK DCB, FLAGS AND ISB
008
COMMAND ERROR (ERROR EXPECTED - GOOD
RECEIVED)
CHECK DCB, FLAGS AND ISB
009
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
010
DOES CKPT = 0000 ?
Y N
011
DOES CKPT = 0001 ?
Y N
012
DOES CKPT = 0002 ?
Y N
013
DOES CKPT = 0003 ?
Y N
014
DOES CKPT = 0004 ?
Y N
015
NO GOOD SECTOR FOUND ON ONE OF THE
TRACKS LOCATED ON THE C.E.
CYLINDER.
CHECK DCB, FLAGS AND ISB
016
DATA COMPARE ERROR
DEV4 = XXYY WHERE:
XX = DATA READ AND
YY = DATA WRITTEN
CHECK DCB, FLAGS AND ISB
017
DOES IO = 07 ?
Y N
018
COMMAND REJECT FROM ATTACHMENT CARD
WRITE DATA CHAINED TO READ DATA
CHECK DCB, FLAGS AND ISB
019
WRITE DATA CHAINED TO READ DATA FAILED
CHECK DCB, FLAGS AND ISB
020
READ SECTOR ID ERROR
DEV2 = RECEIVED SECTOR ID
DCB2 = EXPECTED SECTOR ID
CHECK DCB, FLAGS AND ISB
021
DOES IO = 07 ?
Y N
022
COMMAND REJECT FROM ATTACHMENT CARD
READ SECTOR ID
CHECK DCB, FLAGS AND ISB
023
READ SECTOR ID FAILED
CHECK DCB, FLAGS AND ISB

024
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1

025
DOES CKPT = 0000 ?
Y N

026
DOES CKPT = 0001 ?
Y N

027
DOES IO = 07 ?
Y N

028
COMMAND REJECT FROM ATTACHMENT CARD
READ SECTOR ID
CHECK DCB, FLAGS AND ISB

029
DOES IN = 03 ?
Y N

030
READ SECTOR ID FAILED
CHECK DCB, FLAGS AND ISB

031
READ SECTOR ID FAILED
DEV4 = EXPECTED VALUE
DCB3 = RECEIVED VALUE
CHECK DCB, FLAGS AND ISB

032
DOES IO = 07 ?
Y N

033
COMMAND REJECT FROM ATTACHMENT CARD
READ SECTOR ID
CHECK DCB, FLAGS AND ISB

034
DOES IN = 03 ?
Y N

035
READ SECTOR ID FAILED
CHECK DCB, FLAGS AND ISB

036
READ SECTOR ID FAILED
DEV2 = EXPECTED VALUE
DCB3 = RECEIVED VALUE
CHECK DCB, FLAGS AND ISB

037
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1

038
DOES CKPT = 0000 ?
Y N

039
DOES CKPT = 0001 ?
Y N

040
DOES IO = 07 ?
Y N

041
COMMAND REJECT FROM ATTACHMENT CARD
READ VERIFY FAILED

042
READ AND VERIFY FAILED
CHECK DCB, FLAGS AND ISB

043
DOES IO = 07 ?
Y N

044
COMMAND REJECT FROM ATTACHMENT CARD
READ SECTOR ID
CHECK DCB, FLAGS AND ISB

045
DOES IN = 03 ?
Y N

046
READ SECTOR ID FAILED
CHECK DCB, FLAGS AND ISB

047
NO GOOD SECTOR FOUND
DEV1 AND DEV2 = LAST SECTOR ID READ
CHECK DCB, FLAGS AND ISB

048
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1

049
DOES CKPT = 0000 ?
Y N

050
DOES CKPT = 0001 ?
Y N

051
DOES CKPT = 0002 ?
Y N

052
DOES CKPT = 0003 ?
Y N

053
DOES IO = 07 ?
Y N

054
COMMAND REJECT FROM ATTACHMENT CARD
START CYCLE STEAL STATUS
CHECK DCB, FLAGS AND ISB

055
DOES IN = 03 ?
Y N

056
START CYCLE STEAL STATUS FAILED
CHECK DCB, FLAGS AND ISB

057
CHECK DCB, FLAGS AND ISB
CS-5 BITS 5 THROUGH 7 = ZERO.

058
DOES IO = 07 ?
Y N

059
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE TO LEVEL ONE
READ SECTOR ID
CHECK DCB, FLAGS AND ISB

060
READ SECTOR ID FAILED
CHECK DCB, FLAGS AND ISB

061
DOES IO = 07 ?
Y N

4963 DISK SYSTEM TEST ERROR MAP

062
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL TWO
RECALIBRATE DISK

063
RECALIBRATE FAILED
CHECK DCB, FLAGS AND ISB

064
DOES IO = 07 ?
Y N

065
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL ONE
RECALIBRATE DISK

066
RECALIBRATE FAILED
CHECK DCB, FLAGS AND ISB

067
DOES IO = 07 ?
Y N

068
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE TO LEVEL ONE
READ SECTOR ID
READ DEVICE ID
PREPARE TO LEVEL ZERO
RECALIBRATE
CHECK DCB, FLAGS AND ISB

069
DOES DEV3 = 0000 ?
Y N

070
WRONG DEVICE ID RECEIVED
DEV3 = EXPECTED ID
DEV4 = RECEIVED ID

COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL TWO
RECALIBRATE DISK

071
DOES IN = 03 ?
Y N

072
RECALIBRATE ERROR
CHECK DCB, FLAGS AND ISB

073
RECALIBRATE FAILED
CHECK DCB, FLAGS AND ISB

PAGE 1 OF 5

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'A0'.

NOTE: IN THIS MAP 'DI 1' INDICATES THE
THE LOWEST DI REGISTER DEVICE ADDRESS
WHILE 'DI 2' INDICATES THE HIGHER
DEVICE ADDRESS. THE SAME IS CORRECT
FOR THE DATA OUT DEVICE ADDRESS
(THAT IS 'DO 1' AND/OR 'DO 2')

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES RTN = 0003 ?
Y N

004
DOES RTN = 0004 ?
Y N

005
DOES RTN = 0005 ?
Y N

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006
DOES CHPT = 0000 ?
Y N

007
DOES CKPT = 0001 ?
Y N

008
DOES IO = 07 ?
Y N

009
COMMAND REJECT FROM ATTACHMENT CARD
EITHER A WRITE DO (BOTH)
OR READ DI (BOTH)
CHECK DCB, FLAGS AND ISB

010
DOES IN = 04 ?
Y N

011
WRITE DO OR READ DI FAILED
CHECK DCB, FLAGS AND ISB

012
DATA WRITTEN DOES NOT
COMPARE WITH DATA READ
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA

013
DOES IO = 07 ?
Y N

014
COMMAND REJECT FROM ATTACHMENT CARD
ARM EXTERNAL SYNC. (ALL FOUR)

015
ARM EXTERNAL SYNC FAILED
CHECK DCB, FLAGS AND ISB

016
COMMAND REJECT FROM ATTACHMENT CARD
RESET TO ALL FOUR
PREPARE - LEVEL = 1 (ALL FOUR)

017
DOES CKPT = 0000 ?
Y N

018
DOES IO = 07 ?
Y N

019
COMMAND REJECT FROM ATTACHMENT CARD
ARM PI
SET EXTERNAL SYNC.
SET TEST 1
READ STATUS
CHECK DCB, FLAGS AND ISB

020
WRONG STATUS RECEIVED
DCB2 = RECEIVED STATUS
DEV4 = EXPECTED STATUS
CHECK DCB, FLAGS AND ISB

021
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
RESET
CHECK DCB, FLAGS AND ISB

022
DOES CKPT = 0000 ?
Y N

PAGE 3 OF 5

023
DOES CKPT = 0001 ?
Y N

024
DOES IO = 07 ?
Y N

025
COMMAND REJECT FROM ATTACHMENT CARD
READ DI
CHECK DCB, FLAGS AND ISB

026
READ DI DATA WRONG
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

027
DOES IO = 07 ?
Y N

028
COMMAND REJECT FROM ATTACHMENT CARD
SET TEST 1
READ STATUS OF DI
CHECK DCB, FLAGS AND ISB

029
READ DI STATUS WRONG
DCB2 = RECEIVED STATUS
DEV4 = EXPECTED STATUS
CHECK DCB, FLAGS AND ISB

030
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1
RESET OF DI'S
CHECK DCB, FLAGS AND ISB

031
DOES CKPT = 0000 ?
Y N

032
DOES CKPT = 0001 ?
Y N

033
DOES IO = 07 ?
Y N

034
COMMAND REJECT FROM ATTACHMENT CARD
RESET BOTH DO'S
CHECK DCB, FLAGS AND ISB

035
COMMAND REJECT ERROR FROM DO
CHECK DCB, FLAGS AND ISB

036
COMMAND REJECT FROM ATTACHMENT CARD FAILED
CHECK DCB, FLAGS AND ISB

037
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE WITH THE 'I' BIT OFF BOTH DO'S
CHECK DCB, FLAGS AND ISB

038
DOES CKPT = 0000 ?
Y N

039
DOES CKPT = 0001 ?
Y N

040
DOES IO = 07 ?
Y N

PAGE 4 OF 5

041
COMMAND REJECT FROM ATTACHMENT CARD
RESET BOTH DI'S
CHECK DCB, FLAGS AND ISB

042
COMMAND REJECT ERROR FROM DI
CHECK DCB, FLAGS AND ISB

043
COMMAND REJECT FROM ATTACHMENT CARD FAILED
CHECK DCB, FLAGS AND ISB

044
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE WITH THE 'I' BIT OFF BOTH DO'S
CHECK DCB, FLAGS AND ISB

045
DOES CKPT = 0000 ?
Y N

046
DOES CKPT = 0001 ?
Y N

047
DOES IO = 07 ?
Y N

048
COMMAND REJECT FROM ATTACHMENT CARD
READ DEVICE ID (ALL 4)
RESET ALL FOUR
PREPARE - LEVEL = 2
ARM DI'S
SET TEST 1 ON BOTH DI'S
CHECK DCB, FLAGS AND ISB

049
DOES DEV4 = 0000 ?
Y N

050
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
DEV1 = DAXX (WHERE DA = DEVICE ADDRESS)

051
SET TEST 1 FAILED
CHECK DCB, FLAGS AND ISB

052
DOES IO = 07 ?
Y N

053
COMMAND REJECT FROM ATTACHMENT CARD
READ DEVICE ID (ALL 4)
RESET ALL FOUR
PREPARE - LEVEL = 1
ARM DI'S
SET TEST 1 ON BOTH DI'S
CHECK DCB, FLAGS AND ISB

054
DOES DEV4 = 0000 ?
Y N

055
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
DEV1 = DAXX (WHERE DA = DEVICE ADDRESS)

056
SET TEST 1 FAILED
CHECK DCB, FLAGS AND ISB

057
DOES IO = 07 ?
Y N

```
|
| 058
| COMMAND REJECT FROM ATTACHMENT CARD
| READ DEVICE ID (ALL 4)
| RESET ALL FOUR
| PREPARE - LEVEL = 0
| ARM DI'S
| SET TEST 1 ON BOTH DI'S
| CHECK DCB, FLAGS AND ISB
|
059
DOES DEV4 = 0000 ?
Y N
|
| 060
| WRONG DEVICE ID RECEIVED
| DEV3 = RECEIVED ID
| DEV4 = EXPECTED ID
| DEV1 = DAXX (WHERE DA = DEVICE ADDRESS)
|
061
SET TEST 1 FAILED
CHECK DCB, FLAGS AND ISB
```

PAGE 1 OF 4

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'A3'.

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES RTN = 0003 ?
Y N

004
DOES CKPT = 0000 ?
Y N

005
DOES CKPT = 0001 ?
Y N

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006
DOES CKPT = 0002 ?
Y N

007
DOES CKPT = 0003 ?
Y N

008
DOES CKPT = 0004 ?
Y N

009
DOES CKPT = 0005 ?
Y N

010
DOES IO = 07 ?
Y N

011
COMMAND REJECT FROM ATTACHMENT CARD
WRITE 0 OR READ

012
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

013
DOES IO = 07 ?
Y N

014
COMMAND REJECT FROM ATTACHMENT CARD
RESET OR READ

015
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

016
DOES IO = 07 ?
Y N

017
COMMAND REJECT FROM ATTACHMENT CARD
SET DIAGNOSTIC MODE THREE OR READ

018
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

019
DOES IO = 07 ?
Y N

020
COMMAND REJECT FROM ATTACHMENT CARD
WRITE 0 OR READ

021
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

022
DOES IO = 07 ?
Y N

023
COMMAND REJECT FROM ATTACHMENT CARD
RESET OR READ

PAGE 3 OF 4

024
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

025
DOES IO = 07 ?
Y N

026
COMMAND REJECT FROM ATTACHMENT CARD
SET DIAGNOSTIC MODE TWO OR READ

027
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

028
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1
RESET OF ATTACHMENT CARD

029
DOES CKPT = 0000 ?
Y N

030
DOES CKPT = 0001 ?
Y N

031
DOES IO = 07 ?
Y N

032
COMMAND REJECT FROM ATTACHMENT CARD
READ DIAGNOSTIC REGISTER

033
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

034
COMMAND REJECT FROM ATTACHMENT CARD
RESET OF ATTACHMENT CARD
OR RESET OF DIAGNOSTIC MODE

035
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE TO LEVEL = 1

036
DOES CKPT = 0000 ?
Y N

037
DOES CKPT = 0001 ?
Y N

038
DOES CKPT = 0002 ?
Y N

039
DOES IO = 07 ?
Y N

040
COMMAND REJECT FROM ATTACHMENT CARD
READ DIAGNOSTIC REGISTER
WRITE DIAGNOSTIC REGISTER
CHECK DCB, FLAGS AND ISB

041
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

PAGE 4 OF 4

042
DOES IO = 07 ?
Y N

043
COMMAND REJECT FROM ATTACHMENT CARD
READ DIAGNOSTIC REGISTER

044
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

045
COMMAND REJECT FROM ATTACHMENT CARD
RESET OF ATTACHMENT CARD
OR SET DIAGNOSTIC MODE ONE

046
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE TO LEVEL = 1

047
DOES CKPT = 0000 ?
Y N

048
DOES CKPT = 0001 ?
Y N

049
DOES IO = 07 ?
Y N

050
COMMAND REJECT FROM ATTACHMENT CARD
RESET ATTACHMENT CARD
PREPARE - LEVEL = 2
ARM PI
CHECK DCB, FLAGS AND ISB

051
ARM PI FAILED
CHECK DCB, FLAGS AND ISB

052
DOES IO = 07 ?
Y N

053
COMMAND REJECT FROM ATTACHMENT CARD
RESET ATTACHMENT CARD
PREPARE - LEVEL = 1
ARM PI
CHECK DCB, FLAGS AND ISB

054
ARM PI FAILED
CHECK DCB, FLAGS AND ISB

055
DOES IO = 07 ?
Y N

056
COMMAND REJECT FROM ATTACHMENT CARD
RESET ATTACHMENT CARD
PREPARE - LEVEL = 0
ARM PI
CHECK DCB, FLAGS AND ISB

057
ARM PI FAILED
CHECK DCB, FLAGS AND ISB

PAGE 1 OF 4

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'A4'.

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES RTN = 0003 ?
Y N

004
DOES CKPT = 0000 ?
Y N

005
DOES CKPT = 0001 ?
Y N

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006
DOES CKPT = 0002 ?
Y N

007
DOES CKPT = 0003 ?
Y N

008
DOES CKPT = 0004 ?
Y N

009
DOES CKPT = 0005 ?
Y N

010
DOES IO = 07 ?
Y N

011
COMMAND REJECT FROM ATTACHMENT CARD
WRITE 0 OR READ

012
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

013
DOES IO = 07 ?
Y N

014
COMMAND REJECT FROM ATTACHMENT CARD
RESET OR READ

015
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

016
DOES IO = 07 ?
Y N

017
COMMAND REJECT FROM ATTACHMENT CARD
SET DIAGNOSTIC MODE THREE OR READ

018
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

019
DOES IO = 07 ?
Y N

020
COMMAND REJECT FROM ATTACHMENT CARD
WRITE 0 OR READ

021
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

022
DOES IO = 07 ?
Y N

023
COMMAND REJECT FROM ATTACHMENT CARD
RESET OR READ

SENSOR I/O SYSTEM TEST ERROR MAP

PAGE 3 OF 4

024
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

025
DOES IO = 07 ?
Y N

026
COMMAND REJECT FROM ATTACHMENT CARD
SET DIAGNOSTIC MODE TWO OR READ

027
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

028
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1
RESET OF ATTACHMENT CARD

029
DOES CKPT = 0000 ?
Y N

030
DOES CKPT = 0001 ?
Y N

031
DOES IO = 07 ?
Y N

032
COMMAND REJECT FROM ATTACHMENT CARD
READ DIAGNOSTIC REGISTER

033
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

034
COMMAND REJECT FROM ATTACHMENT CARD
RESET OF ATTACHMENT CARD
OR RESET OF DIAGNOSTIC MODE

035
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE TO LEVEL = 1

036
DOES CKPT = 0000 ?
Y N

037
DOES CKPT = 0001 ?
Y N

038
DOES CKPT = 0002 ?
Y N

039
DOES IO = 07 ?
Y N

040
COMMAND REJECT FROM ATTACHMENT CARD
READ DIAGNOSTIC REGISTER
WRITE DIAGNOSTIC REGISTER
CHECK DCB, FLAGS AND ISB

041
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

SENSOR I/O SYSTEM TEST ERROR MAP

PAGE 4 OF 4

042
DOES IO = 07 ?
Y N

043
COMMAND REJECT FROM ATTACHMENT CARD
READ DIAGNOSTIC REGISTER

044
READ DATA NOT CORRECT
DCB2 = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

045
COMMAND REJECT FROM ATTACHMENT CARD
RESET OF ATTACHMENT CARD
OR SET DIAGNOSTIC MODE ONE

046
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE TO LEVEL = 1

047
DOES CKPT = 0000 ?
Y N

048
DOES CKPT = 0001 ?
Y N

049
DOES IO = 07 ?
Y N

050
COMMAND REJECT FROM ATTACHMENT CARD
RESET ATTACHMENT CARD
PREPARE - LEVEL = 2
ARM PI
CHECK DCB, FLAGS AND ISB

051
ARM PI FAILED
CHECK DCB, FLAGS AND ISB

052
DOES IO = 07 ?
Y N

053
COMMAND REJECT FROM ATTACHMENT CARD
RESET ATTACHMENT CARD
PREPARE - LEVEL = 1
ARM PI
CHECK DCB, FLAGS AND ISB

054
ARM PI FAILED
CHECK DCB, FLAGS AND ISB

055
DOES IO = 07 ?
Y N

056
COMMAND REJECT FROM ATTACHMENT CARD
RESET ATTACHMENT CARD
PREPARE - LEVEL = 0
ARM PI
CHECK DCB, FLAGS AND ISB

057
ARM PI FAILED
CHECK DCB, FLAGS AND ISB

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'EA'.

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES RTN = 0003 ?
Y N

004
DOES RTN = 0004 ?
Y N

005
DOES CKPT = 0000 ?
Y N

006
DOES CKPT = 0001 ?
Y N

007
DOES IO = 07 ?
Y N

008
COMMAND REJECT FROM ATTACHMENT CARD
DEVICE RESET
CHECK DCB, FLAGS AND ISB

009
GOOD INTERRUPT RECEIVED ON A ILLEGAL
IDCB.
CHECK DCB, FLAGS AND ISB

010
DOES IO = 07 ?
Y N

011
COMMAND REJECT FROM ATTACHMENT CARD
ILLEGAL IDCB
CHECK DCB, FLAGS AND ISB

012
DOES IN = 02 ?
Y N

013
ILLEGAL INTERRUPT VALUE
CHECK DCB, FLAGS AND ISB

014
ISB VALUE WRONG
ISB = RECEIVED DATA
EXPECTED = X'40'
CHECK DCB, FLAGS AND ISB

015
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

016
DOES CKPT = 0000 ?
Y N

017
DOES CKPT = 0001 ?
Y N

018
DOES IO = 07 ?
Y N

019
COMMAND REJECT FROM ATTACHMENT CARD
ILLEGAL DCB
CHECK DCB, FLAGS AND ISB

020
ISB VALUE WRONG
ISB = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

021
DOES IO = 07 ?
Y N

022
COMMAND REJECT FROM ATTACHMENT CARD
ILLEGAL DCB
CHECK DCB, FLAGS AND ISB

023
ISB VALUE WRONG
ISB = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

024
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

025
DOES CKPT = 0000 ?
Y N

026
DOES IO = 07 ?
Y N

027
COMMAND REJECT FROM ATTACHMENT CARD
DIAGNOSTIC TWO COMMAND

028
DIAGNOSTIC DATA IS WRONG
DEV1 - DEV2 - DEV3 = DIAGNOSTIC TWO DATA
DEV4 = CONFIGURATION BITS
****** CONFIGURATION ENTRY PLUS 1 WORD
CHECK DCB, FLAGS AND ISB

029
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

030
DOES CKPT = 0000 ?
Y N

031
DOES IO = 07 ?
Y N

032
COMMAND REJECT FROM ATTACHMENT CARD
CYCLE STEAL STATUS COMMAND

033
WRONG RESIDUAL ADDRESS RECEIVED
CHECK DCB, FLAGS AND ISB
DEV4 = EXPECTED
RSAD = RECEIVED

034
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

035
DOES CKPT = 0000 ?
Y N

036
DOES CKPT = 0001 ?
Y N

037
DOES CKPT = 0002 ?
Y N

038
DOES IO = 07 ?
Y N

039
COMMAND REJECT FROM ATTACHMENT CARD
DIAGNOSTIC ONE COMMAND
CHECK DCB, FLAGS AND ISB

040
WRONG CHECKSUM RECEIVED
DEV3 & DEV4 = RECEIVED CHECKSUM
CHECK DCB, FLAGS AND ISB

041
DOES IO = 07 ?
Y N

042
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 2
DEVICE RESET
READ DEVICE ID
DCB RESET
CHECK DCB, FLAGS AND ISB

043
DOES DEV4 = 0000 ?
Y N

044
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

045
DCB RESET FAILED
CHECK DCB, FLAGS AND ISB

046
DOES IO = 07 ?
Y N

047
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
DEVICE RESET
READ DEVICE ID
DCB RESET
CHECK DCB, FLAGS AND ISB

048
DOES DEV4 = 0000 ?
Y N

049
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

050
DCB RESET FAILED
CHECK DCB, FLAGS AND ISB

051
DOES IO = 07 ?
Y N

052
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 0
DEVICE RESET
READ DEVICE ID
DCB RESET
CHECK DCB, FLAGS AND ISB

053
DOES DEV4 = 0000 ?
Y N

054
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

055
DCB RESET FAILED
CHECK DCB, FLAGS AND ISB

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'E0'.

DOES RTN = 0001 ?
Y N
002
DOES RTN = 0002 ?
Y N
003
DOES RTN = 0003 ?
Y N
004
DOES RTN = 0004 ?
Y N
005
DOES CKPT = 0000 ?
Y N

7 5 5 5 4 2
A B C D E F

006
DOES CKPT = 0001 ?
Y N
007
DOES CKPT = 0002 ?
Y N
008
DOES CKPT = 0003 ?
Y N
009
DOES CKPT = 0004 ?
Y N
010
DOES CKPT = 0005 ?
Y N

4 4 4 3 3 3
G H J K L M

011
DOES CKPT = 0006 ?
Y N

012
DOES IO = 07 ?
Y N

013
COMMAND REJECT FROM ATTACHMENT CARD
5 BIT TEST

014
DOES IN = 03 ?
Y N

015
5 BIT TEST FAILED
CHECK DCB, FLAGS AND ISB

016
5 BIT TEST RESULTS ERROR
DEV3 = EXPECTED RESULTS
DEV4 = RECEIVED RESULTS
CHECK DCB, FLAGS AND ISB

017
DOES IO = 07 ?
Y N

018
COMMAND REJECT FROM ATTACHMENT CARD
6 BIT TEST

019
DOES IN = 03 ?
Y N

020
6 BIT TEST FAILED
CHECK DCB, FLAGS AND ISB

021
6 BIT TEST RESULTS ERROR
DEV3 = EXPECTED RESULTS
DEV4 = RECEIVED RESULTS
CHECK DCB, FLAGS AND ISB

022
DOES IO = 07 ?
Y N

023
COMMAND REJECT FROM ATTACHMENT CARD
7 BIT TEST

024
DOES IN = 03 ?
Y N

025
7 BIT TEST FAILED
CHECK DCB, FLAGS AND ISB

026
7 BIT TEST RESULTS ERROR
DEV3 = EXPECTED RESULTS
DEV4 = RECEIVED RESULTS
CHECK DCB, FLAGS AND ISB

027
DOES IO = 07 ?
Y N

028
COMMAND REJECT FROM ATTACHMENT CARD
8 BIT TEST

029
DOES IN = 03 ?
Y N

030
8 BIT TEST FAILED
CHECK DCB, FLAGS AND ISB

031
8 BIT TEST RESULTS ERROR
DEV3 = EXPECTED RESULTS
DEV4 = RECEIVED RESULTS
CHECK DCB, FLAGS AND ISB

032
DOES IO = 07 ?
Y N

033
COMMAND REJECT FROM ATTACHMENT CARD
CYCLIC REDUNDANCY CHECK BIT TEST

034
DOES IN = 03 ?
Y N

035
CYCLIC REDUNDANCY CHECK BIT TEST
FAILED
CHECK DCB, FLAGS AND ISB

036
CYCLIC REDUNDANCY CHECK BIT TEST RESULTS
ERROR
DEV3 = EXPECTED RESULTS
DEV4 = RECEIVED RESULTS
CHECK DCB, FLAGS AND ISB

037
DOES IO = 07 ?
Y N

038
COMMAND REJECT FROM ATTACHMENT CARD
SET CYCLIC REDUNDANCY CHECK BIT TEST

039
DOES IN = 03 ?
Y N

040
SET CYCLIC REDUNDANCY CHECK BIT TEST
FAILED
CHECK DCB, FLAGS AND ISB

041
SET CYCLIC REDUNDANCY CHECK BIT TEST
RESULTS ERROR
DEV3 = EXPECTED RESULTS
DEV4 = RECEIVED RESULTS
CHECK DCB, FLAGS AND ISB

042
DOES IO = 07 ?
Y N

043
COMMAND REJECT FROM ATTACHMENT CARD
WRITE CONTROL STORE (MLOAD)

044
WRITE CONTROL STORE (MLOAD) ERROR
CHECK DCB, FLAGS AND ISB

045
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1

046
DOES CKPT = 0000 ?
Y N

047
DOES CKPT = 0001 ?
Y N

048
DOES CKPT = 0002 ?
Y N

049
DATA COMPARE ERROR
DEV4 = XXYY WHERE:
XX = EXPECTED DATA
YY = RECEIVED DATA
CHECK DCB, FLAGS AND ISB

050
DOES IO = 07 ?
Y N

051
COMMAND REJECT FROM ATTACHMENT CARD
READ CONTROL STORE

052
READ CONTROL STORE ERROR
CHECK DCB, FLAGS AND ISB

053
DOES IO = 07 ?
Y N

054
COMMAND REJECT FROM ATTACHMENT CARD
WRITE CONTROL STORE (MLOAD)

055
WRITE CONTROL STORE (MLOAD) ERROR
CHECK DCB, FLAGS AND ISB

056
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1

057
DOES CKPT = 0000 ?
Y N

058
DOES IO = 07 ?
Y N

059
COMMAND REJECT FROM ATTACHMENT CARD
LOAD SCAN TABLE.

060
LOAD SCAN TABLE ERROR
CHECK DCB, FLAGS AND ISB

061
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1

062
DOES CKPT = 0000 ?
Y N

063
DOES CKPT = 0001 ?
Y N

064
DOES CKPT = 0002 ?
Y N

065
DOES CKPT = 0003 ?
Y N

7 6 6 6 6
Q R S T U

066
DOES IO = 07 ?
Y N

067
COMMAND REJECT FROM ATTACHMENT CARD
READ DIAGNOSTIC SENSE TEST

068
DOES IN = 03 ?
Y N

069
READ DIAGNOSTIC SENSE TEST ERROR
CHECK DCB, FLAGS AND ISB

070
READ DIAGNOSTIC SENSE TEST
RESULTS ERROR
DEV1 = EXPECTED RESULTS
DEV2 = RECEIVED RESULTS
DEV3 AND DEV4 SHOULD BE ZERO
CHECK DCB, FLAGS AND ISB

071
DOES IO = 07 ?
Y N

072
COMMAND REJECT FROM ATTACHMENT CARD
SCANNER TEST

073
DOES IN = 03 ?
Y N

074
SCANNER TEST
CHECK DCB, FLAGS AND ISB

075
SCANNER TEST RESULTS ERROR
DEV1 = EXPECTED RESULTS
DEV2 = RECEIVED RESULTS
DEV3 AND DEV4 SHOULD BE ZERO
CHECK DCB, FLAGS AND ISB

076
DOES IO = 07 ?
Y N

077
COMMAND REJECT FROM ATTACHMENT CARD
CONTROLLER TEST

078
DOES IN = 03 ?
Y N

079
CONTROLLER TEST ERROR
CHECK DCB, FLAGS AND ISB

080
CONTROLLER TEST RESULTS ERROR
DEV1 = EXPECTED RESULTS
DEV2 = RECEIVED RESULTS
DEV3 AND DEV4 SHOULD BE ZERO
CHECK DCB, FLAGS AND ISB

081
DOES IO = 07 ?
Y N

082
COMMAND REJECT FROM ATTACHMENT CARD
CHANNEL TEST

083
DOES IN = 03 ?
Y N

7 7
V W

084
CHANNEL TEST ERROR
CHECK DCB, FLAGS AND ISB

085
CHANNEL TEST RESULTS ERROR
DEV1 = EXPECTED RESULTS
DEV2 = RECEIVED RESULTS
DEV3 AND DEV4 SHOULD BE ZERO
CHECK DCB, FLAGS AND ISB

086
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1

087
DOES CKPT = 0000 ?
Y N

088
DOES CKPT = 0001 ?
Y N

089
DOES CKPT = 0002 ?
Y N

090
DOES IO = 07 ?
Y N

091
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
READ POWER ON RESET TEST RESULTS

092
DOES IN = 03 ?
Y N

093
READ POWER ON RESET TEST RESULTS
FAILED
CHECK DCB, FLAGS AND ISB

094
CHECKSUM ERROR
DEV3 AND DEV4 CONTAIN CHECKSUM IN ERROR

095
DOES IO = 07 ?
Y N

096
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 2
RESET
READ DEVICE ID
DIAGNOSTIC POWER ON RESET TEST

097
DOES IN = FF ?
Y N

098
DIAGNOSTIC POWER ON RESET TEST FAILED
CHECK DCB, FLAGS AND ISB

099
READ DEVICE ID ERROR
DEV3 = EXPECTED DEVICE ID
DEV4 = RECEIVED DEVICE ID
LEVEL = 2

100
DOES IO = 07 ?
Y N

101
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
RESET
READ DEVICE ID
DIAGNOSTIC POWER ON RESET TEST

102
DOES IN = FF ?
Y N

103
DIAGNOSTIC POWER ON RESET TEST FAILED
CHECK DCB, FLAGS AND ISB

104
READ DEVICE ID ERROR
DEV3 = EXPECTED DEVICE ID
DEV4 = RECEIVED DEVICE ID
LEVEL = 1

105
DOES IO = 07 ?
Y N

106
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 0
RESET
READ DEVICE ID
DIAGNOSTIC POWER ON RESET TEST

107
DOES IN = FF ?
Y N

108
DIAGNOSTIC POWER ON RESET TEST FAILED
CHECK DCB, FLAGS AND ISB

109
READ DEVICE ID ERROR
DEV3 = EXPECTED DEVICE ID
DEV4 = RECEIVED DEVICE ID
LEVEL = 0

PAGE 1 OF 7

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'E4'.

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES RTN = 0003 ?
Y N

004
DOES RTN = 0004 ?
Y N

005
DOES RTN = 0005 ?
Y N

PAGE 2 OF 7

006
DOES RTN = 0006 ?
Y N

007
DOES RTN = 0007 ?
Y N

008
DOES CKPT = 0000 ?
Y N

009
DOES CKPT = 0001 ?
Y N

010
DOES IO = 07 ?
Y N

011
COMMAND REJECT FROM ATTACHMENT CARD
DEVICE RESET
CHECK DCB, FLAGS AND ISB

012
GOOD INTERRUPT RECEIVED ON A ILLEGAL
IDCB.
CHECK DCB, FLAGS AND ISB

013
DOES IO = 07 ?
Y N

014
COMMAND REJECT FROM ATTACHMENT CARD
ILLEGAL IDCB
CHECK DCB, FLAGS AND ISB

015
DOES IN = 02 ?
Y N

016
ILLEGAL INTERRUPT VALUE
CHECK DCB, FLAGS AND ISB

017
ISB VALUE WRONG
ISB = RECEIVED DATA
EXPECTED = X'40'
CHECK DCB, FLAGS AND ISB

018
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

019
DOES CKPT = 0000 ?
Y N

020
DOES CKPT = 0001 ?
Y N

021
DOES CKPT = 0002 ?
Y N

022
DOES IO = 07 ?
Y N

PAGE 3 OF 7

023
COMMAND REJECT FROM ATTACHMENT CARD
WRITE DATA
CHECK DCB, FLAGS AND ISB

024
WRITE DATA TO PRINTER FAILED.
CHECK DCB, FLAGS AND ISB

025
DOES IO = 07 ?
Y N

026
COMMAND REJECT FROM ATTACHMENT CARD
WRITE DATA
CHECK DCB, FLAGS AND ISB

027
WRITE DATA TO PRINTER FAILED.
CHECK DCB, FLAGS AND ISB

028
DOES IO = 07 ?
Y N

029
COMMAND REJECT FROM ATTACHMENT CARD
READ STATION INTERRUPT ELEMENT
CHECK DCB, FLAGS AND ISB

030
DOES FLAG FIELD INDICATE LOST INTERRUPT ?
Y N

031
DOES IN = 04 ?
Y N

032
INTERRUPT FROM STATION INTERRUPT
ELEMENT COMMAND
SHOULD BE = 4 BUT IS NOT.
CHECK DCB, FLAGS AND ISB

033
ILLEGAL STATUS FROM PRINTER
DEV3 = XXEX
CHECK DCB, FLAGS AND ISB

034
LOST ATTENTION INTERRUPT AFTER A STATION
INTERRUPT ELEMENT.
CHECK DCB, FLAGS AND ISB

035
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

036
DOES CKPT = 0000 ?
Y N

037
DOES IO = 07 ?
Y N

038
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE WITH ROLL DOWN)
CHECK DCB, FLAGS AND ISB

039
WRITE ERROR WITH SHIFT DOWN
CHECK DCB, FLAGS AND ISB

040
DOES IO = 07 ?
Y N

041
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (CLEAR SCREEN)

PAGE 4 OF 7

042
CLEAR SCREEN ERROR
CHECK DCB, FLAGS AND ISB

043
DOES CKPT = 0000 ?
Y N

044
DOES IO = 07 ?
Y N

045
COMMAND REJECT FROM ATTACHMENT CARD
READ STATION INTERRUPT ELEMENT
CHECK DCB, FLAGS AND ISB

046
DOES FLAG FIELD INDICATE LOST INTERRUPT ?
Y N

047
DOES IN = 04 ?
Y N

048
INTERRUPT FROM STATION INTERRUPT
ELEMENT COMMAND
SHOULD BE = 4 BUT IS NOT.
CHECK DCB, FLAGS AND ISB

049
ILLEGAL STATUS FROM PRINTER
DEV3 = XXEX
CHECK DCB, FLAGS AND ISB

050
LOST ATTENTION INTERRUPT AFTER A STATION
INTERRUPT ELEMENT.
CHECK DCB, FLAGS AND ISB

051
DOES IO = 07 ?
Y N

052
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1
WRITE DATA
CHECK DCB, FLAGS AND ISB

053
WRITE DATA TO PRINTER FAILED.
CHECK DCB, FLAGS AND ISB

054
DOES CKPT = 0000 ?
Y N

055
DOES IO = 07 ?
Y N

056
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE WITH ROLL UP)
CHECK DCB, FLAGS AND ISB

057
WRITE ERROR WITH SHIFT UP
CHECK DCB, FLAGS AND ISB

058
DOES IO = 07 ?
Y N

059
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (CLEAR SCREEN)

060
CLEAR SCREEN ERROR
CHECK DCB, FLAGS AND ISB

061
DOES CKPT = 0000 ?
Y N

062
DOES CKPT = 0001 ?
Y N

063
DOES IO = 07 ?
Y N

064
COMMAND REJECT FROM ATTACHMENT CARD
WRITE DATA
CHECK DCB, FLAGS AND ISB

065
WRITE DATA TO PRINTER FAILED.
CHECK DCB, FLAGS AND ISB

066
DOES IO = 07 ?
Y N

067
COMMAND REJECT FROM ATTACHMENT CARD
READ STATION INTERRUPT ELEMENT
CHECK DCB, FLAGS AND ISB

068
DOES FLAG FIELD INDICATE LOST INTERRUPT ?
Y N

069
DOES IN = 04 ?
Y N

070
INTERRUPT FROM STATION INTERRUPT
ELEMENT COMMAND
SHOULD BE = 4 BUT IS NOT.
CHECK DCB, FLAGS AND ISB

071
ILLEGAL STATUS FROM PRINTER
DEV3 = XXEX
CHECK DCB, FLAGS AND ISB

072
LOST ATTENTION INTERRUPT AFTER A STATION
INTERRUPT ELEMENT.
CHECK DCB, FLAGS AND ISB

073
DOES IO = 07 ?
Y N

074
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1
WRITE DATA
CHECK DCB, FLAGS AND ISB

075
WRITE DATA TO PRINTER FAILED.
CHECK DCB, FLAGS AND ISB

076
DOES CKPT = 0000 ?
Y N

077
DOES IO = 07 ?
Y N

078
COMMAND REJECT FROM ATTACHMENT CARD
START INPUT/OUTPUT (WRITE COMPLETE SCREEN)

079
WRITE SCREEN ERROR
CHECK DCB, FLAGS AND ISB

080
DOES IO = 07 ?
Y N

081
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
START INPUT/OUTPUT (CLEAR SCREEN)

082
CLEAR SCREEN ERROR
CHECK DCB, FLAGS AND ISB

083
DOES CKPT = 0000 ?
Y N

084
DOES CKPT = 0001 ?
Y N

085
DOES IO = 07 ?
Y N

086
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 2
RESET
READ DEVICE ID
START INPUT/OUTPUT (SCSS)

087
DOES IN = 03 ?
Y N

088
START CYCLE STEAL STATUS ERROR
CHECK DCB, FLAGS AND ISB

089
WRONG ID RECEIVED ON LEVEL - 2
DEV3 = ID RECEIVED
DEV4 = ID EXPECTED

090
DOES IO = 07 ?
Y N

091
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
RESET
READ DEVICE ID
START INPUT/OUTPUT (SCSS)

092
DOES IN = 03 ?
Y N

093
START CYCLE STEAL STATUS ERROR
CHECK DCB, FLAGS AND ISB

094
WRONG ID RECEIVED ON LEVEL - 1
DEV3 = ID RECEIVED
DEV4 = ID EXPECTED

095
DOES IO = 07 ?
Y N

096
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 0
RESET
READ DEVICE ID
START INPUT/OUTPUT (SCSS)

097
DOES IN = 03 ?
Y N

098
START CYCLE STEAL STATUS ERROR
CHECK DCB, FLAGS AND ISB

099
WRONG ID RECEIVED ON LEVEL - 0
DEV3 = ID RECEIVED
DEV4 = ID EXPECTED

PAGE 1 OF 4

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'E8'.

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES RTN = 0003 ?
Y N

004
DOES CKPT = 0000 ?
Y N

005
DOES CKPT = 0001 ?
Y N

PAGE 2 OF 4

006
DOES IO = 07 ?
Y N

007
COMMAND REJECT FROM ATTACHMENT CARD
ILLEGAL DCB
CHECK DCB, FLAGS AND ISB

008
ISB VALUE WRONG
ISB = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

009
DOES IO = 07 ?
Y N

010
COMMAND REJECT FROM ATTACHMENT CARD
ILLEGAL DCB
CHECK DCB, FLAGS AND ISB

011
ISB VALUE WRONG
ISB = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

012
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

013
DOES CKPT = 0000 ?
Y N

014
DOES CKPT = 0001 ?
Y N

015
DIAGNOSTIC DATA IS WRONG
DEV1 THROUGH DEV4 = RECEIVED DATA
DEV1 = DIAGNOSTIC BUFFER PLUS 12 WORDS
DEV2 = DIAGNOSTIC BUFFER PLUS 14 WORDS
DEV3 = DIAGNOSTIC BUFFER PLUS 16 WORDS
DEV4 = DIAGNOSTIC BUFFER PLUS 17 WORDS
CHECK CONFIGURATION ENTRY
CHECK DCB, FLAGS AND ISB

016
DOES IO = 07 ?
Y N

017
COMMAND REJECT FROM ATTACHMENT CARD
DIAGNOSTIC TWO COMMAND

018
DIAGNOSTIC DATA IS WRONG
DEV1 & DEV2 = RECEIVED DATA
DEV3 & DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

019
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

020
DOES CKPT = 0000 ?
Y N

021
DOES IO = 07 ?
Y N

022
COMMAND REJECT FROM ATTACHMENT CARD
CYCLE STEAL STATUS COMMAND

023
WRONG RESIDUAL ADDRESS RECEIVED
CHECK DCB, FLAGS AND ISB
DEV4 = EXPECTED
RSAD = RECEIVED

024
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

025
DOES CKPT = 0000 ?
Y N

026
DOES CKPT = 0001 ?
Y N

027
DOES CKPT = 0002 ?
Y N

028
DOES IO = 07 ?
Y N

029
COMMAND REJECT FROM ATTACHMENT CARD
DISABLE DTR
DIAGNOSTIC TWO COMMAND
CHECK DCB, FLAGS AND ISB

030
WRONG CHECKSUM RECEIVED
DEV3 & DEV4 = RECEIVED CHECKSUM
CHECK DCB, FLAGS AND ISB

031
DOES IO = 07 ?
Y N

032
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 2
DEVICE RESET
READ DEVICE ID
SET DTR
CHECK DCB, FLAGS AND ISB

033
DOES DEV4 = 0000 ?
Y N

034
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

035
SET DTR FAILED
CHECK DCB, FLAGS AND ISB

036
DOES IO = 07 ?
Y N

037
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
DEVICE RESET
READ DEVICE ID
SET DTR
CHECK DCB, FLAGS AND ISB

038
DOES DEV4 = 0000 ?
Y N

039
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

040
SET DTR FAILED
CHECK DCB, FLAGS AND ISB

041
DOES IO = 07 ?
Y N

042
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 0
DEVICE RESET
READ DEVICE ID
SET DTR
CHECK DCB, FLAGS AND ISB

043
DOES DEV4 = 0000 ?
Y N

044
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

045
SET DTR FAILED
CHECK DCB, FLAGS AND ISB

PAGE 1 OF 4

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'E9'.

DOES RTN = 0001 ?
Y N
- 002
  DOES RTN = 0002 ?
  Y N
  - 003
    DOES RTN = 0003 ?
    Y N
    - 004
      DOES CKPT = 0000 ?
      Y N
      - 005
        DOES CKPT = 0001 ?
        Y N

3A 2B 2C 2D 2E 2F

PAGE 2 OF 4

006
DOES IO = 07 ?
Y N
- 007
  COMMAND REJECT FROM ATTACHMENT CARD
  ILLEGAL DCB
  CHECK DCB, FLAGS AND ISB

008
ISB VALUE WRONG
ISB = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

009
DOES IO = 07 ?
Y N
- 010
  COMMAND REJECT FROM ATTACHMENT CARD
  ILLEGAL DCB
  CHECK DCB, FLAGS AND ISB

011
ISB VALUE WRONG
ISB = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

012
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

013
DOES CKPT = 0000 ?
Y N
- 014
  DOES IO = 07 ?
  Y N
  - 015
    COMMAND REJECT FROM ATTACHMENT CARD
    DIAGNOSTIC TWO COMMAND

016
DIAGNOSTIC DATA IS WRONG
DEV1 = RECEIVED BITS
****** DIAGNOSTIC BUFFER PLUS 6 WORDS
DEV4 = CONFIGURATION BITS
****** CONFIGURATION ENTRY PLUS 4 WORDS
CHECK DCB, FLAGS AND ISB

017
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

018
DOES CKPT = 0000 ?
Y N
- 019
  DOES IO = 07 ?
  Y N
  - 020
    COMMAND REJECT FROM ATTACHMENT CARD
    CYCLE STEAL STATUS COMMAND

021
WRONG RESIDUAL ADDRESS RECEIVED
CHECK DCB, FLAGS AND ISB
DEV4 = EXPECTED
RSAD = RECEIVED

022
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

```
023
DOES CKPT = 0000 ?
Y N
| 024
| DOES CKPT = 0001 ?
| Y N
| | 025
| | DOES CKPT = 0002 ?
| | Y N
| | | 026
| | | DOES IO = 07 ?
| | | Y N
| | | | 027
| | | | COMMAND REJECT FROM ATTACHMENT CARD
| | | | DIAGNOSTIC TWO COMMAND
| | | | CHECK DCB, FLAGS AND ISB
| | | 028
| | | WRONG CHECKSUM RECEIVED
| | | DEV3 & DEV4 = RECEIVED CHECKSUM
| | | CHECK DCB, FLAGS AND ISB
| | 029
| | DOES IO = 07 ?
| | Y N
| | | 030
| | | COMMAND REJECT FROM ATTACHMENT CARD
| | | PREPARE - LEVEL = 2
| | | DEVICE RESET
| | | READ DEVICE ID
| | | SET DTR
| | | CHECK DCB, FLAGS AND ISB
| | 031
| | DOES DEV4 = 0000 ?
| | Y N
| | | 032
| | | WRONG DEVICE ID RECEIVED
| | | DEV3 = RECEIVED ID
| | | DEV4 = EXPECTED ID
| | | CHECK DCB, FLAGS AND ISB
| | 033
| | SET DTR FAILED
| | CHECK DCB, FLAGS AND ISB
| 034
| DOES IO = 07 ?
| Y N
| | 035
| | COMMAND REJECT FROM ATTACHMENT CARD
| | PREPARE - LEVEL = 1
| | DEVICE RESET
| | READ DEVICE ID
| | SET DTR
| | CHECK DCB, FLAGS AND ISB
| 036
| DOES DEV4 = 0000 ?
| Y N
| | 037
| | WRONG DEVICE ID RECEIVED
| | DEV3 = RECEIVED ID
| | DEV4 = EXPECTED ID
| | CHECK DCB, FLAGS AND ISB
| 038
| SET DTR FAILED
| CHECK DCB, FLAGS AND ISB
039
DOES IO = 07 ?
Y N
| |
| |
| |
| |
| |
| |
```



```
| | 040
| | COMMAND REJECT FROM ATTACHMENT CARD
| | PREPARE - LEVEL = 0
| | DEVICE RESET
| | READ DEVICE ID
| | SET DTR
| | CHECK DCB, FLAGS AND ISB
| 041
| DOES DEV4 = 0000 ?
| Y N
| | 042
| | WRONG DEVICE ID RECEIVED
| | DEV3 = RECEIVED ID
| | DEV4 = EXPECTED ID
| | CHECK DCB, FLAGS AND ISB
| 043
| SET DTR FAILED
| CHECK DCB, FLAGS AND ISB
```

PAGE 1 OF 4

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'F0'.

DOES RTN = 0001 ?
Y N
002
DOES RTN = 0002 ?
Y N
003
DOES RTN = 0003 ?
Y N
004
DOES CKPT = 0000 ?
Y N
005
DOES CKPT = 0001 ?
Y N

PAGE 2 OF 4

006
DOES IO = 07 ?
Y N
007
COMMAND REJECT FROM ATTACHMENT CARD
ILLEGAL DCB
CHECK DCB, FLAGS AND ISB
008
ISB VALUE WRONG
ISB = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB
009
DOES IO = 07 ?
Y N
010
COMMAND REJECT FROM ATTACHMENT CARD
ILLEGAL DCB
CHECK DCB, FLAGS AND ISB
011
ISB VALUE WRONG
ISB = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB
012
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1
013
DOES CKPT = 0000 ?
Y N
014
DOES IO = 07 ?
Y N
015
COMMAND REJECT FROM ATTACHMENT CARD
CYCLE STEAL STATUS COMMAND
016
DIAGNOSTIC DATA IS WRONG
CS-2 AND CS-3 = RECEIVED DATA
CS-2 BITS TESTED = 0000 0XXX XXXX XXXX
CS-3 BITS TESTED = X0X0 0000 0000 0000
WHERE X = TESTED BIT
DEV3 AND DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB
017
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1
018
DOES CKPT = 0000 ?
Y N
019
DOES IO = 07 ?
Y N
020
COMMAND REJECT FROM ATTACHMENT CARD
CYCLE STEAL STATUS COMMAND
021
WRONG RESIDUAL ADDRESS RECEIVED
CHECK DCB, FLAGS AND ISB
DEV4 = EXPECTED
RSAD = RECEIVED
022
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

PAGE 3 OF 4

023
DOES CKPT = 0000 ?
Y N

024
DOES CKPT = 0001 ?
Y N

025
DOES CKPT = 0002 ?
Y N

026
DOES IO = 07 ?
Y N

027
COMMAND REJECT FROM ATTACHMENT CARD
DIAGNOSTIC TWO COMMAND
CHECK DCB, FLAGS AND ISB

028
WRONG CHECKSUM RECEIVED
DEV3 AND DEV4 = RECEIVED CHECKSUM
CHECK DCB, FLAGS AND ISB

029
DOES IO = 07 ?
Y N

030
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 2
DEVICE RESET
READ DEVICE ID
SET DTR
CHECK DCB, FLAGS AND ISB

031
DOES DEV4 = 0000 ?
Y N

032
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

033
SET DTR FAILED
CHECK DCB, FLAGS AND ISB

034
DOES IO = 07 ?
Y N

035
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
DEVICE RESET
READ DEVICE ID
SET DTR
CHECK DCB, FLAGS AND ISB

036
DOES DEV4 = 0000 ?
Y N

037
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

038
SET DTR FAILED
CHECK DCB, FLAGS AND ISB

039
DOES IO = 07 ?
Y N

4 4
G H

PAGE 4 OF 4

040
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 0
DEVICE RESET
READ DEVICE ID
SET DTR
CHECK DCB, FLAGS AND ISB

041
DOES DEV4 = 0000 ?
Y N

042
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

043
SET DTR FAILED
CHECK DCB, FLAGS AND ISB

PAGE 1 OF 4

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'F1'.

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES RTN = 0003 ?
Y N

004
DOES CKPT = 0000 ?
Y N

005
DOES CKPT = 0001 ?
Y N

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PAGE 2 OF 4

006
DOES IO = 07 ?
Y N

007
COMMAND REJECT FROM ATTACHMENT CARD
ILLEGAL DCB
CHECK DCB, FLAGS AND ISB

008
ISB VALUE WRONG
ISB = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

009
DOES IO = 07 ?
Y N

010
COMMAND REJECT FROM ATTACHMENT CARD
ILLEGAL DCB
CHECK DCB, FLAGS AND ISB

011
ISB VALUE WRONG
ISB = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

012
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

013
DOES CKPT = 0000 ?
Y N

014
DOES IO = 07 ?
Y N

015
COMMAND REJECT FROM ATTACHMENT CARD
CYCLE STEAL STATUS COMMAND

016
DIAGNOSTIC DATA IS WRONG
CS-2 & CS-3 = RECEIVED DATA
CS-2 BITS TESTED = 0000 0XXX XXXX XXXX
CS-3 BITS TESTED = X0X0 0000 0000 0000
WHERE X = TESTED BIT
DEV3 & DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

017
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

018
DOES CKPT = 0000 ?
Y N

019
DOES IO = 07 ?
Y N

020
COMMAND REJECT FROM ATTACHMENT CARD
CYCLE STEAL STATUS COMMAND

021
WRONG RESIDUAL ADDRESS RECEIVED
CHECK DCB, FLAGS AND ISB
DEV4 = EXPECTED
RSAD = RECEIVED

022
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

PAGE 3 OF 4

023
DOES CKPT = 0000 ?
Y N

024
DOES CKPT = 0001 ?
Y N

025
DOES CKPT = 0002 ?
Y N

026
DOES IO = 07 ?
Y N

027
COMMAND REJECT FROM ATTACHMENT CARD
DIAGNOSTIC TWO COMMAND
CHECK DCB, FLAGS AND ISB

028
WRONG CHECKSUM RECEIVED
DEV3 & DEV4 = RECEIVED CHECKSUM
CHECK DCB, FLAGS AND ISB

029
DOES IO = 07 ?
Y N

030
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 2
DEVICE RESET
READ DEVICE ID
SET DTR
CHECK DCB, FLAGS AND ISB

031
DOES DEV4 = 0000 ?
Y N

032
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

033
SET DTR FAILED
CHECK DCB, FLAGS AND ISB

034
DOES IO = 07 ?
Y N

035
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
DEVICE RESET
READ DEVICE ID
SET DTR
CHECK DCB, FLAGS AND ISB

036
DOES DEV4 = 0000 ?
Y N

037
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

038
SET DTR FAILED
CHECK DCB, FLAGS AND ISB

039
DOES IO = 07 ?
Y N

4 4
G H

PAGE 4 OF 4

040
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 0
DEVICE RESET
READ DEVICE ID
SET DTR
CHECK DCB, FLAGS AND ISB

041
DOES DEV4 = 0000 ?
Y N

042
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

043
SET DTR FAILED
CHECK DCB, FLAGS AND ISB

PAGE 1 OF 4

001
(ENTRY POINT A)
THIS MAP SHOULD NOT BE ENTERED UNLESS AN
ERROR HAS OCCURRED WHILE EXECUTING
SYSTEM TEST, AND THEN ONLY WHEN THE
DEVICE TYPE FIELD IS EQUAL TO HEXADECIMAL'F8'.

DOES RTN = 0001 ?
Y N

002
DOES RTN = 0002 ?
Y N

003
DOES RTN = 0003 ?
Y N

004
DOES CKPT = 0000 ?
Y N

005
DOES CKPT = 0001 ?
Y N

PAGE 2 OF 4

006
DOES IO = 07 ?
Y N

007
COMMAND REJECT FROM ATTACHMENT CARD
ILLEGAL DCB
CHECK DCB, FLAGS AND ISB

008
ISB VALUE WRONG
ISB = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

009
DOES IO = 07 ?
Y N

010
COMMAND REJECT FROM ATTACHMENT CARD
ILLEGAL DCB
CHECK DCB, FLAGS AND ISB

011
ISB VALUE WRONG
ISB = RECEIVED DATA
DEV4 = EXPECTED DATA
CHECK DCB, FLAGS AND ISB

012
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

013
DOES CKPT = 0000 ?
Y N

014
DOES CKPT = 0001 ?
Y N

015
DOES CKPT = 0002 ?
Y N

016
DIAGNOSTIC DATA ERROR
DEV3 = RECEIVED DATA
DEV4 = EXPECTED DATA MASK AGAINST DEV3
CHECK DCB, FLAGS AND ISB

017
DIAGNOSTIC DATA ERROR
TEST OF INTERNAL CLOCK BIT AGAINST WHAT
IS IN THE CONFIGURATION TABLE AT ENTRY
PLUS 1 WORD
DEV3 = DIAGNOSTIC BUFFER PLUS 4 WORDS
CHECK DCB, FLAGS AND ISB

018
DOES IO = 07 ?
Y N

019
COMMAND REJECT FROM ATTACHMENT CARD
DIAGNOSTIC COMMAND

020
DIAGNOSTIC COMMAND ERROR
CHECK DCB, FLAGS AND ISB

021
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

022
DOES CKPT = 0000 ?
Y N

023
DOES CKPT = 0001 ?
Y N

SDLC SYSTEM TEST ERROR MAP

PAGE 3 OF 4

024
DOES CKPT = 0002 ?
Y N

025
CYCLE STEAL DATA ERROR
CS-2 = RECEIVED
DEV4 = EXPECTED
CHECK DCB, FLAGS AND ISB

026
DOES IO = 07 ?
Y N

027
COMMAND REJECT FROM ATTACHMENT CARD
SECOND CYCLE STEAL STATUS COMMAND

028
WRONG RESIDUAL ADDRESS RECEIVED
CHECK DCB, FLAGS AND ISB
DEV4 = EXPECTED
RSAD = RECEIVED

029
DOES IO = 07 ?
Y N

030
COMMAND REJECT FROM ATTACHMENT CARD
FIRST CYCLE STEAL STATUS COMMAND

031
WRONG RESIDUAL ADDRESS RECEIVED
CHECK DCB, FLAGS AND ISB
DEV4 = EXPECTED
RSAD = RECEIVED

032
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE LEVEL=1

033
DOES CKPT = 0000 ?
Y N

034
DOES CKPT = 0001 ?
Y N

035
DOES CKPT = 0002 ?
Y N

036
DOES IO = 07 ?
Y N

037
COMMAND REJECT FROM ATTACHMENT CARD
DIAGNOSTIC COMMAND
CHECK DCB, FLAGS AND ISB

038
WRONG CHECKSUM RECEIVED
DEV3 AND DEV4 = RECEIVED CHECKSUM
CHECK DCB, FLAGS AND ISB

039
DOES IO = 07 ?
Y N

040
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 2
DEVICE RESET
READ DEVICE ID
SET DTR
CHECK DCB, FLAGS AND ISB

041
DOES DEV4 = 0000 ?
Y N

SDLC SYSTEM TEST ERROR MAP

PAGE 4 OF 4

042
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

043
SET DTR FAILED
CHECK DCB, FLAGS AND ISB

044
DOES IO = 07 ?
Y N

045
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 1
DEVICE RESET
READ DEVICE ID
SET DTR
CHECK DCB, FLAGS AND ISB

046
DOES DEV4 = 0000 ?
Y N

047
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

048
SET DTR FAILED
CHECK DCB, FLAGS AND ISB

049
DOES IO = 07 ?
Y N

050
COMMAND REJECT FROM ATTACHMENT CARD
PREPARE - LEVEL = 0
DEVICE RESET
READ DEVICE ID
SET DTR
CHECK DCB, FLAGS AND ISB

051
DOES DEV4 = 0000 ?
Y N

052
WRONG DEVICE ID RECEIVED
DEV3 = RECEIVED ID
DEV4 = EXPECTED ID
CHECK DCB, FLAGS AND ISB

053
SET DTR FAILED
CHECK DCB, FLAGS AND ISB

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                              3 ************************************************************************
                              4 *                                                                      *
                              5 *                     ***       PREREQUISITES       ***                *
                              6 *                                                                      *
                              7 *                                NONE                                  *
                              8 *                                                                      *
                              9 ************************************************************************
                             10 *                                                                      *
                             11 *                     ***       MODIFICATIONS       ***                *
                             12 *                                                                      *
                             13 *                    IMPROVEMENT IN RESPONSE TIME                      *
                             14 *                                                                      *
                             15 ************************************************************************
                             16 *                                                                      *
                             17 *                     ***     REA'S INCORPORATED     ***               *
                             18 *                                                                      *
                             19 *                                NONE                                  *
                             20 *                                                                      *
                             21 ************************************************************************
                             22 *                                                                      *
                             23 *                     ***    SPECIAL INSTRUCTIONS    ***               *
                             24 *                                                                      *
                             25 *                                NONE                                  *
                             26 *                                                                      *
                             27 ************************************************************************
                             28 *                                                                      *
                             29 *                     ***       E. C. HISTORY       ***               *
                             30 *                                                                      *
                             31 *        DATE 01OCT76  DATE 02DEC76  DATE 06MAY77  DATE 15SEP77        *
                             32 *        E.C. 578468   E.C. 578469   E.C. 578756   E.C. 754882         *
                             33 *                                                                      *
                             34 ************************************************************************
 000000                      36 EA0E0 START X'0000'
                             37 *            SUPERVISOR EQUATES
 000014                      38 CICB   EQU   20                    CONNECT INTERRUPT CONTROL BLOCK
 000006                      39 EXIT   EQU   6                     EXIT INTERRUPT LEVEL
 000001                      40 OUTIN  EQU   1                     OUT MESSAGE WITH EXPECTED RESPONCE
 00001A                      41 HTOE   EQU   26                    CHANGE HEX DATA TO EBCDIC DATA
 000002                      42 IDLE   EQU   2                     SHARE PROGRAM TIME WITH OTHER PGMS
 00000C                      43 PREP   EQU   12                    PREPARE DEVICE
 000013                      44 RICB   EQU   19                    RELEASE INTERRUPT CONTROL BLOCK
 00000A                      45 START  EQU   10                    START CYCLE STEAL COMMAND
 000007                      46 TERM   EQU   7                     TERMINATE THIS PROGRAM
 000008                      47 RESET  EQU   8                     RESET DEVICE
 000009                      48 RID    EQU   9                     READ DEVICE ID
 000000                      49 REG    EQUR  0                     WORK REGISTER
 00181E                      50 PRNTRTN EQU  X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
 000232                      51 CPUTYPE EQU  X'0232'               PROCESSOR TYPE LOCATION
                             52 *
                             53 *            PROGRAM HEADING AND CONTROL WORDS
                             54 *
 000000  C1F0F0F0            55 $PID   DC    C'A000'               PROGRAM IDENTIFICATION
 000004  0000                56        DC    XL2'0000'             CURRENT LEVEL OF PROGRAM
 000006  00C2                57        DC    A($PENT)              -> TO START EXEC ADDRESS
 000008  004C                58        DC    A($DVAD)              -> TO DEVICE TABLE
 00000A  0000                59 $RTNE  DC    A(*-*)                ROUTINE NUMBER BEING RUN
 00000C  0000                60 $CKPT  DC    A(*-*)                LAST CHECK POINT PASSED
 00000E  0000                62 OPTN1  DC    X'0000'               PROGRAM OPTION CONTROL WORD 1
                             63 *
                             64 * BIT FUNCTION
                             65 *
 000003                      66 TM     EQU   3                     TERMINATE PROGRAM
 00000C                      67 WRIT   EQU   12                    ON = EITHER WRAPPED OR TTY
 00000D                      68 QUES   EQU   13                    QUESTION HAS BEEN ASKED
 00000E                      69 IND    EQU   14                    INDICATOR FOR TTY WRAP CABLE
 00000F                      70 DIR    EQU   15                    SEEK DIRECTION INDICATOR
                             71 *
 000010  0000                72 OPTN2  DC    X'0000'               PROGRAM OPTION CONTROL WORD 2
 000012  0000                73 OPTN3  DC    X'0000'               PROGRAM OPTION CONTROL WORD 3
                             74 *
                             75 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                             76 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                             77 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                             78 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                             79 *
                             80 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                             81 *  5  WRONG INTR LEVEL      LE       13  N.U.
                             82 *  6  LOAS INTERRUPT        LI       14  N.U.
                             83 *  7  CS STATUS IN PROGR    CS       15  N.U.
                             84 *                          BIT     HEX
 000020                      85 MI     EQU   32      0       8     MYSTERY INTERRUPT HAPPENED
 000021                      86 ER     EQU   33      1       4     ERROR RECEIVED ON INTERRUPT
 000022                      87 XI     EQU   34      2       2     EXPECTED INTERRUPT CONTROL BIT
 000023                      88 IN     EQU   35      3       1     INTERRUPT RECEIVED CONTROL BIT
 000024                      89 XE     EQU   36      4       8     EXPECTED ERROR RESPONSE
 000025                      90 LE     EQU   37      5       4     INTERRUPT ON WRONG LEVEL ERROR
 000026                      91 LI     EQU   38      6       2     LOST INTERRUPT
 000027                      92 CS     EQU   39      7       1     CYCLE STATUS IN PROGRESS
 000028                      93 CE     EQU   40      8       8     CYCLE STEAL STATUS INERRRUPT ERROR
 000029                      94 GI     EQU   41      9       4     GOOD INTERRUPT RECEIVED (EXPECTED ER)
 00002A                      95 PE     EQU   42      10      2     PROBABLE ERROR EXPECTED
 00002B                      96 NI     EQU   43      11      1     NO INTR. EXPECTED UNPREPED DEV.
 000014  0000                98 $IOIN  DC    A(*-*)                I/O AND INTR CONDITION CODES
 000016  0000                99 $ISR   DC    A(*-*)                R7, INTR STATUS BYTE & DEV ADRS
 000018  0000               100 LSTIO  DC    A(*-*)                ADRS OF LAST I/O + 4 BYTES
 00001A  00000000           101 $DATA  DC    2A(*-*)               DEVICE DEPENDENT DATA
 00001E  0000               102 DEV3   DC    A(*-*)                DEVICE DEPENDENT DATA DEV3
 000020  0000               103 DEV4   DC    A(*-*)                DEVICE DEPENDENT DATA DEV4
 000022  0000               104 DCBUF  DC    A(*-*)                LAST DCB TABLE, CONTROL WORD
 000024  0000               105 DCB2   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000026  0000               106 DCB3   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000028  0000               107 DCB4   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002A  0000               108 DCB5   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002C  0000               109 DCB6   DC    A(*-*)                LAST DCB TABLE, CHAIN ADRS
 00002E  0000               110 DCB7   DC    A(*-*)                LAST DCB TABLE, BYTE COUNT
 000030  0000               111 DCB8   DC    A(*-*)                LAST DCB TABLE, BUFFER ADDRESS
 000032                     112 CSBUF  EQU   *                     CYCLE STEAL DATA BUFFER
 000032  0000               113 CSTL1  DC    A(*-*)                CYCLE STEAL BUFFER, RESIDUAL ADRS
 000034  0000               114 CSTL2  DC    A(*-*)                CYCLE STEAL WD 2, DEVICE DEPEND
 000036  0000               115 CSTL3  DC    A(*-*)                CYCLE STEAL WD 3, DEVICE DEPEND
 000038  0000               116 CSTL4  DC    A(*-*)                CYCLE STEAL WD 4, DEVICE DEPEND
 00003A  0000               117 CSTL5  DC    A(*-*)                CYCLE STEAL WD 5, DEVICE DEPEND
 00003C  0000               118 CSTL6  DC    A(*-*)                CYCLE STEAL WD 6, DEVICE DEPEND
 00003E  0000               119 CSTL7  DC    A(*-*)                CYCLE STEAL WD 7, DEVICE DEPEND
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```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
 000040  0000               120 CSTL8  DC    A(*-*)                CYCLE STEAL WD 8, DEVICE DEPEND
 000042  00000000           121 PCTR   DC    2A(*-*)               PASS COUNTER
 000046  00000000           122 ECTR   DC    2A(*-*)               ERROR COUNTER
 00004A  0005               123 ERNUM  DC    X'0005'               NUM OF ERRORS ALLOWED BEFORE TERM
 00004C  00A0               124 $DVAD  DC    X'00A0'               DEVICE ADDRESS BEING TESTED
 00004E  0000000000000000   125        DC    XL8'00'
 000056  0000000000000000   126 $DV2   DC    XL10'00'
 000060  0000000000000000   127 $DV3   DC    XL10'00'
 00006A  0000000000000000   128 $DV4   DC    XL10'00'
 000074  0011               129 $INTL  DC    X'0011'               INTERRUPT LEVEL REQUESTED
 000076  C010               130 $DVID  DC    X'C010'               DEVICE IDENTIFICATION
 000078  C018               131 $DVOD  DC    X'C018'
 00007A  0007               132 $MXSL  DC    A(07)                 MAXIMUM SELECTABLE ROUTINES
 00007C  0000               133 H0000  DC    X'0000'               CONSTANT
 00007E  0001               134 H0001  DC    X'0001'               HEX WORD CONSTANT
 000080  0001               135 $HTOE  DC    A(1)                  HEX TO EBC CONTROL BLOCK
 000082  004C               136        DC    A($DVAD)
 000084  00BA               137        DC    A(MSG11)
 000086  0080               138        DC    X'0080'
 000088  0092               139 $OUTN  DC    A(MSG01)              SVC OUTIN CONTROL BLOCK
 00008A  00BE               140        DC    A(INARA)
 00008C  0001               141        DC    A(1)
 00008E  0000               142        DC    A(0)
 000090  A0E1               143        DC    X'A0E1'
 000092  C9E240E3C8C5D9C54  144 MSG01  DC    C'IS THERE A WRAP CABLE CONNECTED TO DA = '
 0000BA  4040               145 MSG11  DC    C' '
 0000BC  0000               146        DC    A(0)
 0000BE  4040               147 INARA  DC    C' '
 0000C0  2300               148 TYPE23 DC    X'2300'
                            150 ************************************************************************
                            151 *                  PROGRAM CONTROL FUNCTIONS                           *
                            152 ************************************************************************
 0000C2  4020 0776 06FC     153 $PENT  MVA   XIOER,IOERR           INIT ERROR RETURN ADDRESS
 0000C8  4020 0782 06FC     154        MVA   XIOER,IOER2
 0000CE  4020 078E 06FC     155        MVA   XIOER,IOER3
 0000D4  4020 079A 06FC     156        MVA   XIOER,IOER4
 0000DA  4020 0074 0011     157        MVWI  X'0011',$INTL          INIT THE INTERRUPT LEVEL
 0000E0  4424 000E          158        MVA   OPTN1,R4               LOAD ADDRESS OF OPTION WORDS
 0000E4  4C0D               159        TBT   (R4,QUES)              HAS QUESTION BEEN ASKED
 0000E6  1252               160        JON   $PEN1                  BRANCH YES
 0000E8  4C4D               161        TBTS  (R4,QUES)              SET QUES ASKED BIT
 0000EA  8028 004C 05ED     162        MVB   $DVAD,E1DA             MOVE DEV ADDRESS TO ALL LOCATIONS
 0000F0  8028 0056 05F1     163        MVB   $DV2,E2DA              *  ---------------------------
 0000F6  8028 0060 05F5     164        MVB   $DV3,E3DA              *  ---------------------------
 0000FC  8028 006A 05F9     165        MVB   $DV4,E4DA              *  ---------------------------
 000102  8028 004C 05FD     166        MVB   $DVAD,ARDA1            *  ---------------------------
 000108  8028 0056 0601     167        MVB   $DV2,ARDA2             *  ---------------------------
 00010E  8028 004C 0605     168        MVB   $DVAD,TSDA1            *  ---------------------------
 000114  8028 0056 0609     169        MVB   $DV2,TSDA2             *  ---------------------------
 00011A  8028 004C 060D     170        MVB   $DVAD,RSDA1            *  ---------------------------
 000120  8028 0056 0611     171        MVB   $DV2,RSDA2             *  ---------------------------
 000126  8028 004C 0615     172        MVB   $DVAD,REDA1            *  ---------------------------
 00012C  8028 0056 0619     173        MVB   $DV2,REDA2             *  ---------------------------
 000132  8028 004C 061D     174        MVB   $DVAD,TTDA1            *  ---------------------------
 000138  8028 0056 0621     175        MVB   $DV2,TTDA2             *  ---------------------------
 00013E  8028 004C 0625     176        MVB   $DVAD,AEDA1            *  ---------------------------
 000144  8028 0056 0629     177        MVB   $DV2,AEDA2             *  ---------------------------
 00014A  8028 0060 062D     178        MVB   $DV3,AEDA3             *  ---------------------------
 000150  8028 006A 0631     179        MVB   $DV4,AEDA4             *  ---------------------------
 000156  8028 0060 0635     180        MVB   $DV3,WRDA3             *  ---------------------------
 00015C  8028 006A 0639     181        MVB   $DV4,WRDA4             *  ---------------------------
 000162  0BFF               182        MVBI  255,R3                 LOAD MASK FIELD INTO R3
 000164  4524 0022          183        MVA   DCBUF,R5               LOAD ADDRESS OF TO FIELD
 000168  0F20               184        MVBI  32,R7                  LOAD LENGTH TO MOVE
 00016A  2BAC               185        FFN   R3,(R5)                INIT DCBUFFER AREA
 00016C  CF25 002C          186        MVWZ  DCB6,R7                ZERO CHAIN ADDRESS
 000170  4724 0080          187        MVA   $HTOE,R7               LOAD ADDRESS OF CONTROL BLOCK
 000174  601A               188        SVC   HTOE                   ISSUE SVC
 000176  4724 0088          189        MVA   $OUTN,R7               LOAD ADDRESS OF CONTROL BLOCK
 00017A  4324 00BA          190        MVA   MSG11,R3               LOAD ADDRESS OF DEV ADDRESS
 00017E  6001               191        SVC   OUTIN                  ISSUE SVC
 000180  C620 00BE          192        MVB   INARA,R6               LOAD ANSWER
 000184  F6E8               193        CBI   C'Y',R6                COMPARE FOR YES
 000186  1001               194        JE    ISWRP                  BRANCH EQUAL
 000188  5001               195        J     $PEN1                  BRAMCH NO
 00018A  4C4E               196 ISWRP  TBTS  (R4,IND)              SET WRAP CABLE IND
 00018C  CB25 000A          197 $PEN1  MVWZ  $RTNE,R6              CLEAR OLD ROUTINE NUMBER
 000190  A82A 007C 0042     198        AD    H0000,PCTR             ADVANCE PASS COUNTER BY 1
 000196  4424 000E          199 $PUPD  MVA   OPTN1,R4              R4 MUST BE SET TO 'OPTN1'
 00019A  4C03               200 $PUP2  TBT   (R4,TM)               IS TERMINATE PGM REQUESTED
 00019C  105D               201        JZ    $PUP8                  * NO, CONTINUE CHECKING
                            203 *
                            204 *                  TERMINATE CONTROL BIT FOUND ON
                            205 *
 00019E  4020 0776 01AA     206 $TERM  MVA   $RET1,IOERR           INIT ERROR RETURN ADDRESS
 0001A4  4724 0774          207        MVA   IOBLK,R7               LOAD ADDRESS OF CONTROL BLOCK
 0001A8  6008               208        SVC   RESET                  ISSUE SVC
 0001AA  4724 0780          209 $RET1  MVA   IOBL2,R7               LOAD ADDRESS OF CONTROL BLOCK
 0001AE  4020 0782 01B6     210        MVA   $RET2,IOER2            INIT ERROR RETURN ADDRESS
 0001B4  6008               211        SVC   RESET                  ISSUE RESET
 0001B6  4724 078C          212 $RET2  MVA   IOBL3,R7               LOAD ADDRESS OF CONTROL BLOCK
 0001BA  4020 078E 01C2     213        MVA   $RET3,IOER3            INIT ERROR RETURN ADDRESS
 0001C0  6008               214        SVC   RESET                  ISSUE RESET
 0001C2  4724 0798          215 $RET3  MVA   IOBL4,R7               LOAD ADDRESS OF CONTROL BLOCK
 0001C6  4020 079A 01CE     216        MVA   $RETI,IOER4            INIT ERROR RETURN ADDRESS
 0001CC  6008               217        SVC   RESET                  ISSUE RESET
 0001CE  4020 0776 01E6     218 $RETI  MVA   $TER1,IOERR           INIT ERROR RETURN ADDRESS
 0001D4  8828 0074 0778     219        MVW   $INTL,IODCB            LOAD INTERRUPT LEVEL
 0001DA  4724 0774          220        MVA   IOBLK,R7               LOAD ADDRESS OF CONTROL BLOCK
 0001E0  4020 0778 0001     221        RBTWI X'0001',IODCB          TURN OFF 'I' BIT
 0001E4  600C               222        SVC   PREP                   ISSUE SVC
 0001E6  4020 0782 01FE     223 $TER1  MVA   $TER2,IOER2            INIT ERROR RETURN ADDRESS
 0001EC  8828 0074 0784     224        MVW   $INTL,IODC2            LOAD INTERRUPT LEVEL
 0001F2  4724 0780          225        MVA   IOBL2,R7               LOAD ADDRESS OF CONTROL BLOCK
 0001F6  4020 0784 0001     226        RBTWI X'0001',IODC2          TURN OFF 'I' BIT
 0001FC  600C               227        SVC   PREP                   ISSUE SVC
 0001FE  4020 078E 0216     228 $TER2  MVA   $TER3,IOER3            INIT ERROR RETURN ADDRESS
 000204  8828 0074 0790     229        MVW   $INTL,IODC3            LOAD INTERRUPT LEVEL
 00020A  4724 078C          230        MVA   IOBL3,R7               LOAD ADDRESS OF CONTROL BLOCK
 00020E  4020 0790 0001     231        RBTWI X'0001',IODC3          TURN OFF 'I' BIT
 000214  600C               232        SVC   PREP                   ISSUE SVC
 000216  4020 079A 022E     233 $TER3  MVA   $TER4,IOER4            INIT ERROR RETURN ADDRESS
 00021C  8828 0074 079C     234        MVW   $INTL,IODC4            LOAD INTERRUPT LEVEL
 000222  4724 0798          235        MVA   IOBL4,R7               LOAD ADDRESS OF CONTROL BLOCK
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000226  402D 079C 0001      236         RBTWI X'0001',IODC4          TURN OFF 'I' BIT
00022C  600C                237         SVC   PREP                  ISSUE SVC
00022E  C720 004C           238 $TER4   MVB   $DVAD,R7               LOAD DEV ADDRESS
000232  7FE4 FF00           239         RBTWI X'FF00',R7             ZERO HIGH ORDER BYTE
000236  6013                240         SVC   RICB                   ISSUE SVC
000238  C720 0056           241         MVB   $DV2,R7                LOAD DEV ADDRESS
00023C  7FE4 FF00           242         RBTWI X'FF00',R7             ZERO HIGH ORDER BYTE
000240  6013                243         SVC   RICB                   ISSUE SVC
000242  C720 0060           244         MVB   $DV3,R7                LOAD DEV ADDRESS
000246  7FE4 FF00           245         RBTWI X'FF00',R7             ZERO HIGH ORDER BYTE
00024A  6013                246         SVC   RICB                   ISSUE SVC
00024C  C720 006A           247         MVB   $DV4,R7                LOAD DEV ADDRESS
000250  7FE4 FF00           248         RBTWI X'FF00',R7             ZERO HIGH ORDER BYTE
000254  6013                249         SVC   RICB                   ISSUE SVC
000256  6007                250         SVC   TERM                   ISSUE SVC
000258  A828 007E 000A      252 $PUP8   AW    H0001,$RTNE            ADVANCE ROUTINE NUMBER
00025E  882B 007A 000A      253         CW    $MXSL,$RTNE            CHECK FOR LAST AUTOMATIC ROUTINE
000264  6800 00C2           254         BE    $PENT                  * BCH AND START WITH RTN 1
                            255 *
                            256 *             GET RTN NUMBER AND BCH TO THAT RTN
                            257 *
000268  6E08 000A           258 $PSEL   MVW   $RTNE,R6               MOVE RTN NUMBER IN REG
00026C  CD25 000C           259         MVWZ  $CKPT,R5               ZERO CHECKPOINT
000270  CD25 001A           260         MVWZ  $DATA,R5               ZERO DEV DEPENDENT DATA DEV1
000274  CD25 001C           261         MVWZ  $DATA+2,R5                                 DEV2
000278  CD25 001E           262         MVWZ  DEV3,R5                                    DEV3
00027C  CD25 0020           263         MVWZ  DEV3+2,R5                                  DEV4
000280  3609                264         SLL   1,R6                   DOUBLE R6 FOR BRANCH TABLE
000282  68D2 0286           265         B     (R6,$RTAD)*            BCH VIA RTN TABLE
                            266 *
                            267 *             TABLE OF ROUTINE ADDRESSES
                            268 *
000286  00C2                269 $RTAD   DC    A($PENT)               NO RTN SELECTED
000288  0294                270         DC    A(RT01)                ROUTINE ADDRESS
00028A  036E                271         DC    A(RT02)                  ''      ''
00028C  03F4                272         DC    A(RT03)                  ''      ''
00028E  0480                273         DC    A(RT04)                  ''      ''
000290  04F0                274         DC    A(RT05)                  ''      ''
000292  0550                275         DC    A(RT06)                  ''      ''
                            277 ********************************************************************
                            278 *     CHANNEL INTERFACE TEST                                       *
                            279 *                                                                  *
                            280 *     TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS  *
                            281 *     THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO *
                            282 *     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS *
                            283 *     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS   *
                            284 *     EXCEPT LEVEL THREE. BEFORE EACH LEVEL TEST RESETS ARE PREFORMED *
                            285 *     AND THE CARD IS TESTED FOR CORRET READ ID.                   *
                            286 ********************************************************************
000294  6E03 07C4           287 RT01    BAL   $CONR,R6               CLEAR AND CONNECT I/O BLK
000298  6A08 0074           288         MVW   $INTL,R2               SAVE SELECTED INTERRUPT
00029C  4020 0074 FFF1      289         MVWI  X'FFF1',$INTL          SET UP INTERRUPT LEVEL FOR PREP
0002A2  4724 0774           290 ITST4   MVA   IOBLK,R7               LOAD CONTROL BLOCK ADDRESS
0002A6  6008                291         SVC   RESET                  ISSUE RESET
0002A8  4724 0780           292         MVA   IOBL2,R7               LOAD CONTROL BLOCK ADDRESS
0002AC  6008                293         SVC   RESET                  ISSUE RESET
0002AE  4724 078C           294         MVA   IOBL3,R7               LOAD CONTROL BLOCK ADDRESS
0002B2  6008                295         SVC   RESET                  ISSUE RESET
0002B4  4724 0798           296         MVA   IOBL4,R7               LOAD CONTROL BLOCK ADDRESS
0002B8  6008                297         SVC   RESET                  ISSUE RESET
0002BA  6002                298         SVC   IDLE                   ALLOW OTHER PROG TO EXEC
0002BC  4724 0774           299         MVA   IOBLK,R7               LOAD ADDRESS OF CONTROL BLOCK
0002C0  6009                300         SVC   RID                    ISSUE SVC
0002C2  882B 077E 0076      301         CW    IORSP,$DVID            IS ID CORRECT
0002C8  182F                302         JNE   RT011                  BRANCH YES
0002CA  4724 0780           303         MVA   IOBL2,R7               LOAD ADDRESS OF CONTROL BLOCK
0002CE  6009                304         SVC   RID                    ISSUE SVC
0002D0  882B 078A 0076      305         CW    IORS2,$DVID            IS ID CORRECT
0002D6  1833                306         JNE   RT012                  BRANCH YES
0002D8  4724 078C           307         MVA   IOBL3,R7               LOAD ADDRESS OF CONTROL BLOCK
0002DC  6009                308         SVC   RID                    ISSUE SVC
0002DE  882B 0796 0078      309         CW    IORS3,$DVOD            IS ID CORRECT
0002E4  1833                310         JNE   RT013                  BRANCH YES
0002E6  4724 0798           311         MVA   IOBL4,R7               LOAD ADDRESS OF CONTROL BLOCK
0002EA  6009                312         SVC   RID                    ISSUE SVC
0002EC  882B 07A2 0078      313         CW    IORS4,$DVOD            IS ID CORRECT
0002F2  1836                314         JNE   RT014                  BRANCH YES
0002F4  4029 0074 0010      315         AWI   X'10',$INTL            ADV INTR LEVEL, STARTING AT 0
0002FA  6E03 07E0           316         BAL   $CONC,R6               GO  PREPARE ON NEW LEVEL
0002FE  4C6B                317         TBTS  (R4,NI)                SET NO INTERRUPT EXPECTED
000300  6E03 063C           318         BAL   XIOA1,R6               ARM PI
000304  6E03 0648           319         BAL   XIOT1,R6               EXEC COMMAND TO OBTAIN INTERRUPT
000308  4C6B                320         TBTS  (R4,NI)                SET NO INTERRUPT EXPECTED
00030A  6E03 0642           321         BAL   XIOA2,R6               ARM PI
00030E  6E03 064E           322         BAL   XIOT2,R6               EXEC COMMAND TO OBTAIN INTERRUPT
000312  4029 000C 0001      323         AWI   1,$CKPT                BUMP CHECKPOINT
000318  402F 0074 0021      324         CWI   X'21',$INTL            HAS INTR LEVEL COME DOWN TO 2
00031E  18C1                325         JNE   ITST4                  * NO, BCH AND CONTINUE TEST
000320  6A0D 0074           326         MVW   R2,$INTL               RESTORE SELECTED INTR LEVEL
000324  6802 0196           327         B     $PUPD                  BRANCH TO CONTINUE
000328  8828 077E 001E      329 RT011   MVW   IORSP,DEV3             MOVE RECEIVED ID INTO DEV3
00032E  8028 004C 001A      330         MVB   $DVAD,$DATA            STORE DEVICE ADDRESS
000334  8828 0076 0020      331 RT015   MVW   $DVID,DEV4             MOVE EXPECTED ID INTO DEV4
00033A  6802 0868           332 RT016   B     $PRNT                  BRANCH TO PRINT ERROR
00033E  8828 078A 001E      333 RT012   MVW   IORS2,DEV3             MOVE RECEIVED ID INTO DEV3
000344  8028 0056 001A      334         MVB   $DV2,$DATA             STORE DEVICE ADDRESS
00034A  50F4                335         J     RT015                  BRANCH
00034C  8828 0796 001E      336 RT013   MVW   IORS3,DEV3             MOVE RECEIVED ID INTO DEV3
000352  8028 0060 001A      337         MVB   $DV3,$DATA             STORE DEVICE ADDRESS
000358  8828 0078 0020      338 RT017   MVW   $DVOD,DEV4             MOVE EXPECTED ID INTO DEV4
00035E  50ED                339         J     RT016                  BRANCH
000360  8828 07A2 001E      340 RT014   MVW   IORS4,DEV3             MOVE RECEIVED ID INOT DEV3
000366  8028 006A 001A      341         MVB   $DV4,$DATA             STORE DEVICE ADDRESS
00036C  50F5                342         J     RT017                  BRANCH
                            344 ********************************************************************
                            345 *                                                                  *
                            346 *     PURPOSE: TO INSURE THE IDIDO ATTACHMENT WILL RESPOND WITH A  *
                            347 *              'COMMAND REJECT' TO EACH INVALID IO INSTRUCTION.     *
                            348 *              FOR ONLY BOTH DO REGISTERS.                         *
                            349 *     METHOD: EACH INVALID IO INSTRUCTION IS ISSUED, AND THE RESPONSE *
                            350 *             TO EACH IS TESTED.                                   *
                            351 ********************************************************************
00036E  6E03 07EC           352 RT02    BAL   $CONU,R6               PREPARE DEVICE ON CORRECT LEVEL
000372  4029 000C 0001      353         AWI   1,$CKPT                BUMP CHECKPOINT
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000378  0903                354         MVBI  3,R1                  SET UP TO TEST FUNC/MODR OP X'03'
00037A  0A1F                355         MVBI  X'1F',R2               * THRU X'1F'
00037C  9F1F                356         JAL   RT202,R7               GO TEST THEM
00037E  0921                357         MVBI  X'21',R1               SET UP TO TEST FUNC/MODR OP X'21'
000380  0A27                358         MVBI  X'27',R2               * THRU X'27'
000382  9F1C                359         JAL   RT202,R7               GO TEST THEM
000384  0929                360         MVBI  X'29',R1               SET UP TO TEST FUNC/MODR X'29'
000386  0A5F                361         MVBI  X'5F',R2               * THRU X'5F'
000388  9F19                362         JAL   RT202,R7               GO TEST THEM
00038A  0961                363         MVBI  X'61',R1               SET UP TO TEST FUNC/MODR X'61'
00038C  0A67                364         MVBI  X'67',R2               * THRU X'67'
00038E  9F16                365         JAL   RT202,R7               GO TEST THEM
000390  096C                366         MVBI  X'6C',R1               SET UP TO TEST FUNC/MODR OP X'6C'
000392  0A6E                367         MVBI  X'6E',R2               * THRU X'6E'
000394  9F13                368         JAL   RT202,R7               GO TEST THEM
000396  0970                369         MVBI  X'70',R1               SET UP TO TEST FUNC/MODR OP X'70'
000398  4224 00EF           370         MVWI  X'00EF',R2             * THRU X'EF'
00039C  9F0F                371         JAL   RT202,R7               GO TEST THEM
00039E  4029 000C 0001      372         AWI   1,$CKPT                BUMP CHECKPOINT
0003A4  4724 0774           373         MVA   IOBLK,R7               LOAD ADDRESS OF THE CONTROL BLOCK
0003A8  6008                374         SVC   RESET                  ISSUE SVC
0003AA  4724 0780           375         MVA   IOBL2,R7               LOAD ADDRESS OF THE CONTROL BLOCK
0003AE  6008                376         SVC   RESET                  ISSUE SVC
0003B0  6E08 0012           377         MVW   OPTN3,R6               CHECK OPTION WORD THREE
0003B4  6802 0868           378         BNZ   $PRNT                  BRANCH IF NOT ZERO
0003B8  6802 0196           379         B     $PUPD                  BRANCH TO CONTINUE
0003BC  C128 05BC           380 RT202   MVB   R1,ERCT1              SET TEST VALUE INTO IDCB
0003C0  9028 05FC 0022      381         MVD   ERDC1,DCBUF            MOVE IDCB TO BE USED
0003C6  680C 0022           382         IO    DCBUF                  ISSUE THE OIO
0003CA  6B05 06FC           383         BNCC  3,XIOER                CHECK FOR 'COMMAND REJECT'
0003CE  6002                384         SVC   IDLE                   DELAY
0003D0  C128 05F0           385         MVB   R1,ERCT2               SET TEST VALUE INTO IDCB
0003D4  9028 05F0 0022      386         MVD   ERDC2,DCBUF            MOVE IDCB TO BE USED
0003DA  680C 0022           387         IO    DCBUF                  ISSUE THE OIO
0003DE  6B05 06FC           388         BNCC  3,XIOER                CHECK FOR ' COMMAND REJECT'
0003E2  6002                389         SVC   IDLE                   DELAY
0003E4  0101                390 RT203   ABI   1,R1                  INCR TEST VALUE
0003E6  4C03                391         TBT   (R4,TM)                IS TERM BIT ON
0003E8  6A00 019E           392         BON   $TERM                  BRANCH YES
0003EC  7145                393         CW    R1,R2                  WAS THAT THE LAST ONE ?
0003EE  6FE0 0000           394         BLLT  (R7)                   YES, RETURN
0003F2  50E4                395         J     RT202                  NO.  GO DO NEXT VALUE
                            397 ********************************************************************
                            398 *     PURPOSE: TO INSURE THE IDIDO ATTACHMENT WILL RESPOND WITH A  *
                            399 *              'COMMAND REJECT' TO EACH INVALID IO INSTRUCTION.     *
                            400 *              THESE COMMANDS ARE ISSUED FOR BOTH DO. THIS ROUTINE  *
                            401 *              IS EXECUTED ONLY WHEN THE WRAP CABLE IS INSTALED.    *
                            402 ********************************************************************
0003F4  4C0E                403 RT03    TBT   (R4,IND)               IS CARD WRAPPED
0003F6  6800 0196           404         BOFF  $PUPD                  BRANCH NO
0003FA  6E03 0830           405         BAL   $CONV,R6               PREPARE DEVICE ON CORRECT LEVEL
0003FE  4029 000C 0001      406         AWI   1,$CKPT                BUMP CHECKPOINT
000404  0900                407         MVBI  0,R1                   SET UP TO TEST FUNC/MODR OP X'00'
000406  0A1F                408         MVBI  X'1F',R2               * THRU X'1F'
000408  9F1F                409         JAL   RT302,R7               GO TEST THEM
00040A  0922                410         MVBI  X'22',R1               SET UP TO TEST FUNC/MODR OP X'22'
00040C  0A27                411         MVBI  X'27',R2               * THRU X'27'
00040E  9F1C                412         JAL   RT302,R7               GO TEST THEM
000410  0929                413         MVBI  X'29',R1               SET UP TO TEST FUNC/MODR X'29'
000412  0A47                414         MVBI  X'47',R2               * THRU X'47'
000414  9F19                415         JAL   RT302,R7               GO TEST THEM
000416  0949                416         MVBI  X'49',R1               SET UP TO TEST FUNC/MODR X'49'
000418  0A5F                417         MVBI  X'5F',R2               * THRU X'5F'
00041A  9F16                418         JAL   RT302,R7               GO TEST THEM
00041C  0961                419         MVBI  X'61',R1               SET UP TO TEST FUNC/MODR OP X'61'
00041E  0A68                420         MVBI  X'68',R2               * THRU X'68'
000420  9F13                421         JAL   RT302,R7               GO TEST THEM
000422  0970                422         MVBI  X'70',R1               SET UP TO TEST FUNC/MODR OP X'70'
000424  4224 00EF           423         MVWI  X'00EF',R2             * THRU X'EF'
000428  9F0F                424         JAL   RT302,R7               GO TEST THEM
00042A  4029 000C 0001      425         AWI   1,$CKPT                BUMP CHECKPOINT
000430  4724 078C           426         MVA   IOBL3,R7               LOAD ADDRESS OF THE CONTROL BLOCK
000434  6008                427         SVC   RESET                  ISSUE SVC
000436  4724 0798           428         MVA   IOBL4,R7               LOAD ADDRESS OF THE CONTROL BLOCK
00043A  6008                429         SVC   RESET                  ISSUE SVC
00043C  6E08 0012           430         MVW   OPTN3,R6               CHECK OPTION WORD THREE
000440  6801 0868           431         BNZ   $PRNT                  BRANCH IF NOT ZERO
000444  6802 0196           432         B     $PUPD                  BRANCH TO CONTINUE
000448  C128 05F4           433 RT302   MVB   R1,ERCT3               SET TEST VALUE INTO IDCB
00044C  9028 05F4 0022      434         MVD   ERDC3,DCBUF            MOVE IDCB TO BE USED
000452  680C 0022           435         IO    DCBUF                  ISSUE THE OIO
000456  6B05 06FC           436         BNCC  3,XIOER                CHECK FOR 'COMMAND REJECT'
00045A  6002                437         SVC   IDLE                   DELAY
00045C  C128 05F8           438         MVB   R1,ERCT4               SET TEST VALUE INTO IDCB
000460  9028 05F8 0022      439         MVD   ERDC4,DCBUF            MOVE IDCB TO BE USED
000466  680C 0022           440         IO    DCBUF                  ISSUE THE OIO
00046A  6B05 06FC           441         BNCC  3,XIOER                CHECK FOR 'COMMAND REJECT'
00046E  6002                442         SVC   IDLE                   DELAY
000470  0101                443 RT303   ABI   1,R1                  INCR TEST VALUE
000472  4C03                444         TBT   (R4,TM)                IS TERM BIT ON
000474  6A00 019E           445         BON   $TERM                  BRANCH YES
000478  7145                446         CW    R1,R2                  WAS THAT THE LAST ONE ?
00047A  6FE0 0000           447         BLLT  (R7)                   YES, RETURN
00047E  50E4                448         J     RT302                  NO.  GO DO NEXT VALUE
                            450 ********************************************************************
                            451 *     IDIDO READ SINGLE STATUS AND DI CHECK                        *
                            452 *                                                                  *
                            453 *     THE ATTACHMENT WILL BE ISSUED A SET TEST 1 COMMAND AND THE   *
                            454 *     STATUS SHOULD REFLECT THIS ALSO THE DI REG. SHOULD BE X'FFFF'.  *
                            455 ********************************************************************
000480  6E03 07EC           456 RT04    BAL   $CONU,R6               PREPARE DEVICE ON CORRECT LEVEL
000484  4724 0774           457         MVA   IOBLK,R7               LOAD CONTROL BLOCK ADDRESS
000488  6008                458         SVC   RESET                  RESET DEV ADD
00048A  4724 0780           459         MVA   IOBL2,R7               LOAD CONTROL BLOCK ADDRESS
00048E  6008                460         SVC   RESET                  ISSUE SVC RESET
000490  4029 000C 0001      461         AWI   1,$CKPT                BUMP CHECK POINT
000496  4C6B                462         TBTS  (R4,NI)                TURN ON NO INTERRUPT FLAG
000498  6E03 0648           463         BAL   XIOT1,R6               BRANCH TO ISSUE IO
00049C  4C6B                464         TBTS  (R4,NI)                TURN ON NO INTERRUPT FLAG
00049E  6E03 064E           465         BAL   XIOT2,R6               BRANCH TO ISSUE IO
0004A2  6E03 0660           466         BAL   XIOR1,R6               BRANCH TO ISSUE IO
0004A6  402F 0024 0800      467         CWI   X'0800',DCB2           IS STATUS CORRECT
0004AC  1817                468         JNE   RT041                  BRANCH IF NO
0004AE  6E03 0668           469         BAL   XIOR2,R6               BRANCH TO ISSUE IO
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
0004B2  402F 0024 0800      470        CWI   X'0800',DCB2          IS STATUS CORRECT
0004B8  1811                471        JNE   RT041                 BRANCH IF NO
0004BA  4029 000C 0001      472        AWI   1,$CKPT               BUMP CHECK POINT
0004C0  6E03 0670           473        BAL   XIOD1,R6              BRANCH TO ISSUE IO
0004C4  402F 0024 FFFF      474        CWI   X'FFFF',DCB2          IS STATUS CORRECT
0004CA  180D                475        JNE   RT042                 BRANCH IF NOT
0004CC  6E03 0678           476        BAL   XIOD2,R6              BRANCH TO ISSUE IO
0004D0  402F 0024 FFFF      477        CWI   X'FFFF',DCB2          IS STATUS CORRECT
0004D6  1807                478        JNE   RT042                 BRANCH IF NOT
0004D8  6802 0196           479        B     $PUPD                 BRANCH TO CONTINUE
0004DC  4020 0020 0800      480 RT041  MVWI  X'0800',DEV4          LOAD EXP DATA
0004E2  6802 0868           481        B     $PRNT                 BRANCH TO PRINT MESSAGE
0004E6  4020 0020 FFFF      482 RT042  MVWI  X'FFFF',DEV4          LOAD EXP DATA
0004EC  6802 0868           483        B     $PRNT                 BRANCH TO PRINT MESSAGE
                            485 ********************************************************************
                            486 *      IDIDO MULTIPLE STATUS CHECK                                 *
                            487 *                                                                  *
                            488 *      MULTIPLE COMMANDS ARE ISSUED TO THE ATTACHMENT CARD AFTER WHICH *
                            489 *      A READ STATUS IS PREFORMED THIS STATUS IS EXPECTED TO BE X'2B00'*
                            490 ********************************************************************
0004F0  6E03 07EC           491 RT05   BAL   $CONU,R6              UPPREP DEVICE ON CORRECT LEVEL
0004F4  4724 0774           492        MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
0004F8  6008                493        SVC   RESET                 ISSUE RESET
0004FA  4724 0780           494        MVA   IOBL2,R7              LOAD ADDRESS OF CONTROL BLOCK
0004FE  6008                495        SVC   RESET                 ISSUE RESET
000500  4029 000C 0001      496        AWI   1,$CKPT               BUMP CHECK POINT
000506  4C6B                497        TBTS  (R4,NI)               TURN ON NO INTERRUPT FLAG
000508  6E03 063C           498        BAL   XIOA1,R6              BRANCH TO ISUE IO
00050C  4C6B                499        TBTS  (R4,NI)               TURN ON NO INTERRUPT FLAG
00050E  6E03 0654           500        BAL   XIOS1,R6              BRANCH TO ISSUE IO
000512  4C6B                501        TBTS  (R4,NI)               TURN ON NO INTERRUPT FLAG
000514  6E03 0648           502        BAL   XIOT1,R6              BRANCH TO ISSUE IO
000518  6E03 0660           503        BAL   XIOR1,R6              BRANCH TO ISSUE IO
00051C  402F 0024 2B00      504        CWI   X'2B00',DCB2          CHECK STATUS AGAINST EXPECTED VALUE
000522  1811                505        JNE   RT051                 BRANCH IF ERROR
000524  4C6B                506        TBTS  (R4,NI)               TURN ON NO INTERRUPT FLAG
000526  6E03 0642           507        BAL   XIOA2,R6              BRANCH TO ISSUE IO
00052A  4C6B                508        TBTS  (R4,NI)               TURN ON NO INTERRUPT FLAG
00052C  6E03 065A           509        BAL   XIOS2,R6              BRANCH TO ISSUE IO
000530  4C6B                510        TBTS  (R4,NI)               TURN ON NO INTERRUPT FLAG
000532  6E03 064E           511        BAL   XIOT2,R6              BRANCH TO ISSUE IO
000536  6E03 0668           512        BAL   XIOR2,R6              BRANCH TO ISSUE IO
00053A  402F 0024 2B00      513        CWI   X'2B00',DCB2          CHECK STATUS AGAINST EXPECTED VALUE
000540  1802                514        JNE   RT051                 BRANCH IF ERROR
000542  6802 0196           515        B     $PUPD                 RETURN TO CONTINUE
000546  4020 0020 2B00      516 RT051  MVWI  X'2B00',DEV4          INDICATE EXPECTED VALUER
00054C  6802 0868           517        B     $PRNT                 BRANCH TO PRINT ERROR
                            519 ********************************************************************
                            520 *      WRAP TEST DO WRAPPED TO DI                                  *
                            521 *                                                                  *
                            522 *      THIS ROUTINE IS NOT ENTERED UNLESS THE CARD HAS BEEN WRAPPED *
                            523 *      THEN BOTH DO'S ARE WRITTEN WITH DATA AND READ BACK THRU THE  *
                            524 *      DI'S THE DATA IS COMPARED AND THE PROCEDURE IS REPEATED 16 TIMES*
                            525 ********************************************************************
000550  4C0E                526 RT06   TBT   (R4,IND)              TEST FOR DEVISE WRAPED
000552  6800 0196           527        BOFF  $PUPD                 BRANCH IF NOT
000556  4724 0774           528        MVA   IOBLK,R7              LOAD CONTROL BLOCK ADDRESS
00055A  6008                529        SVC   RESET                 ISSUE RESET
00055C  4724 0780           530        MVA   IOBL2,R7              LOAD CONTROL BLOCK ADDRESS
000560  6008                531        SVC   RESET                 ISSUE RESET
000562  4724 078C           532        MVA   IOBL3,R7              LOAD CONTROL BLOCK ADDRESS
000566  6008                533        SVC   RESET                 ISSUE RESET
000568  4724 0798           534        MVA   IOBL4,R7              LOAD CONTROL BLOCK ADDRESS
00056C  6008                535        SVC   RESET                 ISSUE RESET
00056E  6E03 07E0           536        BAL   $CONC,R6              PREPARE DI'S
000572  6E03 0824           537        BAL   $CONK,R6              PREPARE DO'S
000576  4029 000C 0001      538        AWI   1,$CKPT               BUMP CHECK POINT
00057C  4C6B                539        TBTS  (R4,NI)               TURN ON NO INTERRUPT FLAG
00057E  6E03 0680           540        BAL   XIOE1,R6              BRANCH TO ISSUE IO
000582  4C6B                541        TBTS  (R4,NI)               TURN ON NO INTERRUPT FLAG
000584  6E03 0686           542        BAL   XIOE2,R6              BRANCH TO ISSUE IO
000588  4C6B                543        TBTS  (R4,NI)               TURN ON NO INTERRUPT FLAG
00058A  6E03 068C           544        BAL   XIOE3,R6              BRANCH TO ISSUE IO
00058E  4C6B                545        TBTS  (R4,NI)               TURN ON NO INTERRUPT FLAG
000590  6E03 0692           546        BAL   XIOE4,R6              BRANCH TO ISSUE IO
000594  4020 0636 0000      547        MVWI  X'0000',WRFD3         INIT DATA FIELD TO WRITE
00059A  4020 063A 0000      548        MVWI  X'0000',WRFD4         INIT DATA FIELD TO WRITE
0005A0  4029 000C 0001      549        AWI   1,$CKPT               BUMP CHECK POINT
0005A6  4029 0636 1111      550 RT061  AWI   X'1111',WRFD3         BUMP TO NEXT DATA PATTERN
0005AC  4029 063A 1111      551        AWI   X'1111',WRFD4         BUMP TO NEXT DATA PATTERN
0005B2  4C4C                552        TBTS  (R4,WRIT)             SET WRIT INDICATOR BIT
0005B4  6E03 0698           553        BAL   XIOW3,R6              BRANCH TO ISSUE IO
0005B8  4C4C                554        TBTS  (R4,WRIT)             SET WRIT INDICATOR BIT
0005BA  6E03 069E           555        BAL   XIOW4,R6              BRANCH TO ISSUE IO
0005BE  6E03 0670           556        BAL   XIOD1,R6              BRANCH TO ISSUE IO
0005C2  882B 0024 0636      557        CW    DCB2,WRFD3            COMPARE WRITE AND READ DATA
0005C8  180C                558        JNE   RT062                 BRANCH IF WRONG
0005CA  6E03 0678           559        BAL   XIOD2,R6              BRANCH TO ISSUE IO
0005CE  882B 0024 063A      560        CW    DCB2,WRFD4            COMPARE WRITE AND READ DATA
0005D4  1806                561        JNE   RT062                 BRANCH IF WRONG
0005D6  402F 0636 FFFF      562        CWI   X'FFFF',WRFD3         IS THIS THE LAST PATTERN
0005DC  6800 0196           563        BE    $PUPD                 BRANCH YES
0005E0  50E2                564        J     RT061                 BRANCH IF NO
0005E2  8828 0636 0020      565 RT062  MVW   WRFD3,DEV4            LOCATE DATA PATTERN IN DEV DATA
0005E8  6802 0868           566        B     $PRNT                 BRANCH TO PRINT DATA
                            568 *
                            569 *                  DI ERROR CONTROL BLOCK
0005EC                      570 *
0005EC  00                  571 ERDC1  EQU   *                     USE FOR DCB REFERENCE ONLY
0005ED  00                  572 ERCT1  DC    X'00'                 CONTROL WORD
0005EE  0000                573 E1DA   DC    X'00'
                            574        DC    X'0000'
                            575 *
                            576 *                  DI ERROR CONTROL BLOCK
0005F0                      577 *
0005F0  00                  578 ERDC2  EQU   *                     USE FOR DCB REFERENCE ONLY
0005F1  00                  579 ERCT2  DC    X'00'                 CONTROL WORD
0005F2  0000                580 E2DA   DC    X'00'
                            581        DC    X'0000'
                            582 *
                            583 *                  DO ERROR CONTROL BLOCK
0005F4                      584 *
0005F4  00                  585 ERDC3  EQU   *                     USE FOR DCB REFERENCE ONLY
                            586 ERCT3  DC    X'00'                 CONTROL WORD
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
0005F5  00                  587 E3DA   DC    X'00'
0005F6  0000                588        DC    X'0000'
                            589 *
                            590 *                  DO ERROR CONTROL BLOCK
                            591 *
0005F8                      592 ERDC4  EQU   *                     USE FOR DCB REFERENCE ONLY
0005F8  00                  593 ERCT4  DC    X'00'                 CONTROL WORD
0005F9  00                  594 E4DA   DC    X'00'
0005FA  0000                595        DC    X'0000'
                            596 *
                            597 *                  ARM PI DI=1 CONTROL BLOCK
                            598 *
0005FC                      599 ARM01  EQU   *                     USE FOR DCB REFERENCE ONLY
0005FC  68                  600 ARCT1  DC    X'68'                 CONTROL WORD
0005FD  00                  601 ARDA1  DC    X'00'
0005FE  0000                602        DC    X'0000'
                            603 *
                            604 *                  ARM PI DI=2 CONTROL BLOCK
                            605 *
000600                      606 ARM02  EQU   *                     USE FOR DCB REFERENCE ONLY
000600  68                  607 ARCT2  DC    X'68'                 CONTROL WORD
000601  00                  608 ARDA2  DC    X'00'
000602  0000                609        DC    X'0000'
                            610 *
                            611 *                  SET TEST ONE DI=1 CONTROL BLOCK
                            612 *
000604                      613 TST01  EQU   *                     USE FOR DCB REFERENCE ONLY
000604  6B                  614 TSCT1  DC    X'6B'                 CONTROL WORD
000605  00                  615 TSDA1  DC    X'00'
000606  0001                616        DC    X'0001'
                            618 *
                            619 *                  SET TEST ONE DI=2 CONTROL BLOCK
                            620 *
000608                      621 TST02  EQU   *                     USE FOR DCB REFERENCE ONLY
000608  6B                  622 TSCT2  DC    X'6B'                 CONTROL WORD
000609  00                  623 TSDA2  DC    X'00'
00060A  0000                624        DC    X'0000'
                            625 *
                            626 *                  READ STATUS DI=1 DATA CONTROL BLOCK
                            627 *
00060C                      628 RST01  EQU   *                     USE FOR DCB FREERENCE ONLY
00060C  28                  629 RSCT1  DC    X'28'                 CONTROL WORD
00060D  00                  630 RSDA1  DC    X'00'
00060E  0000                631        DC    X'0000'
                            632 *
                            633 *                  READ STATUS DI=2 DATA CONTROL BLOCK
                            634 *
000610                      635 RST02  EQU   *                     USE FOR DCB REFERENCE ONLY
000610  28                  636 RSCT2  DC    X'28'                 CONTROL WORD
000611  00                  637 RSDA2  DC    X'00'
000612  0000                638        DC    X'0000'
                            639 *
                            640 *                  READ DI=1 DATA CONTROL BLOCK
                            641 *
000614                      642 RED01  EQU   *                     USE FOR DCB REFERENCE ONLY
000614  00                  643 RECT1  DC    X'00'                 CONTROL WORD
000615  00                  644 REDA1  DC    X'00'
000616  0000                645        DC    X'0000'
                            646 *
                            647 *                  READ DI=2 DATA CONTROL BLOCK
                            648 *
000618                      649 RED02  EQU   *                     USE FOR DCB FREERENCE ONLY
000618  00                  650 RECT2  DC    X'00'                 CONTROL WORD
000619  00                  651 REDA2  DC    X'00'
00061A  0000                652        DC    X'0000'
                            653 *
                            654 *                  SET TEST 0 DI=1 CONTROL BLOCK
                            655 *
00061C                      656 TS101  EQU   *                     USE FOR DCB REFERENCE ONLY
00061C  6A                  657 TTCT1  DC    X'6A'                 CONTROL WORD
00061D  00                  658 TTDA1  DC    X'00'
00061E  0000                659        DC    X'0000'
                            660 *
                            661 *                  SET TEST 0 DI=2 CONTROL BLOCK
                            662 *
000620                      663 TS102  EQU   *                     USE FOR DCB REFERENCE ONLY
000620  6A                  664 TTCT2  DC    X'6A'                 CONTROL WORD
000621  00                  665 TTDA2  DC    X'00'
000622  0000                666        DC    X'0000'
                            668 *
                            669 *                  ARM EXTERNAL SYNC DI=1 CONTROL BLOCK
                            670 *
000624                      671 AEX01  EQU   *                     USE FOR DCB REFERENCE ONLY
000624  69                  672 AECT1  DC    X'69'                 CONTROL WORD
000625  00                  673 AEDA1  DC    X'00'
000626  0000                674        DC    X'0000'
                            675 *
                            676 *                  ARM EXTERNAL SYNC DI=2 CONTROL BLOCK
                            677 *
000628                      678 AEX02  EQU   *                     USE FOR DCB FREERENCE ONLY
000628  69                  679 AECT2  DC    X'69'                 CONTROL WORD
000629  00                  680 AEDA2  DC    X'00'
00062A  0000                681        DC    X'0000'
                            682 *
                            683 *                  ARM EXTERNAL SYNC DO=3 CONTROL BLOCK
                            684 *
00062C                      685 AEX03  EQU   *                     USE FOR DCB REFERENCE ONLY
00062C  69                  686 AECT3  DC    X'69'                 CONTROL WORD
00062D  00                  687 AEDA3  DC    X'00'
00062E  0000                688        DC    X'0000'
                            689 *
                            690 *                  ARM EXTERNAL SYNC DO=4 CONTROL BLOCK
                            691 *
000630                      692 AEX04  EQU   *                     USE FOR DCB REFERENCE ONLY
000630  69                  693 AECT4  DC    X'69'                 CONTROL WORD
000631  00                  694 AEDA4  DC    X'00'
000632  0000                695        DC    X'0000'
                            696 *
                            697 *                  WRITE DO=3 CONTROL BLOCK
                            698 *
000634                      699 WRDO3  EQU   *                     USE FOR DCB FREERENCE ONLY
000634  48                  700 WRCT3  DC    X'48'                 CONTROL WORD
000635  00                  701 WRDA3  DC    X'00'
000636  0000                702 WRFD3  DC    X'0000'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           703 *
                           704 *              WRITE DO=4 CONTROL BLOCK
                           705 *
000638                     706 WRDO4  EQU   *                    USE FOR DCB REFERENCE ONLY
000638  48                 707 WRCT4  DC    X'48'               CONTROL WORD
000639  00                 708 WRDA4  DC    X'00'
00063A  0000               709 WRFD4  DC    X'0000'
                           711 ********************************************************************************
                           712 *     ISSUE ALL I/O COMMANDS FROM A COMMON SUBROUTINE                           *
                           713 *     TO DISPLAY INSTRUCTIONS AND OPERATING PROCEDURES TO THE OPERATOR*
                           714 *     AND SET UP ANY REQUIREMENTS FOR OTHER I/O COMMANDS                        *
                           715 *                                                                               *
                           716 * --> BAL   XIOA1,R6              XEQ ARM PI DI=1                               *
                           717 * --> BAL   XIOA2,R6              XEQ ARM PI DI=2                               *
                           718 * --> BAL   XIOT1,R6              XEQ SET TEST 1 DI=1                           *
                           719 * --> BAL   XIOT2,R6              XEQ SET TEST 1 DI=2                           *
                           720 * --> BAL   XIOS1,R6              XEQ SET TEST 0 DI=1                           *
                           721 * --> BAL   XIOS2,R6              XEQ SET TEST 0 DI=2                           *
                           722 * --> BAL   XIOR1,R6              XEQ READ STATUS DI=1                          *
                           723 * --> BAL   XIOR2,R6              XEQ READ STATUS DI=2                          *
                           724 * --> BAL   XIOD1,R6              XEQ READ DI=1                                 *
                           725 * --> BAL   XIOD2,R6              XEQ READ DI=2                                 *
                           726 * --> BAL   XIOE1,R6              XEQ ARM EXTERNAL SYNC DI=1                    *
                           727 * --> BAL   XIOE2,R6              XEQ ARM EXTERNAL SYNC DI=2                    *
                           728 * --> BAL   XIOE3,R6              XEQ ARM EXTERNAL SYNC DO=3                    *
                           729 * --> BAL   XIOE4,R6              XEQ ARM EXTERNAL SYNC DO=4                    *
                           730 * --> BAL   XIOW3,R6              XEQ WRITE DO=3                                *
                           731 * --> BAL   XIOW4,R6              XEQ WRITE DO=4                                *
                           732 *                                                                               *
                           733 ********************************************************************************
00063C  4524 05FC          734 XIOA1  MVA   ARM01,R5           SET UP CONTROL BLOCK FOR SVC CALL
000640  5031               735        J     XIO                BRANCH
000642  4524 0600          736 XIOA2  MVA   ARM02,R5           SET UP CONTROL BLOCK FOR SVC CALL
000646  502E               737        J     XIO                BRANCH
000648  4524 0604          738 XIOT1  MVA   TST01,R5           SET UP CONTROL BLOCK FOR SVC CALL
00064C  502B               739        J     XIO                BRANCH
00064E  4524 0608          740 XIOT2  MVA   TST02,R5           SET UP CONTROL BLOCK FOR SVC CALL
000652  5028               741        J     XIO                BRANCH
000654  4524 061C          742 XIOS1  MVA   TS101,R5           SET UP CONTROL BLOCK FOR SVC CALL
000658  5025               743        J     XIO                BRANCH
00065A  4524 0620          744 XIOS2  MVA   TS102,R5           SET UP CONTROL BLOCK FOR SVC CALL
00065E  5022               745        J     XIO                BRANCH
000660  4524 060C          746 XIOR1  MVA   RST01,R5           SET UP CONTROL BLOCK FOR SVC CALL
000664  4C6B               747        TBTS  (R4,NI)            SET NO INTERRUPT EXPECTED FLAG
000666  501E               748        J     XIO                BRANCH
000668  4524 0610          749 XIOR2  MVA   RST02,R5           SET UP CONTROL BLOCK FOR SVC CALL
00066C  4C6B               750        TBTS  (R4,NI)            SET NO INTERRUPT EXPECTED FLAG
00066E  501A               751        J     XIO                BRANCH
000670  4524 0614          752 XIOD1  MVA   RED01,R5           SET UP CONTROL BLOCK FOR SVC CALL
000674  4C6B               753        TBTS  (R4,NI)            SET NO INTERRUPT EXPECTED FLAG
000676  5016               754        J     XIO                BRANCH
000678  4524 0618          755 XIOD2  MVA   RED02,R5           SET UP CONTROL BLOCK FOR SVC CALL
00067C  4C6B               756        TBTS  (R4,NI)            SET NO INTERRUPT EXPECTED FLAG
00067E  5012               757        J     XIO                BRANCH
000680  4524 0624          758 XIOE1  MVA   AEX01,R5           SET UP CONTROL BLOCK FOR SVC CALL
000684  500F               759        J     XIO                BRANCH
000686  4524 0628          760 XIOE2  MVA   AEX02,R5           SET UP CONTROL BLOCK FOR SVC CALL
00068A  500C               761        J     XIO                BRANCH
00068C  4524 062C          762 XIOE3  MVA   AEX03,R5           SET UP CONTROL BLOCK FOR SVC CALL
000690  5009               763        J     XIO                BRANCH
000692  4524 0630          764 XIOE4  MVA   AEX04,R5           SET UP CONTROL BLOCK FOR SVC CALL
000696  5006               765        J     XIO                BRANCH
000698  4524 0634          766 XIOW3  MVA   WRD03,R5           SET UP CONTROL BLOCK FOR SVC CALL
00069C  5003               767        J     XIO                BRANCH
00069E  4524 0638          768 XIOW4  MVA   WRD04,R5           SET UP CONTROL BLOCK FOR SVC CALL
0006A2  5000               769        J     XIO                BRANCH
                           771 ********************************************************************************
                           772 *                                                                               *
                           773 * SOUBROUTINE                                                                   *
                           774 *                                                                               *
                           775 *     EXECUTE INPUT AND OUTPUT COMMANDS                                         *
                           776 *                                                                               *
                           777 * PURPOSE                                                                       *
                           778 *                                                                               *
                           779 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.                          *
                           780 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:                          *
                           781 *                                                                               *
                           782 *     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED           *
                           783 *        THE I/O COMMAND.                                                       *
                           784 *     2. SAVES THE DCB BLOCK USED                                               *
                           785 *     3. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT            *
                           786 *        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,           *
                           787 *        MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.                             *
                           788 *     4. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE              *
                           789 *        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE NECESSARY IO.             *
                           790 *     5. AFTER ISSUING THE I/O COMMAND, TIMING                                  *
                           791 *        STARTS TO DETERMINE A LOST INTERRUPT.                                  *
                           792 *     6. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF            *
                           793 *        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.                 *
                           794 *     7. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.                            *
                           795 *     8. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.                *
                           796 *     9. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.                  *
                           797 *                                                                               *
                           798 * CALLING SEQUENCE                                                              *
                           799 *                                                                               *
                           800 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                                   *
                           801 *                                                                               *
                           802 * --> B     XIO                    XEQ ANY CYCLE STEAL COMMAND, MOD=0         *
                           803 *                                                                               *
                           804 * RETURN CONTROL                                                                *
                           805 *                                                                               *
                           806 *     BXS   (R6)                   RETURN TO USER NO ERROR                    *
                           807 ********************************************************************************
0006A4  4CA3               809 XIO    TBTR  (R4,IN)             CLEAR INTERRUPT RECEIVED CNTL BIT
0006A6  1250               810        JON   XIOCK               BRANCH IF ON
0006A8  6B0D 0018          811        MVW   R6,LSTIO            SAVE IAR FOR RETRY IF REQUESTED
0006AC  402E 0018 0004     812        SW    4,LSTIO             POINT AT CORRECT INSTRUCTION
0006B2  4324 0000          813        MVA   $PID,R3             LOAD ADDRESS OF START OF PROG
0006B6  CB2F 0018          814        SW    R3,LSTIO            SUB TO OBTAIN LISTING ADDRESS
0006BA  4324 0022          815        MVA   DCBUF,R3            SET UP TO ADRS TO MOVE DCB TABLE
0006BE  0F04               816        MVBI  4,R7                * THE NUMBER OF MOVES
0006C0  2D64               817        MVFN  (R5),(R3)           MOVE 1 STATUS WORD AND ADJUST
0006C2  802B 0232 00C0     818        CB    CPUTYPE,TYPE23      TEST FOR PROCESSOR
0006C8  1803               819        JNE   XIO5                BRANCH IF NOT EQUAL
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
0006CA  4524 C000          820        MVWI  X'C000',R5          LOAD LOOP COUNT
0006CE  5001               821        J     XIO6                BRANCH
0006D0  75AA               822 XIO5   SW    R5,R5               LOAD LOOP COUNT
0006D2  4C62               823 XIO6   TBTS  (R4,XI)             SET EXPECTED INTR CONTROL BIT
0006D4  680C 0022          824        IO    DCBUF               ISSUE IO
0006D8  6F05 06FC          825        BNCC  7,XIOER             ERROR IF NOT CC=7
0006DC  6002               826 XIO8   SVC   IDLE                ALLOW ANOTHER PROGRAM A CHANCE TO RUN
0006DE  4C03               827        TBT   (R4,TM)             IS TERM BIT ON
0006E0  6A00 019E          828        BON   $TERM               BRANCH YES
0006E4  4CA3               829        TBTR  (R4,IN)             HAS INTERRUPT BEEN RECEIVED
0006E6  1230               830        JON   XIOCK               * YES, CHECK IF ALL WAS SATISFACTORY
0006E8  4CAB               831        TBTR  (R4,NI)             IS THERE GOING TO BE A INTERRUPT
0006EA  6AC0 0000          832        BON   (R6)                BRANCH NO
0006EE  7DA1 0001          833        AWI   1,R5                ADVANCE TIME OUT COUNT
0006F2  18F4               834        JNZ   XIO8                BCH IF TIME OUT NOT REACHED
0006F4  4C61               835        TBTS  (R4,ER)             SET ON ERROR CONTROL BIT
0006F6  4C66               836        TBTS  (R4,LI)             SET ON LOST INTERRUPT CONTROL BIT
0006F8  6802 0868          837        B     $PRNT               BRANCH TO PRINT ERROR
                           839 ********************************************************************************
                           840 *                                                                               *
                           841 * SUBROUTINE                                                                    *
                           842 *                                                                               *
                           843 *     I/O EXECUTE ERROR HANDLING ROUTINE                                        *
                           844 *                                                                               *
                           845 * PURPOSE                                                                       *
                           846 *                                                                               *
                           847 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE               *
                           848 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE             *
                           849 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                                       *
                           850 *                                                                               *
                           851 * CALLING SEQUENCE                                                              *
                           852 *                                                                               *
                           853 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND                   *
                           854 *                                                                               *
                           855 * RETURN CONTROL                                                                *
                           856 *                                                                               *
                           857 *     B     $PRNT                  DUMP STATUS BEFORE TERMINATION             *
                           858 *                                                                               *
                           859 ********************************************************************************
0006FC  706E               860 XIOER  CPLSR R3                    SAVE CONDITION CODE ON I/O ERROR
0006FE  336A               861        SRL   13,R3                 POSITION CC CODE TO BITS 13-15
000700  C328 0014          862        MVB   R3,$IOIN              * PUT IN LOG OUT AREA
000704  6802 0868          863        B     $PRNT               BRANCH TO PRINT ERROR
                           865 ********************************************************************************
                           866 *                                                                               *
                           867 * SOUBROUTINE                                                                   *
                           868 *                                                                               *
                           869 *     ERROR INTERRUPT            RUNS ON INTERRUPT LEVEL '$INTL'                *
                           870 *                                                                               *
                           871 * PURPOSE                                                                       *
                           872 *                                                                               *
                           873 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR              *
                           874 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE                 *
                           875 *     EXPECTED CODE.                                                            *
                           876 *                                                                               *
                           877 * CALLING SEQUENCE                                                              *
                           878 *                                                                               *
                           879 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT                  *
                           880 *                                                                               *
                           881 * RETURN CONTROL                                                                *
                           882 *                                                                               *
                           883 *     SVC   EXIT                 RETURN TO USER VIA SUPVR                       *
                           884 *                                                                               *
                           885 ********************************************************************************
000708  706E               886 INTER  CPLSR R3                    SAVE INDICATORS
00070A  336A               887        SRL   13,R3                 POSITION INDICATORS IN R3
00070C  4424 000E          888        MVA   OPTN1,R4              SET UP BASE ADRS
000710  4C61               889        TBTS  (R4,ER)               SET ERROR ON I/O COMMAND CNTL BIT
000712  5007               890        J     INTR1                 BRANCH
                           892 ********************************************************************************
                           893 *                                                                               *
                           894 * SOUBROUTINE                                                                   *
                           895 *                                                                               *
                           896 *     OKAY  INTERRUPT            RUNS ON INTERRUPT LEVEL '$INTL'                *
                           897 *                                                                               *
                           898 * PURPOSE                                                                       *
                           899 *                                                                               *
                           900 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                              *
                           901 *                                                                               *
                           902 * CALLING SEQUENCE                                                              *
                           903 *                                                                               *
                           904 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED                    *
                           905 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE                   *
                           906 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE                        *
                           907 *     COMMON SECTION IS HANDLED HERE.                                           *
                           908 *                                                                               *
                           909 * RETURN CONTROL                                                                *
                           910 *                                                                               *
                           911 *     SVC   EXIT                 RETURN TO USER VIA SUPVR                       *
                           912 *                                                                               *
                           913 ********************************************************************************
000714  706E               914 INTOK  CPLSR R3                    SAVE INDICATORS
000716  336A               915        SRL   13,R3                 POSITION INDICATORS IN R3
000718  4424 000E          916        MVA   OPTN1,R4              SET UP BASE ADRS
00071C  4C24               917        TBT   (R4,XE)               IS AN ERROR EXPECTED
00071E  1001               918        JOFF  INTR1                 BRANCH NO
000720  4C69               919        TBTS  (R4,GI)               SET GOOD INTERRUPT BIT
000722  4C63               920 INTR1  TBTS  (R4,IN)               SET   INTERRUPT RECEIVED
000724  C328 0015          921        MVB   R3,$IOIN+1            SAVE INTERRUPTING CC CODE
000728  6F0D 0016          922        MVW   R7,$ISB               SAVE INTR STATUS AND DEV ADRS
00072C  78B9               923 INTR2  CPCL  R5                    COPY INTERRUPT LEVEL TO CHECK
00072E  3521               924        SLL   4,R5                  POSITION INTR LEVEL AND PUT
000730  0501               925        ABI   1,R5                  * IN 'I' BIT
000732  CD24 0074          926        CW    $INTL,R5              IS THIS THE CORRECT INTR LEVEL
000736  1004               927        JE    INTR3                 * YES, GO EXIT THIS LEVEL
000738  3521               928        SLL   4,R5                  SET LEVEL IN HIGH ORDER BYTE
00073A  6D0D 0020          929        MVW   R5,DEV3+2             STORE IN DEV4
00073E  4C65               930 INTR3  TBTS  (R4,LE)               SET INTR LEVEL ERROR CONTROL BIT
000740  4C42               931        TBTR  (R4,XI)               WAS INTERRUPT EXPECTED
000742  1201               932        JON   INTRX                 * YES, EXIT OFF THIS INTR LEVEL
000744  4C60               933        TBTS  (R4,MI)               * NO, SET MYSTERY INTR CONTROL BIT
000746  6006               934 INTRX  SVC   EXIT                  EXIT THIS LEVEL VIA SUPVR TO PGM
                           936 ********************************************************************************
                           937 *
```

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                            938 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT     *
                            939 *     HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN    *
                            940 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.   *
                            941 *                                                                     *
                            942 ***********************************************************************
000748  4C20              943 XIOCK TBT   (R4,MI)             DID MYS INTERRUPT OCCUR
00074A  1208              944       JON   XIOCQ               BRANCH YES
00074C  4C25              945       TBT   (R4,LE)             WAS AN INTR LEVEL ERROR FOUND
00074E  1002              946       JOFF  XIOCM               * NO, CONTINUE CHECKING
000750  4C61              947       TBTS  (R4,ER)             SET ERROR CONTROL BIT ON
000752  5006              948       J     XIOCU               BRANCH
000754  4C24              949 XIOCM TBT   (R4,XE)             WAS AN ERROR EXPECTED
000756  120A              950       JN    XIOGI               * YES, EXIT THIS ROUTINE
000758  4C21              951 XIOCV TBT   (R4,ER)             WAS ERROR INTR CONTROL BIT ON
00075A  1004              952       JOFF  XIOCX               * NO, EXIT THIS ROUTINE
00075C                    953 XIOCQ  EQU   *
00075C  4C8C              954       TBTR  (R4,WRIT)           IS WRITE EXPECTING MORE THEN ONE INTR
00075E  1202              955       JON   XIOCX               BRANCH IF ON
000760  6802 0868        956 XIOCU B     $PRNT               BRANCH TO PRINT ERROR
000764  CB25 0012        957 XIOCX MVWZ  OPTN3,R3            CLEAR OUT OPTION 3 CNTL BITS
000768  68C2 0000        958       B     (R6)                RETURN TO USER VIA REG 6
00076C  4C29              959 XIOGI TBT   (R4,GI)            IS GOOD INTERRUPT BIT ON
00076E  12F8              960       JON   XIOCU               BRANCH YES
000770  68C2 0000        961       B     (R6)                RETURN
                          962 *
                          963 *           I/O   PARAMETER LIST
                          964 *
000774  004C             965 IOBLK DC    A($DVAD)            ADRS OF DEVICE ADRS
000776  06FC             966 IOERR DC    A(XIOER)            ERROR ROUTINE ADRS
000778  0000             967 IODCB DC    A(*-*)              DCB ADRS OR LEVEL & INTR
00077A  0000             968 IOMOD DC    A(*-*)              MODIFIER
00077C  0000             969       DC    A(*-*)              ADRS OF LAST SVC CALL
00077E  0000             970 IORSP DC    A(*-*)              SECOND WORD OF LAST IDCB
                          971 *
                          972 *           I/O   PARAMETER LIST
                          973 *
000780  0056             974 IOBL2 DC    A($DV2)             ADRS OF DEVICE ADRS
000782  06FC             975 IOER2 DC    A(XIOER)            ERROR ROUTINE ADRS
000784  0000             976 IODC2 DC    A(*-*)              DCB ADRS OR LEVEL & INTR
000786  0000             977 IOMO2 DC    A(*-*)              MODIFIER
000788  0000             978       DC    A(*-*)              ADRS OF LAST SVC CALL
00078A  0000             979 IORS2 DC    A(*-*)              SECOND WORD OF LAST IDCB
                          980 *
                          981 *           I/O   PARAMETER LIST
                          982 *
                          983 *
00078C  0060             984 IOBL3 DC    A($DV3)             ADRS OF DEVICE ADRS
00078E  06FC             985 IOER3 DC    A(XIOER)            ERROR ROUTINE ADRS
000790  0000             986 IODC3 DC    A(*-*)              DCB ADRS OR LEVEL & INTR
000792  0000             987 IOMO3 DC    A(*-*)              MODIFIER
000794  0000             988       DC    A(*-*)              ADRS OF LAST SVC CALL
000796  0000             989 IORS3 DC    A(*-*)              SECOND WORD OF LAST IDCB
                          990 *
                          991 *           I/O   PARAMETER LIST
                          992 *
000798  006A             993 IOBL4 DC    A($DV4)             ADRS OF DEVICE ADRS
00079A  06FC             994 IOER4 DC    A(XIOER)            ERROR ROUTINE ADRS
00079C  0000             995 IODC4 DC    A(*-*)              DCB ADRS OR LEVEL & INTR
00079E  0000             996 IOMO4 DC    A(*-*)              MODIFIER
0007A0  0000             997       DC    A(*-*)              ADRS OF LAST SVC CALL
0007A2  0000             998 IORS4 DC    A(*-*)              SECOND WORD OF LAST IDCB
                          999 *
                         1000 *           INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                         1001 *
0007A4  004C             1002 INTBL DC    A($DVAD)            ADRS OF DEVICE ADRS
0007A6  0714             1003       DC    A(INTOK)            INTERRUPT OK RETURN ADRS
0007A8  0708             1004       DC    A(INTER)            INTERRUPT ERROR ADRS
0007AA  0004             1005 INTCC DC    X'0004'             INTERRUPT CODE EXPECTED
                         1006 *
                         1007 *           INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                         1008 *
0007AC  0056             1009 INTB2 DC    A($DV2)             ADRS OF DEVICE ADRS
0007AE  0714             1010       DC    A(INTOK)            INTERRUPT OK RETURN ADRS
0007B0  0708             1011       DC    A(INTER)            INTERRUPT ERROR ADRS
0007B2  0004             1012 INTC2 DC    X'0004'             INTERRUPT CODE EXPECTED
                         1013 *
                         1014 *           INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                         1015 *
0007B4  0060             1016 INTB3 DC    A($DV3)             ADRS OF DEVICE ADRS
0007B6  0714             1017       DC    A(INTOK)            INTERRUPT OK RETURN ADRS
0007B8  0708             1018       DC    A(INTER)            INTERRUPT ERROR ADRS
0007BA  0004             1019 INTC3 DC    X'0004'             INTERRUPT CODE EXPECTED
                         1020 *
                         1021 *           INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                         1022 *
0007BC  006A             1023 INTB4 DC    A($DV4)             ADRS OF DEVICE ADRS
0007BE  0714             1024       DC    A(INTOK)            INTERRUPT OK RETURN ADRS
0007C0  0708             1025       DC    A(INTER)            INTERRUPT ERROR ADRS
0007C2  0004             1026 INTC4 DC    X'0004'             INTERRUPT CODE EXPECTED
                         1028 ***********************************************************************
                         1029 *                                                                     *
                         1030 * SUBROUTINE                                                          *
                         1031 *                                                                     *
                         1032 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE                *
                         1033 *                                                                     *
                         1034 * PURPOSE                                                             *
                         1035 *                                                                     *
                         1036 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND       *
                         1037 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE  *
                         1038 *     TO INTERRUPT.                                                   *
                         1039 *                                                                     *
                         1040 * CALLING SEQUENCE                                                    *
                         1041 *                                                                     *
                         1042 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                      *
                         1043 *                                                                     *
                         1044 * --> BAL   $CONC,R6              CLEAR DEV DEP STG AND CONNECT I/O BLK
                         1045 * --> BAL   $CONR,R6              BCH TO CONNECT                      *
                         1046 * --> BAL   $CONP,R6              PREPARE DEVICE ONLY                 *
                         1047 *                                                                     *
                         1048 * RETURN CONTROL                                                     *
                         1049 *                                                                     *
                         1050 *     BXS   (R6)                  RETURN TO USEP VIA REG 6            *
                         1051 *                                                                     *
                         1052 ***********************************************************************
0007C4                   1053 $CONR EQU   *
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
0007C4  4724 07A4         1054       MVA   INTBL,R7            SET R7 TO CONTROL BLOCK AND
0007C8  6014              1055       SVC   CICB                * CONNECT IT TO THIS DEVICE
0007CA  4724 07AC         1056       MVA   INTB2,R7            SET R7 TO CONTROL BLOCK AND
0007CE  6014              1057       SVC   CICB                * CONNECT IT TO THIS DEVICE
0007D0  4724 07B4         1058       MVA   INTB3,R7            SET R7 TO CONTROL BLOCK AND
0007D4  6014              1059       SVC   CICB                * CONNECT IT TO THIS DEVICE
0007D6  4724 07BC         1060       MVA   INTB4,R7            SET R7 TO CONTROL BLOCK AND
0007DA  6014              1061       SVC   CICB                * CONNECT IT TO THIS DEVICE
0007DC  68C2 0000         1062       B     (R6)                RETURN
0007E0                    1063 $CONC EQU   *
0007E0  8828 0074 0778    1064       MVW   $INTL,IODCB         PUT IN LEVEL & INTR PARAMETER
0007E6  8828 0074 0784    1065       MVW   $INTL,IODC2         PUT IN LEVEL & INTR PARAMETER
0007EC  CB25 0012         1066 $CONU MVWZ  OPTN3,R3            CLEAR OLD CONTROLS FOR NEW ROUTINE
0007F0  CB25 0016         1067       MVWZ  $ISB,R3             * AND CLEAR OLD ISB VALUE
0007F4  6E0D 0018         1068       MVW   R6,LSTIO            SET UP ADDRESS THAT STARTED LAST I/O
0007F8  402E 0018 0004    1069       SWI   4,LSTIO             DECREMENT TO POINT AT INSTRUCTION
0007FE  4324 0000         1070       MVA   $PID,R3             LOAD ADDRESS OF START OF PROG
000802  CB2F 0018         1071       SW    R3,LSTIO            SUB TO OBTAIN LISTING ADDRESS
000806  4724 0774         1072       MVA   IOBLK,R7            SET R7 TO CONTROL BLOCK TO PREPARE
00080A  4020 0014 07FF    1073       MVWI  X'07FF',$IOIN       INITIALIZE CONDITION CODE STORAGE
000810  600C             1074       SVC   PREP                * AND CALL ON SUPVR
000812  4724 0780         1075       MVA   IOBL2,R7            SET R7 TO CONTROL BLOCK TO PREPARE
000816  600C             1076       SVC   PREP                * AND CALL ON SUPVR
000818  CF25 0778         1077       MVWZ  IODCB,R7            ZERO PREP 'I' BIT
00081C  CF25 0784         1078       MVWZ  IODC2,R7            ZERO PREP 'I' BIT
000820  68C2 0000         1079       B     (R6)                RETURN
000824                    1080 $CONK EQU   *
000824  8828 0074 0790    1081       MVW   $INTL,IODC3         PUT IN LEVEL & INTR PARAMETER
00082A  8828 0074 079C    1082       MVW   $INTL,IODC4         PUT IN LEVEL & INTR PARAMETER
000830  CB25 0012         1083 $CONV MVWZ  OPTN3,R3            CLEAR OLD CONTROLS FOR NEW ROUTINE
000834  CB25 0016         1084       MVWZ  $ISB,R3             * AND CLEAR OLD ISB VALUE
000838  6E0D 0018         1085       MVW   R6,LSTIO            SET UP ADDRESS THAT STARTED LAST I/O
00083C  402E 0018 0004    1086       SWI   4,LSTIO             DECREMENT TO POINT AT INSTRUCTION
000842  4324 0000         1087       MVA   $PID,R3             LOAD ADDRESS OF START OF PROG
000846  CB2F 0018         1088       SW    R3,LSTIO            SUB TO OBTAIN LISTING ADDRESS
00084A  4020 0014 07FF    1089       MVWI  X'07FF',$IOIN       INITIALIZE CONDITION CODE STORAGE
000850  4724 078C         1090       MVA   IOBL3,R7            SET R7 TO CONTROL BLOCK TO PREPARE
000854  600C             1091       SVC   PREP                * AND CALL ON SUPVR
000856  4724 0798         1092       MVA   IOBL4,R7            SET R7 TO CONTROL BLOCK TO PREPARE
00085A  600C             1093       SVC   PREP                * AND CALL ON SUPVR
00085C  CF25 0790         1094       MVWZ  IODC3,R7            ZERO PREP 'I' BIT
000860  CF25 079C         1095       MVWZ  IODC4,R7            ZERO PREP 'I' BIT
000864  68C2 0000         1096       B     (R6)                RETURN
                         1098 ***********************************************************************
                         1099 *                 COMMON PRINT ERROR INTERFACE ROUTINE                *
                         1100 *                                                                     *
                         1101 * ----> R6        LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE  *
                         1102 *                 BRANCH IS TAKEN TO PRINT THE ERROR                  *
                         1103 * ----> R4        LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE  *
                         1104 *                 BRANCH IS TAKEN TO PRINT THE ERROR                  *
                         1105 * ----> R3        LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE      *
                         1106 *                 BRANCH IS TAKEN TO PRINT THE ERROR                  *
                         1107 * ----> PRNTRTN   THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST ) *
                         1108 *                 POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                         1109 *                 WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN    *
                         1110 *                                                                     *
                         1111 ***********************************************************************
000868  4624 0012        1112 $PRNT MVA   OPTN3,R6            LOAD ADDRESS OF OPTION WORD THREE
00086C  6D08 181E        1113       MVW   PRNTRTN,R5          LOAD ADDRESS OF COMMON PRNT ROUTINE
000870  4424 0000        1114       MVA   $PID,R4             LOAD ADDRESS OF START OF PROG
000874  4324 0042        1115       MVA   PCTR,R3             LOAD ADDRESS OF PASS COUNTER
000878  6FA3 0000        1116       BAL   (R5),R7             BRANCH TO COMMON PRINT ROUTINE
00087C  CE25 0012        1117       MVWZ  OPTN3,R6            ZERO OUT ALL FLAGS
000880  4424 000E        1118       MVA   OPTN1,R4            LOAD BASE ADDRESS FOR INDICATORS
000884  802B 0232 00C0    1119       CB    CPUTYPE,TYPE23      IS THIS A TYPE 23 PROCESSOR
00088A  1803             1120       JNE   $PRN2
00088C  4524 E000        1121       MVWI  X'E000',R5
000890  5002             1122       J     $PRN1
000892  4524 8000        1123 $PRN2 MVWI  X'8000',R5          INIT LOOP COUNTER
000896  6002             1124 $PRN1 SVC   IDLE                DELAY
000898  4C03             1125       TBT   (R4,TM)             SHOULD PROG TERMINATE
00089A  6A00 019E        1126       BON   $TERM               BRANCH YES
00089E  7DA1 0001        1127       AWI   1,R5                INCREMENT LOOP COUNTER
0008A2  18F9             1128       JNZ   $PRN1               BRANCH NOT ZERO
0008A4  6802 00C2        1129       B     $PENT               BRANCH TO RESTART FROM BEGINING
0000C2                   1130       END   $PENT
```

CROSS-REFERENCE LISTING

```
DECLARED  NAME     ATTRIBUTES AND REFERENCES

      0   .R1.       ABSOLUTE. HEX VALUE(00000001)
                     354   357   360   363   366   369   380   385   390
                     393   407   410   413   416   419   422   433   438
                     443   446
      0   .R2.       ABSOLUTE. HEX VALUE(00000002)
                     288   326   355   358   361   364   367   370   393
                     408   411   414   417   420   423   446
      0   .R3.       ABSOLUTE. HEX VALUE(00000003)
                     182   185   190   813   814   815   817   860   861
                     862   886   887   914   915   921   957  1066  1067
                    1070  1071  1083  1084  1087  1088  1115
      0   .R4.       ABSOLUTE. HEX VALUE(00000004)
                     158   159   161   196   199   200   317   320   391
                     403   444   462   464   497   499   501   506   508
                     510   526   539   541   543   545   552   554   747
                     750   753   756   809   823   827   829   831   835
                     836   888   889   916   917   919   920   930   931
                     933   943   945   947   949   951   954   959  1114
                    1118  1125
      0   .R5.       ABSOLUTE. HEX VALUE(00000005)
                     183   185   259   260   261   262   263   734   736
                     738   740   742   744   746   749   752   755   758
                     760   762   764   766   768   817   820   822   822
                     833   923   924   925   926   928   929  1113  1116
                    1121  1123  1127
      0   .R6.       ABSOLUTE. HEX VALUE(00000006)
                     192   193   197   258   264   265   287   316   318
                     319   321   322   352   377   405   430   456   463
                     465   466   469   473   476   491   498   500   502
                     503   507   509   511   512   536   537   540   542
                     544   546   553   555   559   811   832   958
                     961  1062  1068  1079  1085  1096  1112  1117
      0   .R7.       ABSOLUTE. HEX VALUE(00000007)
                     184   186   187   189   207   209   212   215   220
                     225   230   235   238   239   241   242   244   245
                     247   248   290   292   294   296   299   303   307
                     311   356   359   362   365   368   371   373   375
                     394   409   412   415   418   421   424   426   428
                     447   457   459   492   494   528   530   532   534
                     816   922  1054  1056  1058  1060  1072  1075  1077
                    1078  1090  1092  1094  1095  1116
     60   $CKPT      ADDRESS. HEX LOCATION(0000000C) IN CSECT(EA0E0   ) LENGTH(2)
                     259   323   353   372   406   425   461   472   496
                     538   549
   1063   $CONC      ADDRESS. HEX LOCATION(000007E0) IN CSECT(EA0E0   ) LENGTH(1)
                     316   536
   1080   $CONK      ADDRESS. HEX LOCATION(00000824) IN CSECT(EA0E0   ) LENGTH(1)
                     537
   1053   $CONR      ADDRESS. HEX LOCATION(000007C4) IN CSECT(EA0E0   ) LENGTH(1)
                     287
   1066   $CONU      ADDRESS. HEX LOCATION(000007EC) IN CSECT(EA0E0   ) LENGTH(4)
                     352   456   491
   1083   $CONV      ADDRESS. HEX LOCATION(00000830) IN CSECT(EA0E0   ) LENGTH(4)
                     405
    101   $DATA      ADDRESS. HEX LOCATION(0000001A) IN CSECT(EA0E0   ) LENGTH(2)
                     260   261   330   334   337   341
    124   $DVAD      ADDRESS. HEX LOCATION(0000004C) IN CSECT(EA0E0   ) LENGTH(2)
                      58   136   162   166   168   170   172   174   176
                     238   330   965  1002
    130   $DVID      ADDRESS. HEX LOCATION(00000076) IN CSECT(EA0E0   ) LENGTH(2)
                     301   305   331
    131   $DVOD      ADDRESS. HEX LOCATION(00000078) IN CSECT(EA0E0   ) LENGTH(2)
                     309   313   338
    126   $DV2       ADDRESS. HEX LOCATION(00000056) IN CSECT(EA0E0   ) LENGTH(10)
                     163   167   169   171   173   175   177   241   334
                     974  1009
    127   $DV3       ADDRESS. HEX LOCATION(00000060) IN CSECT(EA0E0   ) LENGTH(10)
                     164   178   180   244   337   984  1016
    128   $DV4       ADDRESS. HEX LOCATION(0000006A) IN CSECT(EA0E0   ) LENGTH(10)
                     165   179   181   247   341   993  1023
    135   $HTOE      ADDRESS. HEX LOCATION(00000080) IN CSECT(EA0E0   ) LENGTH(2)
                     187
    129   $INTL      ADDRESS. HEX LOCATION(00000074) IN CSECT(EA0E0   ) LENGTH(2)
                     157   219   224   229   234   288   289   315   324
                     326   926  1064  1065  1081  1082
     98   $IOIN      ADDRESS. HEX LOCATION(00000014) IN CSECT(EA0E0   ) LENGTH(2)
                     862   921  1073  1089
     99   $ISB       ADDRESS. HEX LOCATION(00000016) IN CSECT(EA0E0   ) LENGTH(2)
                     922  1067  1084
    132   $MXSL      ADDRESS. HEX LOCATION(0000007A) IN CSECT(EA0E0   ) LENGTH(2)
                     253
    139   $OUTN      ADDRESS. HEX LOCATION(00000088) IN CSECT(EA0E0   ) LENGTH(2)
                     189
    153   $PENT      ADDRESS. HEX LOCATION(000000C2) IN CSECT(EA0E0   ) LENGTH(6)
                      57   254   269  1129  1130
    197   $PEN1      ADDRESS. HEX LOCATION(0000018C) IN CSECT(EA0E0   ) LENGTH(4)
                     160   195
     55   $PID       ADDRESS. HEX LOCATION(00000000) IN CSECT(EA0E0   ) LENGTH(4)
                     813  1070  1087  1114
   1112   $PRNT      ADDRESS. HEX LOCATION(00000868) IN CSECT(EA0E0   ) LENGTH(4)
                     332   378   431   481   483   517   566   837   863
                     956
   1124   $PRN1      ADDRESS. HEX LOCATION(00000896) IN CSECT(EA0E0   ) LENGTH(2)
                    1122  1128
   1123   $PRN2      ADDRESS. HEX LOCATION(00000892) IN CSECT(EA0E0   ) LENGTH(4)
                    1120
    199   $PUPD      ADDRESS. HEX LOCATION(00000196) IN CSECT(EA0E0   ) LENGTH(4)
                     327   379   404   432   479   515   527   563
    252   $PUP8      ADDRESS. HEX LOCATION(00000258) IN CSECT(EA0E0   ) LENGTH(6)
                     201
    218   $RETI      ADDRESS. HEX LOCATION(000001CE) IN CSECT(EA0E0   ) LENGTH(6)
                     216
    209   $RET1      ADDRESS. HEX LOCATION(000001AA) IN CSECT(EA0E0   ) LENGTH(4)
                     206
    212   $RET2      ADDRESS. HEX LOCATION(000001B6) IN CSECT(EA0E0   ) LENGTH(4)
                     210
    215   $RET3      ADDRESS. HEX LOCATION(000001C2) IN CSECT(EA0E0   ) LENGTH(4)
                     213
    269   $RTAD      ADDRESS. HEX LOCATION(00000286) IN CSECT(EA0E0   ) LENGTH(2)
                     265
     59   $RTNE      ADDRESS. HEX LOCATION(0000000A) IN CSECT(EA0E0   ) LENGTH(2)
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DECLARED  NAME     ATTRIBUTES AND REFERENCES

                     197   252   253   258
    206   $TERM      ADDRESS. HEX LOCATION(0000019E) IN CSECT(EA0E0   ) LENGTH(6)
                     392   445   828  1126
    223   $TER1      ADDRESS. HEX LOCATION(000001E6) IN CSECT(EA0E0   ) LENGTH(6)
                     218
    228   $TER2      ADDRESS. HEX LOCATION(000001FE) IN CSECT(EA0E0   ) LENGTH(6)
                     223
    233   $TER3      ADDRESS. HEX LOCATION(00000216) IN CSECT(EA0E0   ) LENGTH(6)
                     228
    238   $TER4      ADDRESS. HEX LOCATION(0000022E) IN CSECT(EA0E0   ) LENGTH(4)
                     233
    673   AEDA1      ADDRESS. HEX LOCATION(00000625) IN CSECT(EA0E0   ) LENGTH(1)
                     176
    680   AEDA2      ADDRESS. HEX LOCATION(00000629) IN CSECT(EA0E0   ) LENGTH(1)
                     177
    687   AEDA3      ADDRESS. HEX LOCATION(0000062D) IN CSECT(EA0E0   ) LENGTH(1)
                     178
    694   AEDA4      ADDRESS. HEX LOCATION(00000631) IN CSECT(EA0E0   ) LENGTH(1)
                     179
    671   AEX01      ADDRESS. HEX LOCATION(00000624) IN CSECT(EA0E0   ) LENGTH(1)
                     758
    678   AEX02      ADDRESS. HEX LOCATION(00000628) IN CSECT(EA0E0   ) LENGTH(1)
                     760
    685   AEX03      ADDRESS. HEX LOCATION(0000062C) IN CSECT(EA0E0   ) LENGTH(1)
                     762
    692   AEX04      ADDRESS. HEX LOCATION(00000630) IN CSECT(EA0E0   ) LENGTH(1)
                     764
    601   ARDA1      ADDRESS. HEX LOCATION(000005FD) IN CSECT(EA0E0   ) LENGTH(1)
                     166
    608   ARDA2      ADDRESS. HEX LOCATION(00000601) IN CSECT(EA0E0   ) LENGTH(1)
                     167
    599   ARM01      ADDRESS. HEX LOCATION(000005FC) IN CSECT(EA0E0   ) LENGTH(1)
                     734
    606   ARM02      ADDRESS. HEX LOCATION(00000600) IN CSECT(EA0E0   ) LENGTH(1)
                     736
     38   CICB       ABSOLUTE. HEX VALUE(00000014)
                    1055  1057  1059  1061
     51   CPUTYPE    ABSOLUTE. HEX VALUE(00000232)
                     818  1119
    104   DCBUF      ADDRESS. HEX LOCATION(00000022) IN CSECT(EA0E0   ) LENGTH(2)
                     183   381   382   386   387   434   435   439   440
                     815   824
    105   DCB2       ADDRESS. HEX LOCATION(00000024) IN CSECT(EA0E0   ) LENGTH(2)
                     467   470   474   477   504   513   557   560
    109   DCB6       ADDRESS. HEX LOCATION(0000002C) IN CSECT(EA0E0   ) LENGTH(2)
                     186
    102   DEV3       ADDRESS. HEX LOCATION(0000001E) IN CSECT(EA0E0   ) LENGTH(2)
                     262   263   329   333   336   340   929
    103   DEV4       ADDRESS. HEX LOCATION(00000020) IN CSECT(EA0E0   ) LENGTH(2)
                     331   338   480   482   516   565
     36   EA0E0      CSECT. START(00000000) LENGTH(2216) ESDID(0)
                      36
     86   ER         ABSOLUTE. HEX VALUE(00000021)
                     835   889   947   951
    572   ERCT1      ADDRESS. HEX LOCATION(000005EC) IN CSECT(EA0E0   ) LENGTH(1)
                     380
    579   ERCT2      ADDRESS. HEX LOCATION(000005F0) IN CSECT(EA0E0   ) LENGTH(1)
                     385
    586   ERCT3      ADDRESS. HEX LOCATION(000005F4) IN CSECT(EA0E0   ) LENGTH(1)
                     433
    593   ERCT4      ADDRESS. HEX LOCATION(000005F8) IN CSECT(EA0E0   ) LENGTH(1)
                     438
    571   ERDC1      ADDRESS. HEX LOCATION(000005EC) IN CSECT(EA0E0   ) LENGTH(1)
                     381
    578   ERDC2      ADDRESS. HEX LOCATION(000005F0) IN CSECT(EA0E0   ) LENGTH(1)
                     386
    585   ERDC3      ADDRESS. HEX LOCATION(000005F4) IN CSECT(EA0E0   ) LENGTH(1)
                     434
    592   ERDC4      ADDRESS. HEX LOCATION(000005F8) IN CSECT(EA0E0   ) LENGTH(1)
                     439
     39   EXIT       ABSOLUTE. HEX VALUE(00000006)
                     934
    573   E1DA       ADDRESS. HEX LOCATION(000005ED) IN CSECT(EA0E0   ) LENGTH(1)
                     162
    580   E2DA       ADDRESS. HEX LOCATION(000005F1) IN CSECT(EA0E0   ) LENGTH(1)
                     163
    587   E3DA       ADDRESS. HEX LOCATION(000005F5) IN CSECT(EA0E0   ) LENGTH(1)
                     164
    594   E4DA       ADDRESS. HEX LOCATION(000005F9) IN CSECT(EA0E0   ) LENGTH(1)
                     165
     94   GI         ABSOLUTE. HEX VALUE(00000029)
                     919   959
     41   HTOE       ABSOLUTE. HEX VALUE(0000001A)
                     188
    133   H0000      ADDRESS. HEX LOCATION(0000007C) IN CSECT(EA0E0   ) LENGTH(2)
                     198
    134   H0001      ADDRESS. HEX LOCATION(0000007E) IN CSECT(EA0E0   ) LENGTH(2)
                     252
     42   IDLE       ABSOLUTE. HEX VALUE(00000002)
                     298   384   389   437   442   826  1124
     88   IN         ABSOLUTE. HEX VALUE(00000023)
                     809   829   920
    147   INAFA      ADDRESS. HEX LOCATION(000000BE) IN CSECT(EA0E0   ) LENGTH(2)
                     140   192
     69   IND        ABSOLUTE. HEX VALUE(0000000E)
                     196   403   526
   1002   INTBL      ADDRESS. HEX LOCATION(000007A4) IN CSECT(EA0E0   ) LENGTH(2)
                    1054
   1009   INTB2      ADDRESS. HEX LOCATION(000007AC) IN CSECT(EA0E0   ) LENGTH(2)
                    1056
   1016   INTB3      ADDRESS. HEX LOCATION(000007B4) IN CSECT(EA0E0   ) LENGTH(2)
                    1058
   1023   INTB4      ADDRESS. HEX LOCATION(000007BC) IN CSECT(EA0E0   ) LENGTH(2)
                    1060
    886   INTER      ADDRESS. HEX LOCATION(00000708) IN CSECT(EA0E0   ) LENGTH(2)
                    1004  1011  1018  1025
    914   INTOK      ADDRESS. HEX LOCATION(00000714) IN CSECT(EA0E0   ) LENGTH(2)
                    1003  1010  1017  1024
    934   INTRX      ADDRESS. HEX LOCATION(00000746) IN CSECT(EA0E0   ) LENGTH(2)
                     932
    920   INTR1      ADDRESS. HEX LOCATION(00000722) IN CSECT(EA0E0   ) LENGTH(2)
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DECLARED	NAME	ATTRIBUTES AND REFERENCES
		890 918
931	INTR3	ADDRESS. HEX LOCATION(00000740) IN CSECT(EA0E0) LENGTH(2)
		927
965	IOBLK	ADDRESS. HEX LOCATION(00000774) IN CSECT(EA0E0) LENGTH(2)
		207 220 290 299 373 457 492 528 1072 1075
974	IOBL2	ADDRESS. HEX LOCATION(00000780) IN CSECT(EA0E0) LENGTH(2)
		209 225 292 303 375 459 494 530 1075
984	IOBL3	ADDRESS. HEX LOCATION(0000078C) IN CSECT(EA0E0) LENGTH(2)
		212 230 294 307 426 532 1090
993	IOBL4	ADDRESS. HEX LOCATION(00000798) IN CSECT(EA0E0) LENGTH(2)
		215 235 296 311 428 534 1092
967	IODCB	ADDRESS. HEX LOCATION(00000778) IN CSECT(EA0E0) LENGTH(2)
		219 221 1064 1077
976	IODC2	ADDRESS. HEX LOCATION(00000784) IN CSECT(EA0E0) LENGTH(2)
		224 226 1065 1078
986	IODC3	ADDRESS. HEX LOCATION(00000790) IN CSECT(EA0E0) LENGTH(2)
		229 231 1081 1094
995	IODC4	ADDRESS. HEX LOCATION(0000079C) IN CSECT(EA0E0) LENGTH(2)
		234 236 1082 1095
966	IOERR	ADDRESS. HEX LOCATION(00000776) IN CSECT(EA0E0) LENGTH(2)
		153 206 218
975	IOER2	ADDRESS. HEX LOCATION(00000782) IN CSECT(EA0E0) LENGTH(2)
		154 210 223
985	IOER3	ADDRESS. HEX LOCATION(0000078E) IN CSECT(EA0E0) LENGTH(2)
		155 213 228
994	IOER4	ADDRESS. HEX LOCATION(0000079A) IN CSECT(EA0E0) LENGTH(2)
		156 216 233
970	IORSP	ADDRESS. HEX LOCATION(0000077E) IN CSECT(EA0E0) LENGTH(2)
		301 329
979	IORS2	ADDRESS. HEX LOCATION(0000078A) IN CSECT(EA0E0) LENGTH(2)
		305 333
989	IORS3	ADDRESS. HEX LOCATION(00000796) IN CSECT(EA0E0) LENGTH(2)
		309 336
998	IORS4	ADDRESS. HEX LOCATION(000007A2) IN CSECT(EA0E0) LENGTH(2)
		313 340
196	ISWRP	ADDRESS. HEX LOCATION(0000018A) IN CSECT(EA0E0) LENGTH(2)
		194
290	ITST4	ADDRESS. HEX LOCATION(000002A2) IN CSECT(EA0E0) LENGTH(4)
		325
90	LE	ABSOLUTE. HEX VALUE(00000025)
		930 945
91	LI	ABSOLUTE. HEX VALUE(00000026)
		836
100	LSTIO	ADDRESS. HEX LOCATION(00000018) IN CSECT(EA0E0) LENGTH(2)
		811 812 814 1068 1069 1071 1085 1086 1088
85	MI	ABSOLUTE. HEX VALUE(00000020)
		933 943
144	MSG01	ADDRESS. HEX LOCATION(00000092) IN CSECT(EA0E0) LENGTH(40)
		139
145	MSG11	ADDRESS. HEX LOCATION(000000BA) IN CSECT(EA0E0) LENGTH(2)
		137 190
96	NI	ABSOLUTE. HEX VALUE(0000002B)
		317 320 462 464 497 499 501 506 508
		510 539 541 543 545 747 750 753 756
		831
62	OPTN1	ADDRESS. HEX LOCATION(0000000E) IN CSECT(EA0E0) LENGTH(2)
		158 199 888 916 1118
73	OPTN3	ADDRESS. HEX LOCATION(00000012) IN CSECT(EA0E0) LENGTH(2)
		377 430 957 1066 1083 1112 1117
40	OUTIN	ABSOLUTE. HEX VALUE(00000001)
		191
121	PCTR	ADDRESS. HEX LOCATION(00000042) IN CSECT(EA0E0) LENGTH(2)
		198 1115
43	PREP	ABSOLUTE. HEX VALUE(0000000C)
		222 227 232 237 1074 1076 1091 1093
50	PRNTRTN	ABSOLUTE. HEX VALUE(0000181E)
		1113
68	QUES	ABSOLUTE. HEX VALUE(0000000D)
		159 161
644	REDA1	ADDRESS. HEX LOCATION(00000615) IN CSECT(EA0E0) LENGTH(1)
		172
651	REDA2	ADDRESS. HEX LOCATION(00000619) IN CSECT(EA0E0) LENGTH(1)
		173
642	RED01	ADDRESS. HEX LOCATION(00000614) IN CSECT(EA0E0) LENGTH(1)
		752
649	RED02	ADDRESS. HEX LOCATION(00000618) IN CSECT(EA0E0) LENGTH(1)
		755
47	RESET	ABSOLUTE. HEX VALUE(00000008)
		208 211 214 217 291 293 295 297 374
		376 427 429 458 460 493 495 529 531
		533 535
44	RICB	ABSOLUTE. HEX VALUE(00000013)
		240 243 246 249
48	RID	ABSOLUTE. HEX VALUE(00000009)
		300 304 308 312
630	RSDA1	ADDRESS. HEX LOCATION(0000060D) IN CSECT(EA0E0) LENGTH(1)
		170
637	RSDA2	ADDRESS. HEX LOCATION(00000611) IN CSECT(EA0E0) LENGTH(1)
		171
628	RST01	ADDRESS. HEX LOCATION(0000060C) IN CSECT(EA0E0) LENGTH(1)
		746
635	RST02	ADDRESS. HEX LOCATION(00000610) IN CSECT(EA0E0) LENGTH(1)
		749
287	RT01	ADDRESS. HEX LOCATION(00000294) IN CSECT(EA0E0) LENGTH(4)
		270
329	RT011	ADDRESS. HEX LOCATION(00000328) IN CSECT(EA0E0) LENGTH(6)
		302
333	RT012	ADDRESS. HEX LOCATION(0000033E) IN CSECT(EA0E0) LENGTH(6)
		306
336	RT013	ADDRESS. HEX LOCATION(0000034C) IN CSECT(EA0E0) LENGTH(6)
		310
340	RT014	ADDRESS. HEX LOCATION(00000360) IN CSECT(EA0E0) LENGTH(6)
		314
331	RT015	ADDRESS. HEX LOCATION(00000334) IN CSECT(EA0E0) LENGTH(6)
		335
332	RT016	ADDRESS. HEX LOCATION(0000033A) IN CSECT(EA0E0) LENGTH(4)
		339
338	RT017	ADDRESS. HEX LOCATION(00000358) IN CSECT(EA0E0) LENGTH(6)
		342
352	RT02	ADDRESS. HEX LOCATION(0000036E) IN CSECT(EA0E0) LENGTH(4)
		271

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
403	RT03	ADDRESS. HEX LOCATION(000003F4) IN CSECT(EA0E0) LENGTH(2)
		272
456	RT04	ADDRESS. HEX LOCATION(00000480) IN CSECT(EA0E0) LENGTH(4)
		273
480	RT041	ADDRESS. HEX LOCATION(000004DC) IN CSECT(EA0E0) LENGTH(6)
		468 471
482	RT042	ADDRESS. HEX LOCATION(000004E6) IN CSECT(EA0E0) LENGTH(6)
		475 478
491	RT05	ADDRESS. HEX LOCATION(000004F0) IN CSECT(EA0E0) LENGTH(4)
		274
516	RT051	ADDRESS. HEX LOCATION(00000546) IN CSECT(EA0E0) LENGTH(6)
		505 514
526	RT06	ADDRESS. HEX LOCATION(00000550) IN CSECT(EA0E0) LENGTH(2)
		275
550	RT061	ADDRESS. HEX LOCATION(000005A6) IN CSECT(EA0E0) LENGTH(6)
		564
565	RT062	ADDRESS. HEX LOCATION(000005E2) IN CSECT(EA0E0) LENGTH(6)
		558 561
380	RT202	ADDRESS. HEX LOCATION(000003BC) IN CSECT(EA0E0) LENGTH(4)
		356 359 362 365 368 371 395
433	RT302	ADDRESS. HEX LOCATION(00000448) IN CSECT(EA0E0) LENGTH(4)
		409 412 415 418 421 424 448
46	TERM	ABSOLUTE. HEX VALUE(00000007)
		250
66	TM	ABSOLUTE. HEX VALUE(00000003)
		200 391 444 827 1125
615	TSDA1	ADDRESS. HEX LOCATION(00000605) IN CSECT(EA0E0) LENGTH(1)
		168
623	TSDA2	ADDRESS. HEX LOCATION(00000609) IN CSECT(EA0E0) LENGTH(1)
		169
613	TST01	ADDRESS. HEX LOCATION(00000604) IN CSECT(EA0E0) LENGTH(1)
		738
621	TST02	ADDRESS. HEX LOCATION(00000608) IN CSECT(EA0E0) LENGTH(1)
		740
656	TS101	ADDRESS. HEX LOCATION(0000061C) IN CSECT(EA0E0) LENGTH(1)
		742
663	TS102	ADDRESS. HEX LOCATION(00000620) IN CSECT(EA0E0) LENGTH(1)
		744
658	TTDA1	ADDRESS. HEX LOCATION(0000061D) IN CSECT(EA0E0) LENGTH(1)
		174
665	TTDA2	ADDRESS. HEX LOCATION(00000621) IN CSECT(EA0E0) LENGTH(1)
		175
148	TYPE23	ADDRESS. HEX LOCATION(000000C0) IN CSECT(EA0E0) LENGTH(2)
		818 1119
701	WRDA3	ADDRESS. HEX LOCATION(00000635) IN CSECT(EA0E0) LENGTH(1)
		180
708	WRDA4	ADDRESS. HEX LOCATION(00000639) IN CSECT(EA0E0) LENGTH(1)
		181
699	WRDO3	ADDRESS. HEX LOCATION(00000634) IN CSECT(EA0E0) LENGTH(1)
		766
706	WRDO4	ADDRESS. HEX LOCATION(00000638) IN CSECT(EA0E0) LENGTH(1)
		768
702	WRFD3	ADDRESS. HEX LOCATION(00000636) IN CSECT(EA0E0) LENGTH(2)
		547 550 557 562 565
709	WRFD4	ADDRESS. HEX LOCATION(0000063A) IN CSECT(EA0E0) LENGTH(2)
		548 551 560
67	WRIT	ABSOLUTE. HEX VALUE(0000000C)
		552 554 954
89	XE	ABSOLUTE. HEX VALUE(00000024)
		917 949
87	XI	ABSOLUTE. HEX VALUE(00000022)
		823 931
809	XIO	ADDRESS. HEX LOCATION(000006A4) IN CSECT(EA0E0) LENGTH(2)
		735 737 739 741 743 745 748 751 754
		757 759 761 763 765 767 769
734	XIOA1	ADDRESS. HEX LOCATION(0000063C) IN CSECT(EA0E0) LENGTH(4)
		318 498
736	XIOA2	ADDRESS. HEX LOCATION(00000642) IN CSECT(EA0E0) LENGTH(4)
		321 507
943	XIOCK	ADDRESS. HEX LOCATION(00000748) IN CSECT(EA0E0) LENGTH(2)
		810 830
949	XIOCM	ADDRESS. HEX LOCATION(00000754) IN CSECT(EA0E0) LENGTH(2)
		946
953	XIOCQ	ADDRESS. HEX LOCATION(0000075C) IN CSECT(EA0E0) LENGTH(1)
		944
956	XIOCU	ADDRESS. HEX LOCATION(00000760) IN CSECT(EA0E0) LENGTH(4)
		948 960
957	XIOCX	ADDRESS. HEX LOCATION(00000764) IN CSECT(EA0E0) LENGTH(4)
		952 955
752	XIOD1	ADDRESS. HEX LOCATION(00000670) IN CSECT(EA0E0) LENGTH(4)
		473 556
755	XIOD2	ADDRESS. HEX LOCATION(00000678) IN CSECT(EA0E0) LENGTH(4)
		476 559
660	XIOER	ADDRESS. HEX LOCATION(000006FC) IN CSECT(EA0E0) LENGTH(2)
		153 154 155 156 383 388 436 441 825
		966 975 985 994
758	XIOE1	ADDRESS. HEX LOCATION(00000680) IN CSECT(EA0E0) LENGTH(4)
		540
760	XIOE2	ADDRESS. HEX LOCATION(00000686) IN CSECT(EA0E0) LENGTH(4)
		542
762	XIOE3	ADDRESS. HEX LOCATION(0000068C) IN CSECT(EA0E0) LENGTH(4)
		544
764	XIOE4	ADDRESS. HEX LOCATION(00000692) IN CSECT(EA0E0) LENGTH(4)
		546
959	XIOGI	ADDRESS. HEX LOCATION(0000076C) IN CSECT(EA0E0) LENGTH(2)
		950
746	XIOR1	ADDRESS. HEX LOCATION(00000660) IN CSECT(EA0E0) LENGTH(4)
		466 503
749	XIOR2	ADDRESS. HEX LOCATION(00000668) IN CSECT(EA0E0) LENGTH(4)
		469 512
742	XIOS1	ADDRESS. HEX LOCATION(00000654) IN CSECT(EA0E0) LENGTH(4)
		500
744	XIOS2	ADDRESS. HEX LOCATION(0000065A) IN CSECT(EA0E0) LENGTH(4)
		509
738	XIOT1	ADDRESS. HEX LOCATION(00000648) IN CSECT(EA0E0) LENGTH(4)
		319 463 502
740	XIOT2	ADDRESS. HEX LOCATION(0000064E) IN CSECT(EA0E0) LENGTH(4)
		322 465 511
766	XIOW3	ADDRESS. HEX LOCATION(00000698) IN CSECT(EA0E0) LENGTH(4)
		553
768	XIOW4	ADDRESS. HEX LOCATION(0000069E) IN CSECT(EA0E0) LENGTH(4)

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                     555
   822    XIO5       ADDRESS. HEX LOCATION(000006D0) IN CSECT(EA0E0   ) LENGTH(2)
                     819
   823    XIO6       ADDRESS. HEX LOCATION(000006D2) IN CSECT(EA0E0   ) LENGTH(2)
                     821
   826    XIO8       ADDRESS. HEX LOCATION(000006DC) IN CSECT(EA0E0   ) LENGTH(2)
                     834
```

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                             3 ************************************************************************
                             4 *                                                                      *
                             5 *                    ***       PREREQUISITES        ***               *
                             6 *                                                                      *
                             7 *                              NONE                                    *
                             8 *                                                                      *
                             9 ************************************************************************
                            10 *                                                                      *
                            11 *                    ***       MODIFICATIONS        ***               *
                            12 *                                                                      *
                            13 *                              NONE                                    *
                            14 *                                                                      *
                            15 ************************************************************************
                            16 *                                                                      *
                            17 *                    ***     REA'S INCORPORATED     ***               *
                            18 *                                                                      *
                            19 *                              NONE                                    *
                            20 *                                                                      *
                            21 ************************************************************************
                            22 *                                                                      *
                            23 *                    ***    SPECIAL INSTRUCTIONS    ***               *
                            24 *                                                                      *
                            25 *                              NONE                                    *
                            26 *                                                                      *
                            27 ************************************************************************
                            28 *                                                                      *
                            29 *                    ***       E. C. HISTORY        ***               *
                            30 *                                                                      *
                            31 *          DATE 09DEC77  DATE          DATE          DATE              *
                            32 *          E.C. 755104   E.C.          E.C.          E.C.              *
                            33 *                                                                      *
                            34 ************************************************************************
 000000                     36 EE0E0 START X'0000'
                            37 *                SUPERVISOR EQUATES
 000014                     38 CICB   EQU   20                  CONNECT INTERRUPT CONTROL BLOCK
 000001                     39 OUTIN  EQU   1                   OUT MESSAGE WITH EXPECTED RESPONCE
 00001A                     40 HTOE   EQU   26                  CHANGE HEX DATA TO EBCDIC DATA
 000006                     41 EXIT   EQU   6                   EXIT INTERRUPT LEVEL
 000002                     42 IDLE   EQU   2                   SHARE PROGRAM TIME WITH OTHER PGMS
 00000C                     43 PREP   EQU   12                  PREPARE DEVICE
 000013                     44 RICB   EQU   19                  RELEASE INTERRUPT CONTROL BLOCK
 00000A                     45 START  EQU   10                  START CYCLE STEAL COMMAND
 000007                     46 TERM   EQU   7                   TERMINATE THIS PROGRAM
 000008                     47 RESET  EQU   8                   DEVICE RESET
 000009                     48 RID    EQU   9                   DEVICE READ ID
 000000                     49 REG    EQUR  0                   WORK REGISTER
 00181E                     50 PRNTRTN EQU  X'181E'            COMMON PRINT ROUTINE ADDRESS LOCATION
 000232                     51 CPUTYPE EQU  X'0232'            ADDRESS OF PROCESSOR TYPE
                            52 *
                            53 *           PROGRAM HEADING AND CONTROL WORDS
                            54 *
 000000  C5F0F0F0           55 $PID   DC    C'E000'            PROGRAM IDENTIFICATION
 000004  0000               56        DC    XL2'0000'          CURRENT LEVEL OF PROGRAM
 000006  0062               57        DC    A($PEN1)           -> TO START EXEC ADDRESS
 000008  004C               58        DC    A($DVAD)           -> TO DEVICE TABLE
 00000A  0000               59 $RTNE  DC    A(*-*)             ROUTINE NUMBER BEING RUN
 00000C  0000               60 $CKPT  DC    A(*-*)             LAST CHECK POINT PASSED
 00000E  0000               62 OPTN1  DC    X'0000'            PROGRAM OPTION CONTROL WORD 1
                            63 *
                            64 * BIT FUNCTION
                            65 *
 000003                     66 TM     EQU   3                  TERMINATE PROGRAM
 00000D                     67 QUES   EQU   13                 QUESTION HAS BEEN ASKED
 00000E                     68 IND    EQU   14                 INDICATOR
 00000F                     69 DIR    EQU   15                 SEEK DIRECTION INDICATOR
                            70 *
 000010  0000               71 OPTN2  DC    X'0000'            PROGRAM OPTION CONTROL WORD 2
 000012  0000               72 OPTN3  DC    X'0000'            PROGRAM OPTION CONTROL WORD 3
                            73 *
                            74 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                            75 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                            76 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                            77 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                            78 *
                            79 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                            80 *  5  WRONG INTR LEVEL      LE       13  N.U.
                            81 *  6  LOAS INTERRUPT        LI       14  N.U.
                            82 *  7  CS STATUS IN PROGR    CS       15  N.U.
                            83 *                        BIT    HEX
 000020                     84 MI     EQU   32      0      8   MYSTERY INTERRUPT HAPPENED
 000021                     85 ER     EQU   33      1      4   ERROR RECEIVED ON INTERRUPT
 000022                     86 XI     EQU   34      2      2   EXPECTED INTERRUPT CONTROL BIT
 000023                     87 IN     EQU   35      3      1   INTERRUPT RECEIVED CONTROL BIT
 000024                     88 XE     EQU   36      4      8   EXPECTED ERROR RESPONSE
 000025                     89 LE     EQU   37      5      4   INTERRUPT ON WRONG LEVEL ERROR
 000026                     90 LI     EQU   38      6      2   LOST INTERRUPT
 000027                     91 CS     EQU   39      7      1   CYCLE STATUS IN PROGRESS
 000028                     92 CE     EQU   40      8      8   CYCLE STEAL STATUS INERRRUPT ERROR
 000029                     93 GI     EQU   41      9      4   GOOD INTERRUPT RECEIVED (EXPECTED ER)
 00002A                     94 PE     EQU   42      10     2   PROBABLE ERROR EXPECTED
 00002B                     95 NI     EQU   43      11     1   NO INTR. EXPECTED UNPREPED DEV.
 000016  0000               97 $IOIN  DC    A(*-*)             I/O AND INTR CONDITION CODES
 000016  0000               98 $ISB   DC    A(*-*)             R7, INTR STS BYTE & DEV ADRS
 000018  0000               99 LSTIO  DC    A(*-*)             ADRS OF LAST I/O + 4 BYTES
 00001A  0000              100 DEV1   DC    A(*-*)             DEPENDENT DATA DEV1
 00001C  0000              101 DEV2   DC    A(*-*)             DEPENDENT DATA DEV2
 00001E  0000              102 DEV3   DC    A(*-*)             DEPENDENT DATA DEV3
 000020  0000              103 DEV4   DC    A(*-*)             DEPENDENT DATA DEV4
 000022  0000              104 DCBUF  DC    A(*-*)             LAST DCB TABLE, CONTROL WORD
 000024  0000              105 DCB2   DC    A(*-*)             LAST DCB TABLE, DEV DEP WORD
 000026  0000              106 DCB3   DC    A(*-*)             LAST DCB TABLE, DEV DEP WORD
 000028  0000              107 DCB4   DC    A(*-*)             LAST DCB TABLE, DEV DEP WORD
 00002A  0000              108 DCB5   DC    A(*-*)             LAST DCB TABLE, DEV DEP WORD
 00002C  0000              109 DCB6   DC    A(*-*)             LAST DCB TABLE, CHAIN ADRS
 00002E  0000              110 DCB7   DC    A(*-*)             LAST DCB TABLE, BYTE COUNT
 000030  0000              111 DCB8   DC    A(*-*)             LAST DCB TABLE, BUFFER ADDRESS
 000032                    112 CSBUF  EQU   *                  CYCLE STEAL DATA BUFFER
 000032  0000              113 CSTL1  DC    A(*-*)             CYCLE STEAL BUFFER, RESIDUAL ADRS
 000034  0000              114 CSTL2  DC    A(*-*)             CYCLE STEAL WD 2, DEVICE DEPEND
 000036  0000              115 CSTL3  DC    A(*-*)             CYCLE STEAL WD 3, DEVICE DEPEND
 000038  0000              116 CSTL4  DC    A(*-*)             CYCLE STEAL WD 4, DEVICE DEPEND
 00003A  0000              117 CSTL5  DC    A(*-*)             CYCLE STEAL WD 5, DEVICE DEPEND
 00003C  0000              118 CSTL6  DC    A(*-*)             CYCLE STEAL WD 6, DEVICE DEPEND
 00003E  0000              119 CSTL7  DC    A(*-*)             CYCLE STEAL WD 7, DEVICE DEPEND
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
 000040  0000              120 CSTL8  DC    A(*-*)             CYCLE STEAL WD 8, DEVICE DEPEND
 000042  00000000          121 PCTR   DC    2A(*-4)            PASS COUNTER
 000046  00000000          122 ECTR   DC    2A(*-*)            ERROR COUNTER
 00004A  0005              123 ERNUM  DC    X'0005'            NUM OF ERRORS PROG CAN HAVE
 00004C  00E0              124 $DVAD  DC    X'00E0'            DEVICE ADDRESS BEING TESTED
 00004E  0000000000000000  125        DC    XL8'00'
 000056  0011              126 $INTL  DC    X'0011'            INTERRUPT LEVEL REQUESTED
 000058  201E              127 $DVID  DC    X'201E'            DEVICE IDENTIFICATION
 00005A  0006              128 $MXSL  DC    A(6)               MAXIMUM SELECTABLE ROUTINES
 00005C  0000              129 H0000  DC    X'0000'            CONSTANT
 00005E  0001              130 H0001  DC    X'0001'            HEX WORD CONSTANT
 000060  2300              131 TYPE23 DC    X'2300'            CONSTANT TO CHECK PROCESSOR AGAINST
                           133 ************************************************************************
                           134 *                                                                      *
                           135 *           PROGRAM CONTROL FUNCTIONS                                  *
                           136 *                                                                      *
                           137 ************************************************************************
 000062  6908 004E         138 $PEN1  MVW   $DVAD+2,R1         LOAD NUMBER OF DEV. INTO R1
 000066  7924 FFE0         139        RBTWI X'FFE0',R1         RESET ALL UNUSED BITS
 00006A  7127              140        IR    R1,R1              TEST REGISTER R1
 00006C  1803              141        JNZ   $PEN2              CHECK FOR ZERO ( ZERO = 32 )
 00006E  4124 0500         142        MVWI  X'0500',R1         IF 32 SET 5 INTO R1
 000072  5005              143        J     $PEN3              BRANCH
 000074  7921 0010         144 $PEN2  AWI   X'0010',R1         SET R1 TO PROPER VALUE
 000078  3129              145        SLL   5,R1               SHIFT TO POSITION BITS
 00007A  7924 F0FF         146        RBTWI X'F0FF',R1         DELETE ALL UNUSED BITS
 00007E  C929 0058         147 $PEN3  OW    R1,$DVID           OR INTO DEVICE ID.
 000082  4020 0556 04AC    148 $PENT  MVA   XIOER,IOERR        RESTORE ERROR ADDRESS
 000088  A82A 005C 0042    149        AD    H0000,PCTR         ADVANCE PASS COUNTER BY 1
 00008E  4020 0056 0011    150        MVWI  X'0011',$INTL      INIT INTERRUPT LEVEL
 000094  CE25 000A         151        MVWZ  $RTNE,R6           CLEAR OLD ROUTINE NUMBER
 000098  4024 000E         152 $PUPD  MVT   OPTN1,R4           R4 MUST BE SET TO 'OPTN1'
 00009C  4C03              153 $PUP2  TBT   (R4,TM)            IS TERMINATE PGM REQUESTED
 00009E  1018              154        JZ    $PUP8              * NO, CONTINUE CHECKING
                           155 *
                           156 *           TERMINATE CONTROL BIT FOUND ON
                           157 *
 0000A0  4020 0556 00AC    158 $TERM  MVA   $RETI,IOERR        INIT ERROR ADDRESS
 0000A6  4724 0554         159        MVA   IOBLK,R7           LOAD ADDRESS OF CONTROL BLOCK
 0000AA  6008              160        SVC   RESET              ISSUE SVC
 0000AC  4020 0556 00C4    161 $RETI  MVA   $TER1,IOERR        INIT ERROR ADDRESS
 0000B2  8828 0056 0558    162        MVW   $INTL,IODCB        LOAD CURRENT INTERRUPT LEVEL
 0000B8  4724 0554         163        MVA   IOBLK,R7           LOAD ADDRESS OF CONTROL BLOCK
 0000BC  402D 0558 0001    164        RBTWI X'0001',IODCB      TURN OF PREPARE 'I' BIT
 0000C2  600C              165        SVC   PREP               ISSUE SVC
 0000C4  C720 004C         166 $TER1  MVB   $DVAD,R7           LOAD CURRENT DEV ADDRESS
 0000C8  7FE4 FF00         167        RBTWI X'FF00',R7         ZERO HIGH ORDER BYTE
 0000CC  6013              168        SVC   RICB               ISSUE SVC
 0000CE  6007              169        SVC   TERM               ISSUE SVC
                           171 *
 0000D0  A828 005E 000A    172 $PUP8  AW    H0001,$RTNE        ADVANCE ROUTINE NUMBER
 0000D6  8828 005A 000A    173        CW    $MXSL,$RTNE        CHECK FOR LAST AUTOMATIC ROUTINE
 0000DC  10D2              174        JE    $PENT              * BCH AND START WITH RTN 1
                           175 *
                           176 *           GET RTN NUMBER AND BCH TO THAT RTN
                           177 *
 0000DE  6E08 000A         178 $PSEL  MVW   $RTNE,R6           MOVE RTN NUMBER IN REG
 0000E2  CD25 000C         179        MVWZ  $CKPT,R5           ZERO CHECKPOINT
 0000E6  CD25 001A         180        MVWZ  DEV1,R5            ZERO ALL FOUR WORDS OF DEV
 0000EA  CD25 001C         181        MVWZ  DEV2,R5            * DEPENDENT DATA
 0000EE  CD25 001E         182        MVWZ  DEV3,R5            *  ------------
 0000F2  CD25 0020         183        MVWZ  DEV4,R5            *  ------------
 0000F6  3609              184        SLL   1,R6               DOUBLE FOR BRANCH TABLE
 0000F8  68D2 00FC         185        B     (R6,$RTAD)*        BCH VIA RTN TABLE
                           186 *
                           187 *           TABLE OF ROUTINE ADDRESSES
                           188 *
 0000FC  0082              189 $RTAD  DC    A($PENT)           NO RTN SELECTED
 0000FE  0108              190        DC    A(RT01)            ROUTINE ADDRESS
 000100  01CA              191        DC    A(RT02)            ''      ''
 000102  023C              192        DC    A(RT03)            ''      ''
 000104  024E              193        DC    A(RT04)            ''      ''
 000106  028C              194        DC    A(RT05)            ''      ''
                           196 ************************************************************************
                           197 *     CHANNEL INTERFACE TEST                                           *
                           198 *                                                                      *
                           199 *     TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS      *
                           200 *     THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO  *
                           201 *     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS  *
                           202 *     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS       *
                           203 *     EXCEPT LEVEL THREE. THE CHECKSUM IS THEN READ AND CHECKED.       *
                           204 *                                                                      *
                           205 ************************************************************************
 000108  6E03 0568         206 RT01   BAL   $CONR,R6           CLEAR AND CONNECT I/O BLK
 00010C  4020 0356 4F00    207        MVW   X'4F00',DRDCB+2    RESTORE DCB CONTROL WORD
 000112  4020 0056 FFF1    208        MVWI  X'FFF1',$INTL      SET UP INTERRUPT LEVEL FOR PREP
 000118  4029 0056 0010    209 ITST4  AWI   X'10',$INTL        ADV INTR LEVEL, STARTING AT 0
 00011E  6E03 0572         210        BAL   $CONC,R6           GO PREPARE ON NEW LEVEL
 000122  4724 0554         211        MVA   IOBLK,R7           SET UP POINTER TO CONTROL BLOCK
 000126  6008              212        SVC   RESET              CALL SUPVR TO ISSUE RESET
 000128  4724 0554         213        MVA   IOBLK,R7           SET UP POINTER TO CONTROL BLOCK
 00012C  6009              214        SVC   RID                CALL SUPVR TO ISSUE READ ID
 00012E  882B 055E 0058    215        CW    IORSP,$DVID        IS ID RECEIVED THE SAME
 000134  1008              216        JE    ITST5              * YES, CONTINUE
 000136  8828 055E 0020    217        MVW   IORSP,DEV4         LOAD RECEIVED ID INTO DEV3
 00013C  8828 0058 001E    218        MVW   $DVID,DEV3         LOAD EXPECTED ID INTO DEV4
 000142  6802 05A2         219        B     $PRNT              BRANCH TO PRINT ERROR
 000146  6E03 03E2         220 ITST5  BAL   XIODR,R6           EXEC POWER ON RESET TEST TO GET INT.
 00014A  4029 000C 0001    221        AWI   1,$CKPT           BUMP CHECKPOINT
 000150  4C21 0056         222        CWI   X'21',$INTL        HAS INTR LEVEL COME DOWN TO 2
 000156  18E0              223        JNE   ITST4              * NO, BCH AND CONTINUE TEST
 000158  4020 0056 0011    224        MVWI  X'0011',$INTL      RESTORE SELECTED INTR LEVEL
 00015E  6E03 0572         225        BAL   $CONC,R6           SET UP FOR START IO ON CORRECT LEV.
 000162  6E03 03D4         226        BAL   XIODG,R6           READ POWER ON RESET TEST RESULTS
 000166  6908 073A         227 ITSTA  MVW   DRBUF,R1           SET UP TO CHECK CHECKSUM VALUE
 00016A  690B 073C         228        XW    DRBUF+2,R1         * AGAINST SHOULD BE
 00016E  7921 0001         229        AWI   1,R1               CHECK FOR A VALID CHECKSUM
 000172  1005              230        JZ    ITST9              BCH IF OKAY
 000174  9028 073A 001E    231        MVD   DRBUF,DEV3         MOVE ERRORED CHECKSUM VALUE
 00017A  6802 05A2         232        B     $PRNT              BRANCH TO PRINT ERROR
 00017E  6908 073E         233 ITST9  MVW   DRBUF+4,R1         SET UP TO CHECK CHECKSUM VALUE
 000182  690B 0740         234        XW    DRBUF+6,R1         * AGAINST SHOULD BE
 000186  7921 0001         235        AWI   1,R1               CHECK FOR A VALID CHECKSUM
 00018A  1005              236        JZ    ITST8              BCH IF OKAY
```

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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
00018C  9028 073E 001E      237         MVD   DRBUF+4,DEV3           MOVE ERRORED CHECKSUM VALUE
000192  6802 05A2           238         B     $PRNT                  BRANCH TO PRINT ERROR
000196  6908 0742           239 ITST8   MVW   DRBUF+8,R1             SET UP TO CHECK CHECKSUM VALUE
00019A  690B 0744           240         XW    DRBUF+10,R1            * AGAINST SHOULD BE
00019E  7921 0001           241         AWI   1,R1                   CHECK FOR A VALID CHECKSUM
0001A2  1005                242         JZ    ITST7                  BCH IF OKAY
0001A4  9028 0742 001E      243         MVD   DRBUF+8,DEV3           MOVE ERRORED CHECKSUM VALUE
0001AA  6802 05A2           244         B     $PRNT                  BRANCH TO PRINT ERROR
0001AE  6908 0746           245 ITST7   MVW   DRBUF+12,R1            SET UP TO CHECK CHECKSUM VALUE
0001B2  690B 0748           246         XW    DRBUF+14,R1            * AGAINST SHOULD BE
0001B6  7921 0001           247         AWI   1,R1                   CHECK FOR A VALID CHECKSUM
0001BA  1005                248         JZ    ITST6                  BCH IF OKAY
0001BC  9028 0746 001E      249         MVD   DRBUF+12,DEV3          MOVE ERRORED CHECKSUM VALUE
0001C2  6802 05A2           250         B     $PRNT                  BRANCH TO PRINT ERROR
0001C6  6802 0098           251 ITST6   B     $PUPD                  BRANCH TO CONTINUE
                            253 ********************************************************************
                            254 *     DIAGNOSTIC TESTS                                             *
                            255 *                                                                  *
                            256 *     THE FOLLOWING WILL PREFORM A CHANNEL TEST FOLLOWED BY A      *
                            257 *     CONTROLLER TEST THEN A SCANNER TEST AND FINALLY A READ DIAG. *
                            258 *     SENCE TEST. *                                                *
                            259 *                                                                  *
                            260 ********************************************************************
0001CA  6E03 0572           261 RT02    BAL   $CONC,R6               PREPARE DEVICE ON CORRECT LEVEL
0001CE  4020 0356 4200      262         MVWI  X'4200',DRDCB+2        SET FUNCTION IN DCB (CHANNEL TEST)
0001D4  4020 05FC 2210      263         MVWI  X'2210',TST#           SET TEST RESULTS
0001DA  9A17                264         JAL   R2TST,R2               BRANCH TO EXEC. TEST
0001DC  4020 0356 4100      265         MVWI  X'4100',DRDCB+2        SET FUNCTION IN DCB (CONTROLLER TEST)
0001E2  4020 05FC 1630      266         MVWI  X'1630',TST#           SET TEST RESULTS
0001E8  9A10                267         JAL   R2TST,R2               BRANCH TO EXEC. TEST
0001EA  4020 0356 4400      268         MVWI  X'4400',DRDCB+2        SET FUNCTION IN DCB (SCANNER TEST)
0001F0  4020 05FC 4210      269         MVWI  X'4210',TST#           SET TEST RESULTS
0001F6  9A09                270         JAL   R2TST,R2               BRANCH TO EXEC. TEST
0001F8  4020 0356 0000      271         MVWI  X'0000',DRDCB+2        SET FUNCTION IN DCB (READ SENCE TEST)
0001FE  4020 05FC 0000      272         MVWI  X'0000',TST#           SET TEST RESULTS
000204  9A02                273         JAL   R2TST,R2               BRANCH TO EXEC. TEST
000206  6802 0098           274         B     $PUPD                  BRANCH TO CONTINUE
00020A  4029 000C 0001      275 R2TST   AWI   1,$CKPT                ADD ONE TO CHECKPOINT
000210  6E03 03E2           276         BAL   XIODR,R6               BRANCH TO ISSUE TEST
000214  882B 05FC 073A      277         CW    TST#,DRBUF             COMPARE EXPECTED VS. RECEIVED
00021A  1805                278         JNE   RT02E                  BRANCH IF ERROR
00021C  D520 073C           279         MVD   DRBUF+2,R5             COMPARE EXPECTED VS. RECEIVED
000220  1802                280         JNE   RT02E                  BRANCH IF ERROR
000222  6842 0000           281         B     (R2)                   RETURN IF NO ERROR
000226  8828 073A 001C      282 RT02E   MVW   DRBUF,DEV2             LOAD RECEIVED DATA INTO
00022C  9028 073C 001E      283         MVD   DRBUF+2,DEV3           *  DEV2 THRU DEV4
000232  8828 05FC 001A      284         MVW   TST#,DEV1              LOAD EXPECTED INTO DEV1
000238  6802 05A2           285         B     $PRNT                  BRANCH TO PRINT ERROR
                            287 ********************************************************************
                            288 *     WRITE SCAN TABLE                                             *
                            289 *                                                                  *
                            290 *     ISSUE A DIAG MODE COMMAND TO WRITE THE SCAN TABLE            *
                            291 *                                                                  *
                            292 ********************************************************************
00023C  6E03 0572           293 RT03    BAL   $CONC,R6               PREPARE DEVICE ON CORRECT LEVEL
000240  4029 000C 0001      294         AWI   1,$CKPT                ADD ONE TO CHECKPOINT
000246  6E03 03F0           295         BAL   XIOSC,R6               BRANCH TO ISSUE WRITE SCAN TEST
00024A  6802 0098           296         B     $PUPD                  BRANCH TO CONTINUE
                            298 ********************************************************************
                            299 *     MLOAD TEST                                                   *
                            300 *                                                                  *
                            301 *     FIRST WRITE A MLOAD THEN READ IT BACK AND COMPARE THE DATA.  *
                            302 *                                                                  *
                            303 ********************************************************************
00024E  6E03 0572           304 RT04    BAL   $CONC,R6               PREPARE DEVICE ON CORRECT LEVEL
000252  4029 000C 0001      305         AWI   1,$CKPT                ADD ONE TO CHECKPOINT
000258  6E03 03FE           306         BAL   XIOWT,R6               BRANCH TO ISSUE THE WRITE
00025C  4029 000C 0001      307         AWI   1,$CKPT                BUMP CHECKPOINT
000262  6E03 040C           308         BAL   XIORD,R6               BRANCH TO ISSUE READ
000266  4029 000C 0001      309         AWI   1,$CKPT                BUMP CHECKPOINT
00026C  4724 0100           310         MVWI  256,R7                 LOAD COUNT REGISTER
000270  4324 073A           311         MVA   DRBUF,R3               LOAD ADDRESS OF READ DATA
000274  4524 061E           312         MVA   MLOAD,R5               LOAD ADDRESS OF WRITE DATA
000278  2BA6                313         CFNEN (R3),(R5)              COMPARE DATA
00027A  6800 0098           314         BE    $PUPD                  BRANCH IF EQUAL TO CONTINUE
00027E  4C61                315         TBTS  (R4,ER)                SET ERROR BIT
000280  8508 0020           316         MVB   (R5),DEV4              LOAD EXPECTED BYTE INTO DEV4
000284  8308 0021           317         MVB   (R3),DEV4+1            LOAD RECEIVED BYTE INTO DEV4+1
000288  6802 05A2           318         B     $PRNT                  BRANCH TO PRINT ERROR
                            320 ********************************************************************
                            321 *     DIAGNOSTIC RAS TESTS                                         *
                            322 *                                                                  *
                            323 *     DIFFERENT RAS TESTS ARE PREFORMED AND THE RESULTS THEN       *
                            324 *     COMPARED TO EXPECTED VALUES.                                 *
                            325 *                                                                  *
                            326 ********************************************************************
00028C  6E03 0572           327 RT05    BAL   $CONC,R6               PREPARE DEVICE ON CORRECT LEVEL
000290  4029 000C 0001      328         AWI   1,$CKPT                BUMP CHECKPOINT
000296  6E03 0428           329         BAL   XIOWR,R6               MLOAD CRC TABLE
00029A  4020 0386 6000      330         MVWI  X'6000',CRDCB+2        INIT PARM 1 OF DCB
0002A0  4020 0388 8000      331         MVWI  X'8000',CRDCB+4        INIT PARM 2 OF DCB
0002A6  4029 000C 0001      332         AWI   1,$CKPT                BUMP CHECKPOINT
0002AC  6E03 041A           333         BAL   XIOCR,R6               BRANCH TO ISSUE OIO
0002B0  402F 073A 2310      334         CWI   X'2310',DRBUF          COMPARE RESULTS
0002B6  1846                335         JNE   RT5E1                  BRANCH IF ERROR
0002B8  CE25 0388           336         MVWZ  CRDCB+4,R6             ZERO PARM 2
0002BC  4020 0386 6088      337         MVWI  X'6088',CRDCB+2        INIT PARM 1
0002C2  4029 000C 0001      338         AWI   1,$CKPT                BUMP CHECKPOINT
0002C8  6E03 041A           339         BAL   XIOCR,R6               BRANCH TO ISSUE OIO
0002CC  402F 073A 2310      340         CWI   X'2310',DRBUF          COMPARE RESULTS
0002D2  1838                341         JNE   RT5E1                  BRANCH IF ERROR
0002D4  4020 05FA 05E2      342         MVA   TST8,TSTAD             LOAD DATA POINTER FOR 8 BIT TEST
0002DA  9A0E                343         JAL   R5TST,R2               BRANCH TO ISSUE TEST
0002DC  4020 05FA 05E8      344         MVA   TST7,TSTAD             LOAD DATA POINTER FOR 7 BIT TEST
0002E2  9A0A                345         JAL   R5TST,R2               BRANCH TO ISSUE TEST
0002E4  4020 05FA 05EE      346         MVA   TST6,TSTAD             LOAD DATA POINTER FOR 6 BIT TEST
0002EA  9A06                347         JAL   R5TST,R2               BRANCH TO ISSUE TEST
0002EC  4020 05FA 05F4      348         MVA   TST5,TSTAD             LOAD DATA POINTER FOR 5 BIT TEST
0002F2  9A02                349         JAL   R5TST,R2               BRANCH TO ISSUE TEST
0002F4  6802 0098           350         B     $PUPD                  BRANCH TO CONTINUE
0002F8  4029 000C 0001      351 R5TST   AWI   1,$CKPT                BUMP CHECKPOINT
0002FE  6908 05FA           352         MVW   TSTAD,R1               LOAD DATA ADDRESS INTO R1
000302  7921 0002           353         AWI   2,R1                   BUMP DATA ADDRESS
000306  8908 0388           354         MVW   (R1),CRDCB+4           LOAD DATA WORD 2 INTO DCB
```



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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
00030A  4020 0386 6000      355         MVWI  X'6000',CRDCB+2        INIT DCB FUNCTION
000310  6E03 041A           356         BAL   XIOCR,R6               ISSUE RAS TEST DCB
000314  CB25 0388           357         MVWZ  CRDCB+4,R3             ZERO DCB WORD
000318  8839 05FA 0386      358         OW    TSTAD+1,CRDCB+2        OR IN DATA WORD ONE
00031E  8839 0386 0080      359         OWI   X'0080',CRDCB+2        TURN ON SELECTED BIT
000324  6E03 041A           360         BAL   XIOCR,R6               BRANCH TO ISSUE I/O
000328  7921 0002           361         AWI   2,R1                   BUMP DATA POINTER
00032C  890B 073C           362         CW    (R1),DRBUF+2           COMPARE RECEIVED DATA VS. EXPECTED
000330  1802                363         JNE   RT05E                  BRANCH IF ERROR
000332  6842 0000           364         B     (R2)                   RETURN
000336  8908 001E           365 RT05E   MVW   (R1),DEV3              MOVE EXPECTED DATA INTO DEV3
00033A  8828 073C 0020      366         MVW   DRBUF+2,DEV4           MOVE RECEIVED DATA INTO DEV4
000340  6802 05A2           367         B     $PRNT                  BRANCH TO PRINT ERROR
000344  4020 001E 2310      368 RT5E1   MVWI  X'2310',DEV3           LOAD EXPECTED RESULTS
00034A  8828 073A 0020      369         MVW   DRBUF,DEV4             LOAD RECEIVED RESULTS
000350  6802 05A2           370         B     $PRNT                  BRANCH TO PRINT ERROR
                            372 *
                            373 *                    DIAGNOSTIC CONTROL BLOCK
                            374 *
000354                      375 DRDCB   EQU   *
000354  2000                376         DC    X'2000'
000356  4F00                377         DC    X'4F00'
000358  0000                378         DC    X'0000'
00035A  0000                379         DC    X'0000'
00035C  0000                380         DC    X'0000'
00035E  0000                381         DC    X'0000'
000360  0008                382         DC    X'0008'
000362  073A                383         DC    A(DRBUF)
                            384 *
                            385 *                    CYCLE STEAL DATA CONTROL BLOCK
                            386 *
000364                      387 CSDCB   EQU   *
000364  2000                388         DC    X'2000'
000366  0000                389         DC    X'0000'
000368  0000                390         DC    X'0000'
00036A  0000                391         DC    X'0000'
00036C  0000                392         DC    X'0000'
00036E  0000                393         DC    X'0000'
000370  000A                394         DC    X'000A'
000372  0032                395         DC    A(CSBUF)
                            396 *
                            397 *                    READ CHECKSUM DATA CONTROL BLOCK
                            398 *
000374                      399 DGDCB   EQU   *
000374  2000                400         DC    X'2000'
000376  2000                401         DC    X'2000'
000378  0000                402         DC    X'0000'
00037A  0000                403         DC    X'0000'
00037C  0000                404         DC    X'0000'
00037E  0000                405         DC    X'0000'
000380  0014                406         DC    X'0014'
000382  073A                407         DC    A(DRBUF)
                            408 *
                            409 *                    ISSUE RAS TEST DATA CONTROL BLOCK
                            410 *
000384                      411 CRDCB   EQU   *
000384  2000                412         DC    X'2000'
000386  6000                413         DC    X'6000'
000388  0000                414         DC    X'0000'
00038A  0000                415         DC    X'0000'
00038C  0000                416         DC    X'0000'
00038E  0000                417         DC    X'0000'
000390  0008                418         DC    X'0008'
000392  073A                419         DC    A(DRBUF)
                            421 *
                            422 *                    READ CONTROL STORAGE DATA CONTROL BLOCK
                            423 *
000394                      424 RDDCB   EQU   *
000394  2000                425         DC    X'2000'
000396  0100                426         DC    X'0100'
000398  9200                427         DC    X'9200'
00039A  0000                428         DC    X'0000'
00039C  0000                429         DC    X'0000'
00039E  0000                430         DC    X'0000'
0003A0  0100                431         DC    X'0100'
0003A2  073A                432         DC    A(DRBUF)
                            433 *
                            434 *                    WRITE SCAN TABLE CONTROL BLOCK
                            435 *
0003A4                      436 SCDCB   EQU   *
0003A4  0000                437         DC    X'0000'
0003A6  0000                438         DC    X'0000'
0003A8  0000                439         DC    X'0000'
0003AA  0000                440         DC    X'0000'
0003AC  0000                441         DC    X'0000'
0003AE  0000                442         DC    X'0000'
0003B0  0020                443         DC    X'0020'
0003B2  05FE                444         DC    A(SCNTB)
                            445 *
                            446 *                    WRITE MLOAD CONTROL BLOCK
                            447 *
0003B4                      448 WTDCB   EQU   *
0003B4  0000                449         DC    X'0000'
0003B6  0300                450         DC    X'0300'
0003B8  0000                451         DC    X'0000'
0003BA  0000                452         DC    X'0000'
0003BC  0000                453         DC    X'0000'
0003BE  0000                454         DC    X'0000'
0003C0  0100                455         DC    X'0100'
0003C2  061E                456         DC    A(MLOAD)
                            457 *
                            458 *                    WRITE MLOAD CRC CONTROL BLOCK
                            459 *
0003C4                      460 WRDCB   EQU   *
0003C4  0000                461         DC    X'0000'
0003C6  0300                462         DC    X'0300'
0003C8  0000                463         DC    X'0000'
0003CA  0000                464         DC    X'0000'
0003CC  0000                465         DC    X'0000'
0003CE  0000                466         DC    X'0000'
0003D0  016E                467         DC    A(CRCTE-CRCTB)
0003D2  083A                468         DC    A(CRCTB)
                            470 ********************************************************************
                            471 *     ISSUE ALL I/O COMMANDS FROM A COMMON SUBROUTINE              *
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

                           472 *     TO DISPLAY INSTRUCTIONS AND OPERATING PROCEDURES TO THE OPERATOR*
                           473 *     AND SET UP ANY REQUIREMENTS FOR OTHER I/O COMMANDS              *
                           474 *                                                                     *
                           475 * --> BAL   XIODG,R6              XEQ DIAG. MOD = D COMMAND          *
                           476 * --> BAL   XIODR,R6              XEQ DIAG. MOD = D COMMAND          *
                           477 * --> BAL   XIOSC,R6              XEQ DIAG. MOD = 8 COMMAND          *
                           478 * --> BAL   XIOWT,R6              XEQ DIAG. MOD = 6 COMMAND          *
                           479 * --> BAL   XIORD,R6              XEQ DIAG. MOD = A COMMAND          *
                           480 * --> BAL   XIOCR,R6              XEQ DIAG. MOD = D COMMAND          *
                           481 * --> BAL   XIOWR,R6              XEQ DIAG. MOD = 6 COMMAND          *
                           482 *                                                                     *
                           483 ***************************************************************************
0003D4  4020 0558 0374     484 XIODG MVA   DGDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
0003DA  4020 055A 000D     485       MVWI  X'0D',IOMOD          MOVE MODIFIER INTO CONTROL BLOCK
0003E0  5036               486       J     XIO1                 BRANCH
0003E2  4020 0558 0354     487 XIODR MVA   DRDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
0003E8  4020 055A 000D     488       MVWI  X'0D',IOMOD          MOVE MODIFIER INTO CONTROL BLOCK
0003EE  502F               489       J     XIO1                 BRANCH
0003F0  4020 0558 03A4     490 XIOSC MVA   SCDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
0003F6  4020 055A 0008     491       MVWI  X'08',IOMOD          MOVE MODIFIER INTO CONTROL BLOCK
0003FC  5028               492       J     XIO1                 BRANCH
0003FE  4020 0558 03B4     493 XIOWT MVA   WTDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
000404  4020 055A 0006     494       MVWI  X'06',IOMOD          MOVE MODIFIER INTO CONTROL BLOCK
00040A  5021               495       J     XIO1                 BRANCH
00040C  4020 0558 0394     496 XIORD MVA   RDDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
000412  4020 055A 000A     497       MVWI  X'0A',IOMOD          MOVE MODIFIER INTO CONTROL BLOCK
000418  501A               498       J     XIO1                 BRANCH
00041A  4020 0558 0384     499 XIOCR MVA   CRDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
000420  4020 055A 000D     500       MVWI  X'0D',IOMOD          MOVE MODIFIER INTO CONTROL BLOCK
000426  5013               501       J     XIO1                 BRANCH
000428  4020 0558 03C4     502 XIOWR MVA   WRDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
00042E  4020 055A 0006     503       MVWI  X'06',IOMOD          MOVE MODIFIER INTO CONTROL BLOCK
000434  500C               504       J     XIO1                 BRANCH
                           505 ***************************************************************************
                           506 *                                                                     *
                           507 * SOUBROUTINE                                                        *
                           508 *                                                                     *
                           509 *     EXECUTE INPUT AND OUTPUT COMMANDS                               *
                           510 *                                                                     *
                           511 * PURPOSE                                                            *
                           512 *                                                                     *
                           513 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.                *
                           514 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:                *
                           515 *                                                                     *
                           516 *     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED *
                           517 *        THE I/O COMMAND.                                             *
                           518 *     2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS   *
                           519 *        ISSUED BY THIS SUBROUTINE.                                   *
                           520 *     3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE          *
                           521 *        START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.            *
                           522 *     4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT  *
                           523 *        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND, *
                           524 *        MYSTERY INTERRUPT (MI) CONTROL IS SET.                       *
                           525 *     5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE    *
                           526 *        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'.   *
                           527 *     6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING *
                           528 *        STARTS TO DETERMINE A LOST INTERRUPT.                        *
                           529 *     7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF  *
                           530 *        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.       *
                           531 *     8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.                  *
                           532 *     9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.      *
                           533 *    10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.        *
                           534 *    11. CHECK IS A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS    *
                           535 *        ISSUED BY THIS SUBROUTINE.                                   *
                           536 *     12. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A     *
                           537 *        CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON,*
                           538 *        COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.  *
                           539 *                                                                     *
                           540 * CALLING SEQUENCE                                                   *
                           541 *                                                                     *
                           542 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                         *
                           543 *                                                                     *
                           544 * --> B     XIO                    XEQ ANY CYCLE STEAL COMMAND, MOD=0 *
                           545 * --> BAL   XIOCS,R6               XEQ START CYCLE STEAL STATUS, MOD=F *
                           546 *                                                                     *
                           547 * RETURN CONTROL                                                     *
                           548 *                                                                     *
                           549 *     BXS   (R6)                   RETURN TO USER NO ERROR            *
                           550 ***************************************************************************
                           551       TBTR  (R4,CE)              RESET CS STATUS INTER ERROR INDICAT.
                           552       TBTS  (R4,CS)              SET 'CYCLE STEAL STATUS' IN PROGRESS
0003A  4020 0558 0364      553 XIOCS MVA   CSDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
000440  4020 055A 000F     554       MVWI  X'000F',IOMOD        SET CYCLE STEAL MODIFIER
000446  4C27               555       TBT   (R4,CS)              IS CS IN PROGRESS, ERROR CONDITION
000448  1216               556       JON   XIO2                 * YES, BYPASS SAVING I/O ADRS
00044A  4C23               557       TBT   (R4,IN)              TEST FOR INTERRUPT
00044C  125F               558       JON   XIOCK                BRANCH IF YES
00044E  6E0D 0018          559 XIO1  MVW   R6,LSTIO             SAVE IAR FOR RETRY IF REQUESTED
000452  402E 0018 0004     560       SW    4,LSTIO              DECREMENT FOR LAS INSTRUCTION
000458  4324 0000          561       MVA   $PID,R3              LOAD ADDRESS OF PROGRAM START
00045C  CB2F 0018          562       SW    R3,LSTIO             SUB TO OBTAIN LISTING ADDRESS
000460  4324 0022          563       MVA   DCBUF,R3             SET UP TO ADRS TO MOVE DCB TABLE
000464  6D08 0558          564       MVW   IODCB,R5             * AND THE FROM ADRS, ALONG WITH
000468  0F10               565       MVBI  16,R7                * THE NUMBER OF MOVES
00046A  2D64               566       MVFN  (R5),(R3)            MOVE 1 STATUS WORD AND ADJUST
00046C  0BFF               567       MVBI  255,R3               CLEAR CYCLE STATUS BUFFER
00046E  4524 0032          568       MVA   CSBUF,R5             *  TO ALL ONES  *
000472  0F10               569       MVBI  16,R7                *
000474  2BAC               570       FFN   R3,(R5)              *
000476  4CA3               571 XIO2  TBTR  (R4,IN)              CLEAR INTERRUPT RECEIVED CNTL BIT
000478  1249               572       JON   XIOCK                BRANCH IF ON
00047A  4724 0554          573       MVA   IOBLK,R7             SET UP CONTROL BLOCK FOR SUPVR
00047E  802B 0232 0060     574       CB    CPUTYPE,TYPE23       CHECK FOR PROCESSOR 23
000484  1803               575       JNE   XIO5                 BRANCH NOT EQUAL
000486  4524 0000          576       MVWI  X'0000',R5           LOAD LOOP COUNT
00048A  5001               577       J     XIO6                 BRANCH
00048C  75AA               578 XIO5  SW    R5,R5                LOAD LOOP COUNT
00048E  4C62               579 XIO6  TBTS  (R4,XI)              SET EXPECTED INTR CONTROL BIT
000490  600A               580       SVC   START                CALL SUPVR FOR I/O COMMAND
000492  6002               581 XIO8  SVC   IDLE                 ALLOW OTHER PROG TIME
000494  4C03               582       TBT   (R4,TM)              IS TERMINATE BIT ON
000496  6A00 00A0          583       BON   $TERM                BRANCH IF ON
00049A  4CA3               584       TBTR  (R4,IN)              HAS INTERRUPT BEEN RECEIVED
00049C  1237               585       JON   XIOCK                * YES, CHECK IF ALL WAS SATISFACTORY
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

00049E  7DA1 0001          586       AWI   1,R5                 ADVANCE TIME OUT COUNT
0004A2  18F7               587       JNZ   XIO8                 BCH IF TIME OUT NOT REACHED
0004A4  4C61               588       TBTS  (R4,ER)              SET ON ERROR CONTROL BIT
0004A6  4C66               589       TBTS  (R4,LI)              SET LOST INTERRUPT CONTROL BIT
0004A8  6802 05A2          590       B     $PRNT                * BCH TO FINISH ERROR SEQUENCE
                           591 ***************************************************************************
                           592 *                                                                     *
                           593 * SUBROUTINE                                                        *
                           594 *                                                                     *
                           595 *     I/O EXECUTE ERROR HANDLING ROUTINE                              *
                           596 *                                                                     *
                           597 * PURPOSE                                                            *
                           598 *                                                                     *
                           599 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE     *
                           600 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE   *
                           601 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                             *
                           602 *                                                                     *
                           603 * CALLING SEQUENCE                                                   *
                           604 *                                                                     *
                           605 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND         *
                           606 *                                                                     *
                           607 * RETURN CONTROL                                                     *
                           608 *                                                                     *
                           609 *     B     $PRNT                  DUMP STATUS BEFORE TERMINATION     *
                           610 *                                                                     *
                           611 ***************************************************************************
0004AC  706E               612 XIOER CPLSR R3                   SAVE CONDITION CODE ON I/O ERROR
0004AE  336A               613       SRL   13,R3                POSITION CC CODE TO BITS 13-15
0004B0  C328 0014          614       MVB   R3,$IOIN             * PUT IN LOG OUT AREA
0004B4  6802 05A2          615       B     $PRNT                BRANCH TO PRINT ERROR
                           616 ***************************************************************************
                           617 *                                                                     *
                           618 * SOUBROUTINE                                                        *
                           619 *                                                                     *
                           620 *     ERROR INTERRUPT            RUNS ON INTERRUPT LEVEL '$INTL'      *
                           621 *                                                                     *
                           622 * PURPOSE                                                            *
                           623 *                                                                     *
                           624 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR    *
                           625 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE      *
                           626 *     EXPECTED CODE.                                                  *
                           627 *                                                                     *
                           628 * CALLING SEQUENCE                                                   *
                           629 *                                                                     *
                           630 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT       *
                           631 *                                                                     *
                           632 * RETURN CONTROL                                                     *
                           633 *                                                                     *
                           634 *     SVC   EXIT                 RETURN TO USER VIA SUPVR             *
                           635 *                                                                     *
                           636 ***************************************************************************
0004B8  706E               637 INTER CPLSR R3                   SAVE INDICATORS
0004BA  336A               638       SRL   13,R3                POSITION INDICATORS IN R3
0004BC  4424 000E          639       MVA   OPTN1,R4             SET UP BASE ADRS
0004C0  4C27               640       TBT   (R4,CS)              IS CS IN PROGRESS
0004C2  1006               641       JOFF  INTET                * NO
0004C4  4C68               642       TBTS  (R4,CE)              TURN ON CYCLE STEAL INTER ERROR
0004C6  6F0D 0040          643       MVW   R7,CSTL8             SAVE CS ERR ISB VALUE, BITS 0-7
0004CA  C328 0041          644       MVB   R3,CSTL8+1           * AND THE COND CODE
0004CE  5009               645       J     INTR1                BRANCH
0004D0  4C61               646 INTET TBTS  (R4,ER)             SET ERROR ON I/O COMMAND CNTL BIT
0004D2  5007               647       J     INTR1                BRANCH
                           648 ***************************************************************************
                           649 *                                                                     *
                           650 * SOUBROUTINE                                                        *
                           651 *                                                                     *
                           652 *     OKAY  INTERRUPT            RUNS ON INTERRUPT LEVEL '$INTL'      *
                           653 *                                                                     *
                           654 * PURPOSE                                                            *
                           655 *                                                                     *
                           656 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                    *
                           657 *                                                                     *
                           658 * CALLING SEQUENCE                                                   *
                           659 *                                                                     *
                           660 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED          *
                           661 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE         *
                           662 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE              *
                           663 *     COMMON SECTION IS HANDLED HERE.                                 *
                           664 *                                                                     *
                           665 * RETURN CONTROL                                                     *
                           666 *                                                                     *
                           667 *     SVC   EXIT                 RETURN TO USER VIA SUPVR             *
                           668 *                                                                     *
                           669 ***************************************************************************
0004D4  706E               670 INTOK CPLSR R3                   SAVE INDICATORS
0004D6  336A               671       SRL   13,R3                POSITION INDICATORS IN R3
0004D8  4424 000E          672       MVA   OPTN1,R4             SET UP BASE ADRS
0004DC  4C24               673       TBT   (R4,XE)              TEST EXPECTED ERROR BIT
0004DE  1001               674       JOFF  INTR1                BRANCH IF OFF
0004E0  4C69               675       TBTS  (R4,GI)              SET GOOD INTERRUPT BIT
0004E2  4C63               676 INTR1 TBTS  (R4,IN)              SET   INTERRUPT RECEIVED
0004E4  4C27               677       TBT   (R4,CS)              IS 'CS IN PROGRESS' ON
0004E6  1204               678       JON   INTR2                * YES, BCH AROUND UPDATE
0004E8  C328 0015          679       MVB   R3,$IOIN+1           SAVE INTERRUPTING CC CODE
0004EC  6F0D 0016          680       MVW   R7,$ISB              SAVE INTR STATUS AND DEV ADRS
0004F0  78B9               681 INTR2 CPCL  R5                   COPY INTERRUPT LEVEL TO CHECK
0004F2  3521               682       SLL   4,R5                 POSITION INTR LEVEL AND PUT
0004F4  0501               683       ABI   1,R5                 * IN 'II' BIT
0004F6  CD24 0056          684       CW    $INTL,R5             IS THIS THE CORRECT INTR LEVEL
0004FA  1004               685       JE    INTR3                * YES, GO EXIT THIS LEVEL
0004FC  3521               686       SLL   4,R5                 POSITION RECEIVED LEVEL
0004FE  6D0D 0020          687       MVW   R5,DEV3+2            STORE INTO DEV4
000502  4C65               688       TBTS  (R4,LE)              SET INTR LEVEL ERROR CONTROL BIT
000504  4CA2               689 INTR3 TBTR  (R4,XI)              WAS INTERRUPT EXPECTED
000506  1201               690       JON   INTRX                * YES,  EXIT OFF THIS INTR LEVEL
000508  4C60               691       TBTS  (R4,MI)              * NO, SET MYSTERY INTR CONTROL BIT
00050A  6006               692 INTRX SVC   EXIT                EXIT THIS LEVEL VIA SUPVR TO PGM
                           693 ***************************************************************************
                           694 *
                           695 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                           696 *     HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN
                           697 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
                           698 *
                           699 ***************************************************************************
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00050C  4C20                706 XIOCK TBT   (R4,MI)              WAS THERE AN UNEXPECTED INTERRUPT
00050E  1214                707       JON   XIOCU               BRANCH IF YES
000510  4C25                708       TBT   (R4,LE)             WAS AN INTR LEVEL ERROR FOUND
000512  1002                709       JOFF  XIOCM               * NO, CONTINUE CHECKING
000514  4C61                710       TBTS  (R4,ER)             SET ERROR CONTROL BIT ON
000516  5010                711       J     XIOCU               BRANCH
000518  4CAA                712 XIOCM TBTR  (R4,PE)             WAS A PROBABLE ERROR EXPECTED
00051A  6AC0 0000           713       BON   (R6)                BRANCH YES
00051E  4C24                714       TBT   (R4,XE)             WAS AN ERROR EXPECTED
000520  1211                715       JN    XIOGI               * YES, BRANCH
000522  4C27                716       TBT   (R4,CS)             WAS AUTO CS IN PROGRESS
000524  1005                717       JOFF  XIOCV               * NO, CONTINUE CHECKING
000526  4C28                718       TBT   (R4,CE)             IS CS IN AN ERR CONDITION
000528  6800 054C           719       BOFF  CSRTN               * NO, BCH
00052C  6802 05A2           720       B     $PRNT               GO LOG CS ERROR
000530  4C21                721 XIOCV TBT   (R4,ER)             WAS ERROR INTR CONTROL BIT ON
000532  1004                722       JOFF  XIOCX               * NO, EXIT THIS ROUTINE
000534  6802 0436           723 XIOCQ B     XIOCS-4             * AVAILABLE, GO AND GET IT
000538  6802 05A2           724 XIOCU B     $PRNT               PRINT ERROR
00053C  CB25 0012           725 XIOCX MVWZ  OPTN3,R3            CLEAR OUT OPTION 3 CNTL BITS
000540  68C2 0000           726       B     (R6)                RETURN TO USER VIA REG 6
000544  4C29                727 XIOGI TBT   (R4,GI)             WAS A GOOD INTERRUPT RECEIVED
000546  12F8                728       JON   XIOCU               YES BRANCH
000548  68C2 0000           729       B     (R6)                RETURN
00054C  4C21                730 CSRTN TBT   (R4,ER)             TEST FOR ERROR
00054E  6A00 05A2           731       BON   $PRNT               BRANCH IF YES
000552  5600                732       BXS   (R6)                RETURN
                            733 *
                            734 *           I/O   PARAMETER LIST
                            735 *
000554  004C                736 IOBLK DC    A($DVAD)            ADRS OF DEVICE ADRS
000556  04AC                737 IOERR DC    A(XIOER)            ERROR ROUTINE ADRS
000558  0000                738 IODCB DC    A(*-*)              DCB ADRS OR LEVEL & INTR
00055A  0000                739 IOMOD DC    A(*-*)              MODIFIER
00055C  0000                740       DC    A(*-*)              ADRS OF LAST SVC CALL
00055E  0000                741 IORSP DC    A(*-*)              SECOND WORD OF LAST IDCB
                            742 *
                            743 *           INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                            744 *
000560  004C                745 INTBL DC    A($DVAD)            ADRS OF DEVICE ADRS
000562  04D4                746 INT01 DC    A(INTOK)            INTERRUPT OK RETURN ADRS
000564  04B8                747 INT02 DC    A(INTER)            INTERRUPT ERROR ADRS
000566  0003                748 INTCC DC    X'0003'             INTERRUPT CODE EXPECTED
                            749 ********************************************************************
                            750 *                                                                  *
                            751 * SUBROUTINE                                                       *
                            752 *                                                                  *
                            753 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE             *
                            754 *                                                                  *
                            755 * PURPOSE                                                          *
                            756 *                                                                  *
                            757 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND    *
                            758 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE*
                            759 *     TO INTERRUPT.                                                *
                            760 *                                                                  *
                            761 * CALLING SEQUENCE                                                 *
                            762 *                                                                  *
                            763 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                   *
                            764 *                                                                  *
                            765 * --> BAL   $CONC,R6              CLEAR DEV DEP STG AND CONNECT I/O SLK
                            766 * --> BAL   $CONR,R6              BCH TO CONNECT                   *
                            767 * --> BAL   $CONP,R6              PREPARE DEVICE ONLY              *
                            768 *                                                                  *
                            769 * RETURN CONTROL                                                   *
                            770 *                                                                  *
                            771 *     BXS   (R6)                  RETURN TO USER VIA REG 6         *
                            772 *                                                                  *
                            773 ********************************************************************
000568                      774 $CONR EQU   *
000568  4724 0560           775       MVA   INTBL,R7              SET R7 TO CONTROL BLOCK AND
00056C  6014                776       SVC   CICB                  * CONNECT IT TO THIS DEVICE
00056E  68C2 0000           777       B     (R6)                  RETURN
000572                      778 $CONC EQU   *
000572  CB25 0012           779       MVWZ  OPTN3,R3              CLEAR OLD CONTROLS FOR NEW ROUTINE
000576  8828 0056 0558      780 $CONP MVW   $INTL,IODCB           PUT IN LEVEL & INTR PARAMETER
00057C  4724 0554           781       MVA   IOBLK,R7              SET R7 TO CONTROL BLOCK TO PREPARE
000580  4020 0014 07FF      782       MVWI  X'07FF',$IOIN         INITIALIZE CONDITION CODE STORAGE
000586  CB25 0016           783       MVWZ  $ISB,R3               * AND CLEAR OLD ISB VALUE
00058A  6E0D 0018           784       MVW   R6,LSTIO              SET UP ADDRESS THAT STARTED LAST I/O
00058E  402E 0018 0004      785       SWI   4,LSTIO               DECREMENT TO POINT AT INSTRUCTION
000594  4324 0000           786       MVA   $PID,R3               LOAD ADDRESS OF START OF PROG
000598  CB2F 0018           787       SW    R3,LSTIO              SUB TO OBTAIN LISTING ADDRESS
00059C  600C                788       SVC   PREP                  * AND CALL ON SUPVR
00059E  68C2 0000           789       B     (R6)                  RETURN
                            790 ********************************************************************
                            791 *                   COMMON PRINT ERROR INTERFACE ROUTINE           *
                            792 *                                                                  *
                            793 * ----> R6         LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE  *
                            794 *                   BRANCH IS TAKEN TO PRINT THE ERROR             *
                            795 * ----> R4         LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE  *
                            796 *                   BRANCH IS TAKEN TO PRINT THE ERROR             *
                            797 * ----> R3         LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE       *
                            798 *                   BRANCH IS TAKEN TO PRINT THE ERROR             *
                            799 * ----> PRNTRTN THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST ) *
                            800 *                   POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                            801 *                   WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN     *
                            802 *                                                                  *
                            803 ********************************************************************
0005A2  4624 0012           804 $PRNT MVA   OPTN3,R6              LOAD ADDRESS OF OPTION WORD THREE
0005A6  6D08 181E           805       MVW   PRNTRTN,R5            LOAD ADDRESS OF COMMON PRNT ROUTINE
0005AA  4424 0000           806       MVA   $PID,R4               LOAD ADDRESS OF START OF PROG
0005AE  4324 0042           807       MVA   PCTR,R3               LOAD ADDRESS OF PASS COUNTER
0005B2  6FA3 0000           808       BAL   (R5),R7               BRANCH TO COMMON PRINT ROUTINE
0005B6  CE25 0012           809       MVWZ  OPTN3,R6              ZERO OUT ALL FLAGS
0005BA  4424 000E           810       MVA   OPTN1,R4              LOAD BASE ADDRESS FOR INDICATORS
0005BE  802B 0232 0060      811       CB    CPUTYPE,TYPE23        IS THIS A TYPE 23 PROCESSOR
0005C4  1803                812       JNE   $PRN2                 BRANCH IF NO
0005C6  4524 E000           813       MVWI  X'E000',R5            INIT LOOP COUNTER
0005CA  5002                814       J     $PRN1                 BRANCH
0005CC  4524 8000           815 $PRN2 MVWI  X'8000',R5            INIT LOOP COUNTER
0005D0  6002                816 $PRN1 SVC   IDLE                  DELAY
0005D2  4C03                817       TBT   (R4,TM)               SHOULD PROG TERMINATE
0005D4  6A00 00A0           818       BON   $TERM                 BRANCH YES
0005D8  7DA1 0001           819       AWI   1,R5                  INCREMENT LOOP COUNTER
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
0005DC  18F9                820       JNZ   $PRN1                BRANCH NOT ZERO
0005DE  6802 0082           821       B     $PENT                 BRANCH TO RESTART FROM BEGINING
                            822 ********************************************************************
                            823 ********************************************************************
0005E2  0000800509D7        824 TST8  DC    X'0000800509D7'
0005E8  0002C2000040        825 TST7  DC    X'0002C2000040'
0005EE  000110400 2AA       826 TST6  DC    X'000110400 2AA'
0005F4  000388000013        827 TST5  DC    X'000388000013'
0005FA  0000                828 TSTAD DC    A(*-*)
0005FC  0000                829 TST@  DC    A(*-*)
0005FE  000102030405060 70  830 SCNTB DC    X'000102030405060 70809'
000608  0A0B0C0D0E0F        831       DC    X'0A0B0C0D0E0F'
00060E  10111213141516171   832       DC    X'10111213141516171819'
000618  1A1B1C1D1E1F        833       DC    X'1A1B1C1D1E1F'
00061E  00000000000000000   834 MLOAD DC    X'00000000000000000000000000'
00062A  000100020003000400  835       DC    X'000100020003000400050006'
000636  000700080009000A0   836       DC    X'000700080009000A000B000C'
000642  000D000E000F00100   837       DC    X'000D000E000F001000200030'
00064E  004000500060007 00  838       DC    X'004000500060007000800090'
00065A  00A000B000C000D00   839       DC    X'00A000B000C000D000E000F0'
000666  010002000300040005 839       DC    X'010002000300040005000600'
000672  070008000900A000   840       DC    X'070008000900A000B000C00'
00067E  0D000E000F0010002   841       DC    X'0D000E000F00100020003000'
00068A  400050006000700 08  842       DC    X'400050006000700080009000'
000696  A000B000C000D000E   843       DC    X'A000B000C000D000E000F000'
0006A2  000011111222233334  844       DC    X'000011111222233334444555 5'
0006AE  666677777888899999A 845       DC    X'666677777888899999AAAABBBB'
0006BA  CCCCDDDDEEEEFFFF    846       DC    X'CCCCDDDDEEEEFFFF'
0006C2  C1C2C3C4C5C6C7C8C   847       DC    C'ABCDEFGHIJKLMNOPQRSTUVWXYZ  '
0006DE  01234567 89ABCDEF0  848       DC    X'0123456789ABCDEF00011111'
0006EA  222233334444555 56  849       DC    X'22223333444455555666677777'
0006F6  88889999AAAABBBBC   850       DC    X'88889999AAAABBBBCCCCDDDD'
000702  EEEEFFFF            851       DC    X'EEEEFFFF'
000706  C1C2C3C4C5C6C7C8C   852       DC    C'ABCDEFGHIJKLMNOPQRSTUVWXYZ  '
000722  01234567 89ABCDEF9  853       DC    X'0123456789ABCDEF9300FFFF'
00072E  00005555AAAAACCCC3  854       DC    X'00005555AAAAACCCC3333FFFF'
00073A  4040404040404040    855 DRBUF DC    CL128' '                  MAXIMUM READ BUFFER
00083A  00000000000000000   856 CRCTB DC    X'00000000000000000000000000'
000846  00000000000000000   857       DC    X'00000000000000000000000000'
000852  00000000000000000   858       DC    X'00000000000000000000000000'
00085E  00000000000000000   859       DC    X'00000000000000000000000000'
00086A  00000000000000000   860       DC    X'00000000000000000000000000'
000876  00000000000000000   861       DC    X'00000000000000000000000000'
000882  00000000000000000   862       DC    X'00000000000000000000000000'
00088E  00000000000000000   863       DC    X'00000000000000000000000000'
00089A  00000000000000000   864       DC    X'00000000000000000000000000'
0008A6  00000000000000000   865       DC    X'00000000000000000000000000'
0008B2  0000000000000000D   866       DC    X'0000000000000000D2A7C900'
0008BE  D343928E9294929A9   867       DC    X'D343928E9294929A92A005FA'
0008CA  50C369BD053A10032   868       DC    X'50C369BD053A1003293D057A'
0008D6  5043693D051A10030   869       DC    X'5043693D051A1003091D4200'
0008E2  8A7302FD02EC498DE   870       DC    X'8A7302FD02EC498DE2C18A74'
0008EE  7820E32E8A757821E   871       DC    X'7820E32E8A757821E32ED31D'
0008FA  498CF2D28A7A7822E   872       DC    X'498CF2D28A7A7822E32E8A75'
000906  7823E32ED2D77826E   873       DC    X'7823E32ED2D77826E32E8A73'
000912  420F483E782BE32E5   874       DC    X'420F483E782BE32E529F522E'
00091E  528D526C00EE01FF2   875       DC    X'528D526C00EE01FF20EC21FD'
00092A  8BDC89BA22CE22BD2   876       DC    X'8BDC89BA22CE22BD22AC8BBA'
000936  8BFE7827E32E441A4   877       DC    X'8BFE7827E32E441A450AE2FD'
000942  7825E32E683002FD0   878       DC    X'7825E32E683002FD02EC7824'
00094E  E32E683002FB02EA4   879       DC    X'E32E683002FB02EA42094208'
00095A  420742064223423 24  880       DC    X'420742064223423242115 23F'
000966  DFFD4264AA7668114   881       DC    X'DFFD4264AA766811491FF33E'
000972  4414E33342F08A76F   882       DC    X'4414E33342F08A76F001523F'
00097E  DFF700000000000000  883       DC    X'DFF700000000000000000000'
00098A  000000000000000000  884       DC    X'000000000000000000000000'
000996  000000000000000000  885       DC    X'000000000000000000000000'
0009A2  000000000000        886       DC    X'000000000000'
0009A8                      887 CRCTE EQU   *
                            888 TSTEN EQU   *
000082                      889       END   $PENT
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
0	.R1.	ABSOLUTE. HEX VALUE(00000001) 138 139 140 140 142 144 145 146 147 227 228 229 233 234 235 239 240 241 245 246 247 352 353 354 361 362 365
0	.R2.	ABSOLUTE. HEX VALUE(00000002) 264 267 270 273 281 343 345 347 349 364
0	.R3.	ABSOLUTE. HEX VALUE(00000003) 311 313 317 357 563 564 565 568 569 572 615 616 617 641 642 648 675 676 684 725 780 784 787 788 809
0	.R4.	ABSOLUTE. HEX VALUE(00000004) 152 153 315 553 554 557 559 573 581 584 586 590 591 643 644 646 650 677 678 680 681 682 693 694 696 706 708 710 712 714 716 718 721 727 730 808 812 819
0	.R5.	ABSOLUTE. HEX VALUE(00000005) 179 180 181 182 183 279 312 313 316 566 568 570 572 578 580 580 588 686 687 688 689 691 692 807 810 815 817 821
0	.R6.	ABSOLUTE. HEX VALUE(00000006) 151 178 184 185 206 210 220 225 226 261 276 293 295 304 306 308 327 329 333 336 339 356 360 561 713 726 729 732 778 785 790 806 811
0	.R7.	ABSOLUTE. HEX VALUE(00000007) 159 163 166 167 211 213 310 567 571 575 647 685 776 782 810
60	$CKPT	ADDRESS. HEX LOCATION(0000000C) IN CSECT(EE0E0) LENGTH(2) 179 221 275 294 305 307 309 328 332 338 351
779	$CONC	ADDRESS. HEX LOCATION(00000572) IN CSECT(EE0E0) LENGTH(1) 210 225 261 293 304 327
775	$CONR	ADDRESS. HEX LOCATION(00000568) IN CSECT(EE0E0) LENGTH(1) 206
124	$DVAD	ADDRESS. HEX LOCATION(0000004C) IN CSECT(EE0E0) LENGTH(2) 58 138 166 736 745
127	$DVID	ADDRESS. HEX LOCATION(00000058) IN CSECT(EE0E0) LENGTH(2) 147 215 218
126	$INTL	ADDRESS. HEX LOCATION(00000056) IN CSECT(EE0E0) LENGTH(2) 150 162 208 209 222 224 689 781
97	$IOIN	ADDRESS. HEX LOCATION(00000014) IN CSECT(EE0E0) LENGTH(2) 617 684 783
98	$ISB	ADDRESS. HEX LOCATION(00000016) IN CSECT(EE0E0) LENGTH(2) 685 784
128	$MXSL	ADDRESS. HEX LOCATION(0000005A) IN CSECT(EE0E0) LENGTH(2) 173
148	$PENT	ADDRESS. HEX LOCATION(00000082) IN CSECT(EE0E0) LENGTH(6) 174 189 823 895
138	$PEN1	ADDRESS. HEX LOCATION(00000062) IN CSECT(EE0E0) LENGTH(4) 57
144	$PEN2	ADDRESS. HEX LOCATION(00000074) IN CSECT(EE0E0) LENGTH(4) 141
147	$PEN3	ADDRESS. HEX LOCATION(0000007E) IN CSECT(EE0E0) LENGTH(4) 143
55	$PID	ADDRESS. HEX LOCATION(00000000) IN CSECT(EE0E0) LENGTH(4) 563 787 808
806	$PRNT	ADDRESS. HEX LOCATION(000005A2) IN CSECT(EE0E0) LENGTH(4) 219 232 238 244 250 285 318 367 370 592 618 720 724 731
818	$PRN1	ADDRESS. HEX LOCATION(000005D0) IN CSECT(EE0E0) LENGTH(2) 816 822
817	$PRN2	ADDRESS. HEX LOCATION(000005CC) IN CSECT(EE0E0) LENGTH(4) 814
152	$PUPD	ADDRESS. HEX LOCATION(00000098) IN CSECT(EE0E0) LENGTH(4) 251 274 296 314 350
172	$PUP8	ADDRESS. HEX LOCATION(000000D0) IN CSECT(EE0E0) LENGTH(6) 154
161	$RETI	ADDRESS. HEX LOCATION(000000AC) IN CSECT(EE0E0) LENGTH(6) 158
189	$RTAD	ADDRESS. HEX LOCATION(000000FC) IN CSECT(EE0E0) LENGTH(2) 185
59	$RTNE	ADDRESS. HEX LOCATION(0000000A) IN CSECT(EE0E0) LENGTH(2) 151 172 173 178
158	$TERM	ADDRESS. HEX LOCATION(000000A0) IN CSECT(EE0E0) LENGTH(6) 585 820
166	$TER1	ADDRESS. HEX LOCATION(000000C4) IN CSECT(EE0E0) LENGTH(4) 161
92	CE	ABSOLUTE. HEX VALUE(00000028) 553 646 718
38	CICB	ABSOLUTE. HEX VALUE(00000014) 777
51	CPUTYPE	ABSOLUTE. HEX VALUE(00000232) 576 813
861	CRCTB	ADDRESS. HEX LOCATION(0000083A) IN CSECT(EE0E0) LENGTH(12) 467 468
892	CRCTE	ADDRESS. HEX LOCATION(000009A8) IN CSECT(EE0E0) LENGTH(1) 467
411	CRDCB	ADDRESS. HEX LOCATION(00000384) IN CSECT(EE0E0) LENGTH(1) 330 331 336 337 354 355 357 358 359 499
91	CS	ABSOLUTE. HEX VALUE(00000027) 554 557 644 682 716
112	CSBUF	ADDRESS. HEX LOCATION(00000032) IN CSECT(EE0E0) LENGTH(1) 395 570
387	CSDCB	ADDRESS. HEX LOCATION(00000364) IN CSECT(EE0E0) LENGTH(1) 555
730	CSRTN	ADDRESS. HEX LOCATION(0000054C) IN CSECT(EE0E0) LENGTH(2) 719
120	CSTL8	ADDRESS. HEX LOCATION(00000040) IN CSECT(EE0E0) LENGTH(2) 647 648
104	DCBUF	ADDRESS. HEX LOCATION(00000022) IN CSECT(EE0E0) LENGTH(2) 565
100	DEV1	ADDRESS. HEX LOCATION(0000001A) IN CSECT(EE0E0) LENGTH(2) 180 284
101	DEV2	ADDRESS. HEX LOCATION(0000001C) IN CSECT(EE0E0) LENGTH(2) 181 282
102	DEV3	ADDRESS. HEX LOCATION(0000001E) IN CSECT(EE0E0) LENGTH(2) 182 218 231 237 243 249 283 365 368 692

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
103	DEV4	ADDRESS. HEX LOCATION(00000020) IN CSECT(EE0E0) LENGTH(2) 183 217 316 317 366 369
399	DGDCB	ADDRESS. HEX LOCATION(00000374) IN CSECT(EE0E0) LENGTH(1) 484
859	DRBUF	ADDRESS. HEX LOCATION(0000073A) IN CSECT(EE0E0) LENGTH(128) 227 228 231 233 234 237 239 240 243 245 246 249 277 279 282 283 311 334 340 362 366 369 383 407 419 432
375	DRDCB	ADDRESS. HEX LOCATION(00000354) IN CSECT(EE0E0) LENGTH(1) 207 262 265 268 271 487
36	EE0E0	CSECT. START(00000000) LENGTH(2472) ESDID(0) 36
85	ER	ABSOLUTE. HEX VALUE(00000021) 315 590 650 710 721 730
41	EXIT	ABSOLUTE. HEX VALUE(00000006) 697
93	GI	ABSOLUTE. HEX VALUE(00000029) 680 727
129	H0000	ADDRESS. HEX LOCATION(0000005C) IN CSECT(EE0E0) LENGTH(2) 149
130	H0001	ADDRESS. HEX LOCATION(0000005E) IN CSECT(EE0E0) LENGTH(2) 172
42	IDLE	ABSOLUTE. HEX VALUE(00000002) 583 818
87	IN	ABSOLUTE. HEX VALUE(00000023) 559 573 586 681
745	INTBL	ADDRESS. HEX LOCATION(00000560) IN CSECT(EE0E0) LENGTH(2) 776
641	INTER	ADDRESS. HEX LOCATION(000004B8) IN CSECT(EE0E0) LENGTH(2) 747
650	INTET	ADDRESS. HEX LOCATION(000004D0) IN CSECT(EE0E0) LENGTH(2) 645
675	INTOK	ADDRESS. HEX LOCATION(000004D4) IN CSECT(EE0E0) LENGTH(2) 746
697	INTRX	ADDRESS. HEX LOCATION(0000050A) IN CSECT(EE0E0) LENGTH(2) 695
681	INTR1	ADDRESS. HEX LOCATION(000004E2) IN CSECT(EE0E0) LENGTH(2) 649 651 679
686	INTR2	ADDRESS. HEX LOCATION(000004F0) IN CSECT(EE0E0) LENGTH(2) 683
694	INTR3	ADDRESS. HEX LOCATION(00000504) IN CSECT(EE0E0) LENGTH(2) 690
736	IOBLK	ADDRESS. HEX LOCATION(00000554) IN CSECT(EE0E0) LENGTH(2) 159 163 211 213 575 782
738	IODCB	ADDRESS. HEX LOCATION(00000558) IN CSECT(EE0E0) LENGTH(2) 162 164 484 487 490 493 496 499 502 555 566 781
737	IOERR	ADDRESS. HEX LOCATION(00000556) IN CSECT(EE0E0) LENGTH(2) 148 158 161
739	IOMOD	ADDRESS. HEX LOCATION(0000055A) IN CSECT(EE0E0) LENGTH(2) 485 488 491 494 497 500 503 556
741	IORSP	ADDRESS. HEX LOCATION(0000055E) IN CSECT(EE0E0) LENGTH(2) 215 217
209	ITST4	ADDRESS. HEX LOCATION(00000118) IN CSECT(EE0E0) LENGTH(6) 223
220	ITST5	ADDRESS. HEX LOCATION(00000146) IN CSECT(EE0E0) LENGTH(4) 216
251	ITST6	ADDRESS. HEX LOCATION(000001C6) IN CSECT(EE0E0) LENGTH(4) 248
245	ITST7	ADDRESS. HEX LOCATION(000001AE) IN CSECT(EE0E0) LENGTH(4) 242
239	ITST8	ADDRESS. HEX LOCATION(00000196) IN CSECT(EE0E0) LENGTH(4) 236
233	ITST9	ADDRESS. HEX LOCATION(0000017E) IN CSECT(EE0E0) LENGTH(4) 230
89	LE	ABSOLUTE. HEX VALUE(00000025) 693 708
90	LI	ABSOLUTE. HEX VALUE(00000026) 591
99	LSTIO	ADDRESS. HEX LOCATION(00000018) IN CSECT(EE0E0) LENGTH(2) 561 562 564 785 786 788
84	MI	ABSOLUTE. HEX VALUE(00000020) 696 706
837	MLOAD	ADDRESS. HEX LOCATION(0000061E) IN CSECT(EE0E0) LENGTH(12) 312 456
62	OPTN1	ADDRESS. HEX LOCATION(0000000E) IN CSECT(EE0E0) LENGTH(2) 152 643 677 812
72	OPTN3	ADDRESS. HEX LOCATION(00000012) IN CSECT(EE0E0) LENGTH(2) 725 780 806 811
121	PCTR	ADDRESS. HEX LOCATION(00000042) IN CSECT(EE0E0) LENGTH(2) 149 809
94	PE	ABSOLUTE. HEX VALUE(0000002A) 712
43	PREP	ABSOLUTE. HEX VALUE(0000000C) 165 789
50	PRNTRTN	ABSOLUTE. HEX VALUE(0000181E) 807
424	RDDCB	ADDRESS. HEX LOCATION(00000394) IN CSECT(EE0E0) LENGTH(1) 496
47	RESET	ABSOLUTE. HEX VALUE(00000008) 160 212
44	RICB	ABSOLUTE. HEX VALUE(00000013) 168
48	RID	ABSOLUTE. HEX VALUE(00000009) 214
206	RT01	ADDRESS. HEX LOCATION(00000108) IN CSECT(EE0E0) LENGTH(4) 190
261	RT02	ADDRESS. HEX LOCATION(000001CA) IN CSECT(EE0E0) LENGTH(4) 191
282	RT02E	ADDRESS. HEX LOCATION(00000226) IN CSECT(EE0E0) LENGTH(6) 278 280
293	RT03	ADDRESS. HEX LOCATION(0000023C) IN CSECT(EE0E0) LENGTH(4) 192
304	RT04	ADDRESS. HEX LOCATION(0000024E) IN CSECT(EE0E0) LENGTH(4) 193
327	RT05	ADDRESS. HEX LOCATION(0000028C) IN CSECT(EE0E0) LENGTH(4) 194
365	RT05E	ADDRESS. HEX LOCATION(00000336) IN CSECT(EE0E0) LENGTH(4) 363
368	RT5E1	ADDRESS. HEX LOCATION(00000344) IN CSECT(EE0E0) LENGTH(6) 335 341

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
   275    R2TST      ADDRESS. HEX LOCATION(0000020A) IN CSECT(EE0E0   ) LENGTH(6)
                     264   267   270   273
   351    R5TST      ADDRESS. HEX LOCATION(000002F8) IN CSECT(EE0E0   ) LENGTH(6)
                     343   345   347   349
   436    SCDCB      ADDRESS. HEX LOCATION(000003A4) IN CSECT(EE0E0   ) LENGTH(1)
                     490
   832    SCNTB      ADDRESS. HEX LOCATION(000005FE) IN CSECT(EE0E0   ) LENGTH(10)
                     444
    45    START      ABSOLUTE. HEX VALUE(0000000A)
                     582
    46    TERM       ABSOLUTE. HEX VALUE(00000007)
                     169
    66    TM         ABSOLUTE. HEX VALUE(00000003)
                     153   584   819
   831    TST#       ADDRESS. HEX LOCATION(000005FC) IN CSECT(EE0E0   ) LENGTH(2)
                     263   266   269   272   277   284
   830    TSTAD      ADDRESS. HEX LOCATION(000005FA) IN CSECT(EE0E0   ) LENGTH(2)
                     342   344   346   348   352   358
   829    TST5       ADDRESS. HEX LOCATION(000005F4) IN CSECT(EE0E0   ) LENGTH(6)
                     348
   828    TST6       ADDRESS. HEX LOCATION(000005EE) IN CSECT(EE0E0   ) LENGTH(6)
                     346
   827    TST7       ADDRESS. HEX LOCATION(000005E8) IN CSECT(EE0E0   ) LENGTH(6)
                     344
   826    TST8       ADDRESS. HEX LOCATION(000005E2) IN CSECT(EE0E0   ) LENGTH(6)
                     342
   131    TYPE23     ADDRESS. HEX LOCATION(00000060) IN CSECT(EE0E0   ) LENGTH(2)
                     576   813
   460    WRDCB      ADDRESS. HEX LOCATION(000003C4) IN CSECT(EE0E0   ) LENGTH(1)
                     502
   448    WTDCB      ADDRESS. HEX LOCATION(000003B4) IN CSECT(EE0E0   ) LENGTH(1)
                     493
    88    XE         ABSOLUTE. HEX VALUE(00000024)
                     678   714
    86    XI         ABSOLUTE. HEX VALUE(00000022)
                     581   694
   706    XIOCK      ADDRESS. HEX LOCATION(0000050C) IN CSECT(EE0E0   ) LENGTH(2)
                     560   574   587
   712    XIOCM      ADDRESS. HEX LOCATION(00000518) IN CSECT(EE0E0   ) LENGTH(2)
                     709
   499    XIOCR      ADDRESS. HEX LOCATION(0000041A) IN CSECT(EE0E0   ) LENGTH(6)
                     333   339   356   360
   555    XIOCS      ADDRESS. HEX LOCATION(0000043A) IN CSECT(EE0E0   ) LENGTH(6)
                     723
   724    XIOCU      ADDRESS. HEX LOCATION(00000538) IN CSECT(EE0E0   ) LENGTH(4)
                     707   711   728
   721    XIOCV      ADDRESS. HEX LOCATION(00000530) IN CSECT(EE0E0   ) LENGTH(2)
                     717
   725    XIOCX      ADDRESS. HEX LOCATION(0000053C) IN CSECT(EE0E0   ) LENGTH(4)
                     722
   484    XIODG      ADDRESS. HEX LOCATION(000003D4) IN CSECT(EE0E0   ) LENGTH(6)
                     226
   487    XIODR      ADDRESS. HEX LOCATION(000003E2) IN CSECT(EE0E0   ) LENGTH(6)
                     220   276
   615    XIOER      ADDRESS. HEX LOCATION(000004AC) IN CSECT(EE0E0   ) LENGTH(2)
                     148   737
   727    XIOGI      ADDRESS. HEX LOCATION(00000544) IN CSECT(EE0E0   ) LENGTH(2)
                     715
   496    XIORD      ADDRESS. HEX LOCATION(0000040C) IN CSECT(EE0E0   ) LENGTH(6)
                     308
   490    XIOSC      ADDRESS. HEX LOCATION(000003F0) IN CSECT(EE0E0   ) LENGTH(6)
                     295
   502    XIOWR      ADDRESS. HEX LOCATION(00000428) IN CSECT(EE0E0   ) LENGTH(6)
                     329
   493    XIOWT      ADDRESS. HEX LOCATION(000003FE) IN CSECT(EE0E0   ) LENGTH(6)
                     306
   561    XIO1       ADDRESS. HEX LOCATION(0000044E) IN CSECT(EE0E0   ) LENGTH(4)
                     486   489   492   495   498   501   504
   573    XIO2       ADDRESS. HEX LOCATION(00000476) IN CSECT(EE0E0   ) LENGTH(2)
                     558
   580    XIO5       ADDRESS. HEX LOCATION(0000048C) IN CSECT(EE0E0   ) LENGTH(2)
                     577
   581    XIO6       ADDRESS. HEX LOCATION(0000048E) IN CSECT(EE0E0   ) LENGTH(2)
                     579
   583    XIO8       ADDRESS. HEX LOCATION(00000492) IN CSECT(EE0E0   ) LENGTH(2)
                     589
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                             3 ***************************************************************************
                             4 *                                                                         *
                             5 *                     ***       PREREQUISITES         ***                 *
                             6 *                                  NONE                                   *
                             7 *                                                                         *
                             8 ***************************************************************************
                             9 *                                                                         *
                            10 *                     ***       MODIFICATIONS         ***                 *
                            11 *                                  NONE                                   *
                            12 *                                                                         *
                            13 ***************************************************************************
                            14 *                                                                         *
                            15 *                     ***      REA'S INCORPORATED     ***                 *
                            16 *                                  NONE                                   *
                            17 *                                                                         *
                            18 ***************************************************************************
                            19 *                                                                         *
                            20 *                     ***    SPECIAL INSTRUCTIONS     ***                 *
                            21 *                                  NONE                                   *
                            22 *                                                                         *
                            23 ***************************************************************************
                            24 *                                                                         *
                            25 *                     ***       E. C. HISTORY         ***                 *
                            26 *                                                                         *
                            27 *          DATE 15SEP77  DATE          DATE          DATE                 *
                            28 *          E.C. 754882   E.C.          E.C.          E.C.                 *
                            29 *                                                                         *
                            30 ***************************************************************************
 000000                     31 E3DE0 START X'0000'
                            32 *             SUPERVISOR EQUATES
 000014                     33 CICB   EQU   20                    CONNECT INTERRUPT CONTROL BLOCK
 000006                     34 EXIT   EQU   6                     EXIT INTERRUPT LEVEL
 000002                     35 IDLE   EQU   2                     SHARE PROGRAM TIME WITH OTHER PGMS
 000004                     36 CHNGE  EQU   4                     CHANGE LEVEL
 00000C                     37 PREP   EQU   12                    PREPARE DEVICE
 000013                     38 RICB   EQU   19                    RELEASE INTERRUPT CONTROL BLOCK
 00001A                     39 HTOE   EQU   26                    CONVERT HEX TO CHAR.
 00000A                     40 START  EQU   10                    START CYCLE STEAL COMMAND
 000007                     41 TERM   EQU   7                     TERMINATE THIS PROGRAM
 000008                     42 RESET  EQU   8                     DEVISE RESET
 000009                     43 RID    EQU   9                     DEVISE READ ID
 000000                     44 REG    EQUR  0                     WORK REGISTER
 00181E                     45 PRNTRTN EQU  X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
 000232                     46 CPUTYPE EQU  X'0232'               ADDRESS OF PROCESSOR TYPE
                            47 *
                            48 *             PROGRAM HEADING AND CONTROL WORDS
                            49 *
 000000  F3C4F0F0            50 $PID   DC    C'3D00'             PROGRAM IDENTIFICATION
 000004  0000                51         DC    XL2'0000'           CURRENT PROGRAM LEVEL
 000006  007C                52         DC    A($PENT)            START EXECUTION ADDRESS
 000008  004C                53         DC    A($DVAD)            -> TO DEV ADDRESS TABLE
 00000A  0000                54 $RTNF  DC    A(*-*)              ROUTINE NUMBER BEING RUN
 00000C  0000                55 $CKPT  DC    A(*-*)              LAST CHECK POINT PASSED
 00000E  0000                56 OPTN1  DC    X'0000'             PROGRAM OPTION CONTROL WORD 1
                            57 *
                            58 * BIT FUNCTION              EQU      BIT FUNCTION                EQU
                            59 *
 000003                     60 TM     EQU   3                     TERMINATE PROGRAM
 00000E                     61 IND    EQU   14                    INDICATOR
 00000F                     62 DIR    EQU   15                    SEEK DIRECTION INDICATOR
                            63 *
 000010  0000               64 OPTN2  DC    X'0000'             PROGRAM OPTION CONTROL WORD 2
 000012  0000               65 OPTN3  DC    X'0000'             PROGRAM OPTION CONTROL WORD 3
                            66 *
                            67 *  0  MYSTERY INTERRUPT     MI       8  CS STATUS INTERRUPT ERR CE
                            68 *  1  ERROR INTERRUPT       ER       9  GOOD INTERRUPT RECEIVED GI
                            69 *  2  EXPECTED INTERRUPT    XI      10  PROBABLE ERROR EXPECTED PE
                            70 *  3  INTERRUPT RECEIVED    IN      11  NO INTERRUPT EXPECTED   NI
                            71 *
                            72 *  4  EXPECTED ERR/ATTENT   XE      12  FP DATA TRANSFER ERROR
                            73 *  5  WRONG INTR LEVEL      LE      13  FP SOFT EXCEPTION TRAP ERROR
                            74 *  6  LOAS INTERRUPT        LI      14  N.U.
                            75 *  7  CS STATUS IN PROGR    CS      15  N.U.
                            76 *                           BIT     HEX
 000020                     77 MI     EQU   32      0       8     MYSTERY INTERRUPT HAPPENED
 000021                     78 ER     EQU   33      1       4     ERROR RECEIVED ON INTERRUPT
 000022                     79 XI     EQU   34      2       2     EXPECTED INTERRUPT CONTROL BIT
 000023                     80 IN     EQU   35      3       1     INTERRUPT RECEIVED CONTROL BIT
 000024                     81 XE     EQU   36      4       8     EXPECTED ERROR RESPONSE
 000025                     82 LE     EQU   37      5       4     INTERRUPT ON WRONG LEVEL ERROR
 000026                     83 LI     EQU   38      6       2     LOST INTERRUPT
 000027                     84 CS     EQU   39      7       1     CYCLE STATUS IN PROGRESS
 000028                     85 CE     EQU   40      8       8     CYCLE STEAL STATUS INERRRUPT ERROR
 000029                     86 GI     EQU   41      9       4     GOOD INTERRUPT RECEIVED (EXPECTED ER)
 00002A                     87 PE     EQU   42      10      2     PROBABLE ERROR EXPECTED
 00002B                     88 NI     EQU   43      11      1     NO INTR. EXPECTED UNPREPED DEV.
 00002C                     89 FP     EQU   44      12      8     FLOATING POINT DATA TRANSFER ERROR
 00002D                     90 FI     EQU   45      13      4     SOFT EXECPTION TRAP ERROR
 000014  FFFF               91 $IOIN  DC    X'FFFF'             NOT USED
 000016  FFFF               92 $ISB   DC    X'FFFF'             ''  ''
 000018  FFFF               93 LSTIO  DC    X'FFFF'             ''  ''
 00001A  00000000           94 DEV1   DC    2A(*-*)             DEVICE DEPENDENT DATA
 00001E  00000000           95 DEV3   DC    2A(*-*)             *  DEV1-DEV2-DEV3-DEV4
 000022  FFFF               96 DCBUF  DC    X'FFFF'             NOT USED
 000024  FFFF               97 DCB2   DC    X'FFFF'             ''  ''
 000026  FFFF               98 DCB3   DC    X'FFFF'             ''  ''
 000028  FFFF               99 DCB4   DC    X'FFFF'             ''  ''
 00002A  FFFF              100 DCB5   DC    X'FFFF'             ''  ''
 00002C  0000              101 DCB6   DC    A(*-*)              ''  ''
 00002E  FFFF              102 DCB7   DC    X'FFFF'             ''  ''
 000030  FFFF              103 DCB8   DC    X'FFFF'             ''  ''
 000032                    104 CSBUF  EQU   *                   ''  ''
 000032  FFFF              105 CSTL1  DC    X'FFFF'             ''  ''
 000034  FFFF              106 CSTL2  DC    X'FFFF'             ''  ''
 000036  FFFF              107 CSTL3  DC    X'FFFF'             ''  ''
 000038  FFFF              108 CSTL4  DC    X'FFFF'             ''  ''
 00003A  FFFF              109 CSTL5  DC    X'FFFF'             ''  ''
 00003C  FFFF              110 CSTL6  DC    X'FFFF'             ''  ''
 00003E  FFFF              111 CSTL7  DC    X'FFFF'             ''  ''
 000040  FFFF              112 CSTL8  DC    X'FFFF'             ''  ''
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
 000042  00000000          113 PCTR  DC    2A(*-*)             PASS COUNTER
 000046  00000000          114 ECTR  DC    2A(*-*)             ERROR COUNTER
 00004A  0005              115 ERNUM DC    X'0005'             NUM OF TIMES DEV IS ALLOWED AN ERROR
 00004C  003D              116 $DVAD DC    X'003D'             DEVICE ADDRESS BEING TESTED
 00004E  0000000000000000  117         DC    XL8'00'             * ONLY USED FOR CONTROL REASONS
 000056  0000              118 $INTL DC    X'0000'             NOT USED
 000058  0000              119 $DVID DC    X'0000'             ''  ''
 00005A  0004              120 $MXSL DC    A(04)               MAXIMUM SELECTABLE ROUTINES
 00005C  0000              121 H0000 DC    X'0000'             CONSTANT
 00005E  0001              122 H0001 DC    X'0001'             HEX WORD CONSTANT
 000060  2300              123 TYPE23 DC   X'2300'             CONSTANT TO CHECK PROCESSOR AGAINST
 000062  0000              124 LSBAS DC    A(*-*)              LSB VECTOR SAVE AREA
 000064  0000              125 EXCAS DC    A(*-*)              SOFT EXC VECTOR SAVE AREA
 000066  00000000000000000 126 STLSB DC    XL22'00'            SAVE AREA FOR LSB FROM SOFT EXC TRAP
                           127 ***************************************************************************
                           128 *
                           129 *             PROGRAM CONTROL FUNCTIONS
                           130 *
                           131 ***************************************************************************
 00007C  A82A 005C 0042    132 $PENT AD    H0000,PCTR          ADVANCE PASS COUNTER BY 1
 000082  CE25 000A         133         MVWZ  $RTNE,R6            CLEAR OLD ROUTINE NUMBER
 000086  4424 000E         134 $PUPD MVA   OPTN1,R4            R4 MUST BE SET TO 'OPTN1'
 00008A  4C4E              135         TBTS  (R4,IND)          SET INDICATOR
 00008C  120C              136         JON   $PUP2             BRANCH IF ON
 00008E  8828 0020 0062    137         MVW   X'0020',LSBAS     SAVE LSB VECTOR
 000094  8828 0022 0064    138         MVW   X'0022',EXCAS     SAVE SOFT EXCEPTION VECTOR
 00009A  4020 0020 0066    139         MVA   STLSB,X'0020'     SET UP NEW LSB VECTOR
 0000A0  4020 0022 026A    140         MVA   FPERR,X'0022'     SET UP NEW SOFT EXC VECTOR
 0000A6  4C03              141 $PUP2 TBT   (R4,TM)           IS TERMINATE PGM REQUESTED
 0000A8  1007              142         JZ    $PUP8             * NO, CONTINUE CHECKING
                           143 *
                           144 *             TERMINATE CONTROL BIT FOUND ON
                           145 *
 0000AA                    146 $TERM EQU   *
 0000AA  8828 0062 0020    147         MVW   LSBAS,X'0020'     RESTORE OLD LSB VECTOR
 0000B0  8828 0064 0022    148         MVW   EXCAS,X'0022'     RESTORE OLD SOFT EXC VECTOR
 0000B6  6007              149         SVC   TERM              ISSUE SVC TO TERM
                           150 *
 0000B8  A828 005E 000A    151 $PUP8 AW    H0001,$RTNE         ADVANCE ROUTINE NUMBER
 0000BE  882B 005A 000A    152         CW    $MXSL,$RTNE       CHECK FOR LAST AUTOMATIC ROUTINE
 0000C4  10DB              153         JE    $PENT             * BCH AND START WITH RTN 1
                           154 *
                           155         GET RTN NUMBER AND BCH TO THAT RTN
                           156 *
 0000C6  6E08 000A         157 $PSEL MVW   $RTNE,R6            MOVE RTN NUMBER IN REG
 0000CA  CD25 000C         158         MVWZ  $CKPT,R5          ZERO CHECKPOINT
 0000CE  3609              159         SLL   1,R6              DOUBLE R6 FOR BRANCH TABLE
 0000D0  68D2 00D4         160         B     (R6,$RTAD)*       BCH VIA RTN TABLE
                           161 *
                           162 *             TABLE OF ROUTINE ADDRESSES
                           163 *
 0000D4  007C              164 $RTAD DC    A($PENT)            NO RTN SELECTED
 0000D6  00DC              165         DC    A(RT01)           ROUTINE ADDRESS
 0000D8  0130              166         DC    A(RT02)           ROUTINE ADDRESS
 0000DA  0176              167         DC    A(RT03)           ROUTINE ADDRESS
                           168 *                   END OF ROUTINE ADDRESSES
                           169 ***************************************************************************
                           170 *                                                                         *
                           171 *     NAME   :  ROUTINE 01                                                *
                           172 *                                                                         *
                           173 *     PURPOSE:  FLOATING POINT SET AND COPY LEVEL BLOCK                   *
                           174 *                                                                         *
                           175 ***************************************************************************
 0000DC                    176 RT01  EQU   *
 0000DC  6E03 01BC         177         BAL   SETUP,R6            BRANCH TO SET UP TO START
 0000E0  77EA              178         SW    R7,R7               ZERO LEVEL REGISTER
 0000E2  6004              179 RT011 SVC   CHNGE              CHANGE TO NEW LEVEL
 0000E4  6F0D 000C         180         MVW   R7,$CKPT          SET CHECKPOINT
 0000E8  6E03 01D4         181 RT014 BAL   MOVE,R6           BRANCH TO MOVE DATA POINTER
 0000EC  6E08 02B8         182         MVW   ARRAY,R6          LOAD DATA ADDRESS
 0000F0  1018              183         JZ    RT015             BRANCH IF ZERO -- FINISHED
 0000F2  712A              184         SW    R1,R1             ZERO LEVEL REGISTER
 0000F4  5933 02B8         185 RT012 SEPLB R1,ARRAY*         SET REGISTERS ON INDICATED LEVEL
 0000F8  0101              186         ABI   1,R1              BUMP LEVEL BY ONE
 0000FA  7906 0004         187         CWI   X'0004',R1        TEST TO SEE IF DONE
 0000FE  16F2              188         JNE   RT012             BRANCH NO
 000100  76E7              189         IR    R6,R7             SAVE R7 INTO R6
 000102  4724 0003         190         MVWI  X'0003',R7        SET DESIRED LEVEL
 000106  6004              191         SVC   CHNGE             CHANGE TO LEVEL THREE
 000108  6002              192         SVC   IDLE              IDLE ON THREE
 00010A  76E7              193         IR    R6,R7             RESTORE R7
 00010C  6004              194         SVC   CHNGE             RETURN TO ODL LEVEL
 00010E  712A              195         SW    R1,R1             ZERO LEVEL REGISTER
 000110  592B 039A         196 RT013 CPFLB R1,BUFFR          COPY REGISTERS ON INDICATED LEVEL
 000114  6E03 0230         197         BAL   CHECK,R6          BRANCH TO CHECK RESULTS
 000118  0101              198         ABI   1,R1              BUMP LEVEL BY ONE
 00011A  7906 0004         199         CWI   X'0004',R1        TEST TO SEE IF DONE
 00011E  18F8              200         JNE   RT013             BRANCH IF NOT
 000120  50E3              201         J     RT014             BRANCH
 000122  0701              202 RT015 ABI   1,R7              INCREMENT LEVEL REG.
 000124  7F06 0004         203         CWI   X'0004',R7        TEST TO SEE IF DONE
 000128  18DC              204         JNE   RT011             BRANCH IF NO
 00012A  6002              205         SVC   IDLE              IDLE
 00012C  6802 007C         206         B     $PENT             BRANCH TO CONTINUE
                           207 ***************************************************************************
                           208 *                                                                         *
                           209 *     NAMF   :  ROUTINE 02                                                *
                           210 *                                                                         *
                           211 *     PURPOSE:  LOAD INTEGER SINGLE PRECISION                             *
                           212 *                                                                         *
                           213 ***************************************************************************
 000130                    214 RT02  EQU   *
 000130  6E03 01BC         215         BAL   SETUP,R6            BRANCH TO RESET POINTERS
 000134  77EA              216         SW    R7,R7               ZERO LEVEL REGISTER
 000136  6004              217 RT021 SVC   CHNGE              CHANGE TO INDICATED LEVEL
 000138  6F0D 000C         218         MVW   R7,$CKPT          INDICATE CHECKPOINT
 00013C  6E03 01D4         219 RT022 BAL   MOVE,R6           BRANCH TO MOVE DATA POINTER
 000140  6E08 02B8         220         MVW   ARRAY,R6          LOAD DATA POINTER
 000144  1011              221         JZ    RT023             BRANCH IF ZERO
 000146  203A 02B8         222         FMV   ARRAY*,FR0        LOAD FP REG 0
 00014A  2448              223         FMV   FR0,FR1           LOAD FP REG 1
 00014C  2588              224         FMV   FR1,FR2           LOAD FP REG 2
 00014E  26C8              225         FMV   FR2,FR3           LOAD FP REG 3
 000150  76E7              226         IR    R6,R7             SAVE LEVEL REG
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000152  4724 0003          237        MVWI  X'0003',R7             SET LEVEL 3
000156  6004               238        SVC   CHNGE                  CHANGE TO LEVEL THREE
000158  6002               239        SVC   IDLE                   IDLE
00015A  76E7               240        IR    R6,R7                  RESTORE R7
00015C  6004               241        SVC   CHNGE                  CHANGE TO OLD LEVEL
00015E  5F2B 039A          242        CPFLB R7,BUFFR               COPY ALL FP REGISTERS
000162  6E03 024A          243        BAL   CHKWD,R6               BRANCH TO CHECK RESULTS
000166  50EA               244        J     RT022                  BRANCH
000168  0701               245 RT023  ABI   1,R7                   ADD ONE TO LEVEL
00016A  7F06 0004          246        CWI   X'0004',R7             TEST LEVEL
00016E  18E3               247        JNE   RT021                  BRANCH IF NOT DONE
000170  6002               248        SVC   IDLE                   IDLE
000172  6802 007C          249        B     $PENT                  BRANCH
                           251 ************************************************************
                           252 *                                                          *
                           253 *     NAME   :  ROUTINE 03                                 *
                           254 *                                                          *
                           255 *     PURPOSE:  LOAD INTEGER DOUBLE PRECISION              *
                           256 *                                                          *
                           257 ************************************************************
000176                     258 RT03   EQU   *
000176  6E03 01BC          259        BAL   SETUP,R6               BRANCH TO RESET ALL POINTERS
00017A  77EA               260        SW    R7,R7                  SET LEVEL REG
00017C  6004               261 RT031  SVC   CHNGE                  CHANGE TO INDICATED LEVEL
00017E  6F0D 000C          262        MVW   R7,$CKPT               LOAD CHECKPOINT
000182  6E03 01D4          263 RT032  BAL   MOVE,R6                BRANCH TO LOAD DATA POINTER
000186  6E08 02B8          264        MVW   ARRAY,R6               LOAD DATA POINTER
00018A  1011               265        JZ    RT033                  BRANCH IF DONE
00018C  203B 02B8          266        FMVD  ARRAY*,FR0             LOAD FP REG 0
000190  2449               267        FMVD  FR0,FR1                LOAD FP REG 1
000192  2589               268        FMVD  FR1,FR2                LOAD FP REG 2
000194  26C9               269        FMVD  FR2,FR3                LOAD FP REG 3
000196  76E7               270        IR    R6,R7                  SAVE R7
000198  4724 0003          271        MVWI  X'0003',R7             INDICATE LEVEL 3
00019C  6004               272        SVC   CHNGE                  CHANGE TO LEVEL 3
00019E  6002               273        SVC   IDLE                   IDLE
0001A0  76E7               274        IR    R6,R7                  RESTORE R7
0001A2  6004               275        SVC   CHNGE                  CHANGE TO OLD LEVEL
0001A4  5F2B 039A          276        CPFLB R7,BUFFR               COPY ALL FP REGISTERS
0001A8  6E03 0230          277        BAL   CHECK,R6               BRANCH TO CHECK DATA
0001AC  50EA               278        J     RT032                  BRANCH
0001AE  0701               279 RT033  ABI   1,R7                   INCREMENT LEVEL
0001B0  7F06 0004          280        CWI   X'0004',R7             TEST TO SEE IF DONE
0001B4  18E3               281        JNE   RT031                  BRANCH IF NO
0001B6  6002               282        SVC   IDLE                   IDLE
0001B8  6802 007C          283        B     $PENT                  BRANCH
                           285 ************************************************************
                           286 *                                                          *
                           287 *                  INITIALIZE TABLE INDEXERS               *
                           288 *                                                          *
                           289 ************************************************************
0001BC                     290 SETUP  EQU   *
0001BC  0A07               291        MVBI  X'0007',R2             LOAD REG WITH X'07'
0001BE  77A7               292        IR    R7,R5                  SAVE R7
0001C0  4724 0020          293        MVWI  X'0020',R7             LOAD COUNT REG
0001C4  4324 039A          294        MVA   BUFFR,R3               LOAD BUFFER ADDRESS
0001C8  2A6C               295        MFN   R2,(R3)                LOAD BUFFER WITH X'07'
0001CA  75E7               296        IR    R5,R7                  RESTORE R7
0001CC  CA25 02B8          297        MVWZ  ARRAY,R2               ZERO DATA WORD
0001D0  68C2 0000          298        B     (R6)                   RETURN
                           299 ************************************************************
                           300 *                                                          *
                           301 *          SUBROUTINE TO MOVE FLOATING POINT DATA ADDRESS  *
                           302 *                                                          *
                           303 ************************************************************
0001D4                     304 MOVE   EQU   *
0001D4  6A08 02B8          305        MVW   ARRAY,R2               LOAD LAST DATA ADDRESS
0001D8  1013               306        JZ    MOV1                   IF BRANCH
0001DA  CA24 03DA          307        CW    ARR1A,R2               IF POINTING AT 1
0001DE  1014               308        JE    MOV2                   LOAD 2
0001E0  6A08 03DC          309        MVW   ARR2A,R2               IF POINTING AT 2
0001E4  1015               310        JZ    MOV3                   LOAD 3
0001E6  CA24 03DE          311        CW    ARR3A,R2               IF POINTING AT 3
0001EA  1016               312        JE    MOV4                   LOAD 4
0001EC  6A08 03E0          313        MVW   ARR4A,R2               IF POINTING AT 4
0001F0  1017               314        JZ    MOV5                   LOAD 5
0001F2  CA24 03E2          315        CW    ARR5A,R2               IF POINTING AT 5
0001F6  1018               316        JE    MOV6                   LOAD 6
0001F8  CA25 02B8          317        MVWZ  ARRAY,R2               LOAD ZERO
0001FC  68C2 0000          318 MOVRT  B     (R6)                   RETURN
000200  4020 02B8 02BA     319 MOV1   MVA   ARR1,ARRAY             LOAD ADDRESS
000206  50FA               320        J     MOVRT                  BRANCH
000208  4020 02B8 02DA     321 MOV2   MVA   ARR2,ARRAY             LOAD ADDRESS
00020E  50F6               322        J     MOVRT                  BRANCH
000210  4020 02B8 02FA     323 MOV3   MVA   ARR3,ARRAY             LOAD ADDRESS
000216  50F2               324        J     MOVRT                  BRANCH
000218  4020 02B8 0322     325 MOV4   MVA   ARR4,ARRAY             LOAD ADDRESS
00021E  50EE               326        J     MOVRT                  BRANCH
000220  4020 02B8 034A     327 MOV5   MVA   ARR5,ARRAY             LOAD ADDRESS
000226  50EA               328        J     MOVRT                  BRANCH
000228  4020 02B8 0372     329 MOV6   MVA   ARR6,ARRAY             LOAD ADDRESS
00022E  50E6               330        J     MOVRT                  BRANCH
                           332 ************************************************************
                           333 *                                                          *
                           334 *     SUBROUTINE TO TEST RESULTS AND PRINT ERROR MESSAGE   *
                           335 *                                                          *
                           336 ************************************************************
000230                     337 CHECK  EQU   *
000230  77A7               338        IR    R7,R5                  SAVE R7
000232  6B08 02B8          339        MVW   ARRAY,R3               LOAD DATA ADDRESS
000236  4224 039A          340 CHEK1  MVA   BUFFR,R2               LOAD BUFFER ADDRESS
00023A  4724 0020          341        MVWI  X'0020',R7             LOAD LENGTH OF COMPARE
00023E  2A66               342        CFNEN (R2),(R3)              COMPARE DATA
000240  77E7               343        IR    R7,R7                  TEST R7
000242  1816               344        JNZ   ERROR                  BRANCH IF ERROR
000244  75E7               345        IR    R5,R7                  RESTORE R7
000246  68C2 0000          346        B     (R6)                   RETURN
00024A  9038 02B8 03BA     347 CHKWD  MVD   ARRAY*,BUF1            LOAD EXPECTED DATA
000250  9028 03BA 03C2     348        MVD   BUF1,BUF2              * INTO TEMP BUFFER
000256  9028 03C2 03CA     349        MVD   BUF2,BUF3              *
00025C  9028 03CA 03D2     350        MVD   BUF3,BUF4              *
000262  75E7               351        IR    R5,R7                  SAVE R7
000264  4324 03BA          352        MVA   BUF1,R3                LOAD EXPECTED BUFFER ADDRESS
000268  50E6               353        J     CHEK1                  BRANCH
```



```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           355 ************************************************************
                           356 *                COMMON PRINT ERROR INTERFACE ROUTINE      *
                           357 *                                                          *
                           358 * ----> R6       LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE  *
                           359 *                BRANCH IS TAKEN TO PRINT THE ERROR        *
                           360 * ----> R4       LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE  *
                           361 *                BRANCH IS TAKEN TO PRINT THE ERROR        *
                           362 * ----> R3       LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE       *
                           363 *                BRANCH IS TAKEN TO PRINT THE ERROR        *
                           364 * ----> PRNTRTN THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST ) *
                           365 *                POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                           366 *                WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN     *
                           367 *                                                          *
                           368 ************************************************************
00026A  4424 000E          369 FPERR  MVA   OPTN1,R4               LOAD ADDRESS OF OPTION WORDS
00026E  4C6D               370        TBTS  (R4,FI)                SET INTERRUPT BIT
000270  4C6C               371 ERROR  TBTS  (R4,FP)                SET ERROR BIT
000272  4724 0003          372        MVWI  X'0003',R7             SET LEVEL DESIRED
000276  6004               373        SVC   CHNGE                  CHANGE TO LEVEL THREE
000278  4624 0012          374 $PRNT  MVA   OPTN3,R6               LOAD ADDRESS OF OPTION WORD THREE
00027C  6D08 181E          375        MVW   PRNTRTN,R5             LOAD ADDRESS OF COMMON PRNT ROUTINE
000280  4424 0000          376        MVA   $PID,R4                LOAD ADDRESS OF START OF PROG
000284  4324 0042          377        MVA   PCTR,R3                LOAD ADDRESS OF PASS COUNTER
000288  6FA3 0000          378        BAL   (R5),R7                BRANCH TO COMMON PRINT ROUTINE
00028C  CE25 0012          379        MVWZ  OPTN3,R6               ZERO OUT ALL FLAGS
000290  4424 000E          380        MVA   OPTN1,R4               LOAD BASE ADDRESS FOR INDICATORS
000294  802B 0232 0060     381        CB    CPUTYPE,TYPE23         IS THIS A TYPE 23 PROCESSOR
00029A  1803               382        JNE   $PRN2                  BRANCH IF NO
00029C  4524 E000          383        MVWI  X'E000',R5             INIT LOOP COUNTER
0002A0  5002               384        J     $PRN1                  BRANCH
0002A2  4524 8000          385 $PRN2  MVWI  X'8000',R5             INIT LOOP COUNTER
0002A6  6002               386 $PRN1  SVC   IDLE                   DELAY
0002A8  4C03               387        TBT   (R4,TM)                SHOULD PROG TERMINATE
0002AA  6A00 00AA          388        BOH   $TERM                  BRANCH YES
0002AE  7DA1 0001          389        AWI   1,R5                   INCREMENT LOOP COUNTER
0002B2  18F9               390        JNZ   $PRN1                  BRANCH NOT ZERO
0002B4  6802 007C          391        B     $PENT                  BRANCH TO RESTART FROM BEGINING
                           393 ************************************************************
                           394 *                                                          *
                           395 *              TABLE OF FLOATING POINT OPERANDS            *
                           396 *                                                          *
                           397 ************************************************************
0002B8  0000               398 ARRAY  DC    A(*-*)                 POINTER TO DATA TO BE USED
0002BA  0000000000000000   399 ARR1   DC    X'0000000000000000'
0002C2  0000000000000000   400        DC    X'0000000000000000'
0002CA  0000000000000000   401        DC    X'0000000000000000'
0002D2  0000000000000000   402        DC    X'0000000000000000'
0002DA  1111111111111111   403 ARR2   DC    X'1111111111111111'
0002E2  1111111111111111   404        DC    X'1111111111111111'
0002EA  1111111111111111   405        DC    X'1111111111111111'
0002F2  1111111111111111   406        DC    X'1111111111111111'
0002FA  5555555555555555   407 ARR3   DC    X'5555555555555555'
000302  5555555555555555   408        DC    X'5555555555555555'
00030A  5555555555555555   409        DC    X'5555555555555555'
000312  5555555555555555   410        DC    X'5555555555555555'
00031A  5555555555555555   411        DC    X'5555555555555555'
000322  8888888888888888   412 ARR4   DC    X'8888888888888888'
00032A  8888888888888888   413        DC    X'8888888888888888'
000332  8888888888888888   414        DC    X'8888888888888888'
00033A  8888888888888888   415        DC    X'8888888888888888'
000342  8888888888888888   416        DC    X'8888888888888888'
00034A  AAAAAAAAAAAAAAAA   417 ARR5   DC    X'AAAAAAAAAAAAAAAA'
000352  AAAAAAAAAAAAAAAA   418        DC    X'AAAAAAAAAAAAAAAA'
00035A  AAAAAAAAAAAAAAAA   419        DC    X'AAAAAAAAAAAAAAAA'
000362  AAAAAAAAAAAAAAAA   420        DC    X'AAAAAAAAAAAAAAAA'
00036A  AAAAAAAAAAAAAAAA   421        DC    X'AAAAAAAAAAAAAAAA'
000372  FFFFFFFFFFFFFFFF   422 ARR6   DC    X'FFFFFFFFFFFFFFFF'
00037A  FFFFFFFFFFFFFFFF   423        DC    X'FFFFFFFFFFFFFFFF'
000382  FFFFFFFFFFFFFFFF   424        DC    X'FFFFFFFFFFFFFFFF'
00038A  FFFFFFFFFFFFFFFF   425        DC    X'FFFFFFFFFFFFFFFF'
000392  FFFFFFFFFFFFFFFF   426        DC    X'FFFFFFFFFFFFFFFF'
00039A  0000000000000000   427 BUFFR  DC    X'0000000000000000'    REGISTER READ BUFFER
0003A2  0000000000000000   428        DC    X'0000000000000000'
0003AA  0000000000000000   429        DC    X'0000000000000000'
0003B2  0000000000000000   430        DC    X'0000000000000000'
0003BA  0000000000000000   431 BUF1   DC    X'0000000000000000'    EXPECTED RESULTS SINGLE PRE. BUFFFR
0003C2  0000000000000000   432 BUF2   DC    X'0000000000000000'
0003CA  0000000000000000   433 BUF3   DC    X'0000000000000000'
0003D2  0000000000000000   434 BUF4   DC    X'0000000000000000'
0003DA  02BA               435 ARR1A  DC    A(ARR1)                ADDRESS OD DATA PATTERN 1
0003DC  02DA               436 ARR2A  DC    A(ARR2)                ADDRESS OF DATA PATTERN 1
0003DE  02FA               437 ARR3A  DC    A(ARR3)                ADDRESS OF DATA PATTERN 3
0003E0  0322               438 ARR4A  DC    A(ARR4)                ADDRESS OF DATA PATTERN 4
0003E2  034A               439 ARR5A  DC    A(ARR5)                ADDRESS OF DATA PATTERN 5
0003E4  0372               440 ARR6A  DC    A(ARR6)                ADDRESS OF DATA PATTERN 6
0003E6                     441 LAST   EQU   *
000000                     442        END   E3DE0
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
0	.FR0.	ABSOLUTE. HEX VALUE(00000000) 232 233 266 267
0	.FR1.	ABSOLUTE. HEX VALUE(00000001) 233 234 267 268
0	.FR2.	ABSOLUTE. HEX VALUE(00000002) 234 235 268 269
0	.FR3.	ABSOLUTE. HEX VALUE(00000003) 235 269
0	.R1.	ABSOLUTE. HEX VALUE(00000001) 193 193 194 195 196 204 204 205 207 208
0	.R2.	ABSOLUTE. HEX VALUE(00000002) 291 295 297 305 307 309 311 313 315 317 340 342
0	.R3.	ABSOLUTE. HEX VALUE(00000003) 294 295 339 342 352 377
0	.R4.	ABSOLUTE. HEX VALUE(00000004) 142 143 149 369 370 371 376 380 387
0	.R5.	ABSOLUTE. HEX VALUE(00000005) 166 292 296 338 345 351 375 378 383 385 389
0	.R6.	ABSOLUTE. HEX VALUE(00000006) 141 165 167 168 186 190 191 198 202 206 225 229 230 236 240 243 259 263 264 270 274 277 298 318 346 374 379
0	.R7.	ABSOLUTE. HEX VALUE(00000007) 187 187 189 198 199 202 211 212 226 226 228 236 237 240 242 245 246 260 260 262 270 271 274 276 279 280 292 293 296 338 341 343 343 345 351 372 378
60	$CKPT	ADDRESS. HEX LOCATION(0000000C) IN CSECT(E3DE0) LENGTH(2) 166 189 228 262
123	$DVAD	ADDRESS. HEX LOCATION(0000004C) IN CSECT(E3DE0) LENGTH(2) 58
127	$MXSL	ADDRESS. HEX LOCATION(0000005A) IN CSECT(E3DE0) LENGTH(2) 160
140	$PENT	ADDRESS. HEX LOCATION(0000007C) IN CSECT(E3DE0) LENGTH(6) 57 161 172 215 249 283 391
55	$PID	ADDRESS. HEX LOCATION(00000000) IN CSECT(E3DE0) LENGTH(4) 376
386	$PRN1	ADDRESS. HEX LOCATION(000002A6) IN CSECT(E3DE0) LENGTH(2) 384 390
385	$PRN2	ADDRESS. HEX LOCATION(000002A2) IN CSECT(E3DE0) LENGTH(4) 382
149	$PUP2	ADDRESS. HEX LOCATION(000000A6) IN CSECT(E3DE0) LENGTH(2) 144
159	$PUP8	ADDRESS. HEX LOCATION(000000B8) IN CSECT(E3DE0) LENGTH(6) 150
172	$RTAD	ADDRESS. HEX LOCATION(000000D4) IN CSECT(E3DE0) LENGTH(2) 168
59	$RTNE	ADDRESS. HEX LOCATION(0000000A) IN CSECT(E3DE0) LENGTH(2) 141 159 160 165
154	$TERM	ADDRESS. HEX LOCATION(000000AA) IN CSECT(E3DE0) LENGTH(1) 388
398	ARRAY	ADDRESS. HEX LOCATION(000002B8) IN CSECT(E3DE0) LENGTH(2) 191 194 230 232 264 266 297 305 317 319 321 323 325 327 329 339 347
399	ARR1	ADDRESS. HEX LOCATION(000002BA) IN CSECT(E3DE0) LENGTH(8) 319 435
435	ARR1A	ADDRESS. HEX LOCATION(000003DA) IN CSECT(E3DE0) LENGTH(2) 307
403	ARR2	ADDRESS. HEX LOCATION(000002DA) IN CSECT(E3DE0) LENGTH(8) 321 436
436	ARR2A	ADDRESS. HEX LOCATION(000003DC) IN CSECT(E3DE0) LENGTH(2) 309
407	ARR3	ADDRESS. HEX LOCATION(000002FA) IN CSECT(E3DE0) LENGTH(8) 323 437
437	ARR3A	ADDRESS. HEX LOCATION(000003DE) IN CSECT(E3DE0) LENGTH(2) 311
412	ARR4	ADDRESS. HEX LOCATION(00000322) IN CSECT(E3DE0) LENGTH(8) 325 438
438	ARR4A	ADDRESS. HEX LOCATION(000003E0) IN CSECT(E3DE0) LENGTH(2) 313
417	ARR5	ADDRESS. HEX LOCATION(0000034A) IN CSECT(E3DE0) LENGTH(8) 327 439
439	ARR5A	ADDRESS. HEX LOCATION(000003E2) IN CSECT(E3DE0) LENGTH(2) 315
422	ARR6	ADDRESS. HEX LOCATION(00000372) IN CSECT(E3DE0) LENGTH(8) 329 440
427	BUFFF	ADDRESS. HEX LOCATION(0000039A) IN CSECT(E3DE0) LENGTH(8) 205 242 276 294 340
431	BUF1	ADDRESS. HEX LOCATION(000003BA) IN CSECT(E3DE0) LENGTH(8) 347 348 352
432	BUF2	ADDRESS. HEX LOCATION(000003C2) IN CSECT(E3DE0) LENGTH(8) 348 349
433	BUF3	ADDRESS. HEX LOCATION(000003CA) IN CSECT(E3DE0) LENGTH(8) 349 350
434	BUF4	ADDRESS. HEX LOCATION(000003D2) IN CSECT(E3DE0) LENGTH(8) 350
337	CHECK	ADDRESS. HEX LOCATION(00000230) IN CSECT(E3DE0) LENGTH(1) 206 277
340	CHEK1	ADDRESS. HEX LOCATION(00000236) IN CSECT(E3DE0) LENGTH(4) 353
347	CHKWD	ADDRESS. HEX LOCATION(0000024A) IN CSECT(E3DE0) LENGTH(6) 243
41	CHNGE	ABSOLUTE. HEX VALUE(00000004) 188 200 203 227 238 241 261 272 275 373
51	CPUTYPE	ABSOLUTE. HEX VALUE(00000232) 381
371	ERROR	ADDRESS. HEX LOCATION(00000270) IN CSECT(E3DE0) LENGTH(2) 344
132	EXCAS	ADDRESS. HEX LOCATION(00000064) IN CSECT(E3DE0) LENGTH(2) 146 156
36	E3DE0	CSECT. START(00000000) LENGTH(998) ESDID(0) 36 442
96	FI	ABSOLUTE. HEX VALUE(0000002D) 370
95	FP	ABSOLUTE. HEX VALUE(0000002C) 371

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
369	FPERR	ADDRESS. HEX LOCATION(0000026A) IN CSECT(E3DE0) LENGTH(4) 148
128	H0000	ADDRESS. HEX LOCATION(0000005C) IN CSECT(E3DE0) LENGTH(2) 140
129	H0001	ADDRESS. HEX LOCATION(0000005E) IN CSECT(E3DE0) LENGTH(2) 159
40	IDLE	ABSOLUTE. HEX VALUE(00000002) 201 214 239 248 273 282 386
67	IND	ABSOLUTE. HEX VALUE(0000000E) 143
131	LSBAS	ADDRESS. HEX LOCATION(00000062) IN CSECT(E3DE0) LENGTH(2) 145 155
304	MOVE	ADDRESS. HEX LOCATION(000001D4) IN CSECT(E3DE0) LENGTH(1) 190 229 263
318	MOVRT	ADDRESS. HEX LOCATION(000001FC) IN CSECT(E3DE0) LENGTH(4) 320 322 324 326 328 330
319	MOV1	ADDRESS. HEX LOCATION(00000200) IN CSECT(E3DE0) LENGTH(6) 306
321	MOV2	ADDRESS. HEX LOCATION(00000208) IN CSECT(E3DE0) LENGTH(6) 308
323	MOV3	ADDRESS. HEX LOCATION(00000210) IN CSECT(E3DE0) LENGTH(6) 310
325	MOV4	ADDRESS. HEX LOCATION(00000218) IN CSECT(E3DE0) LENGTH(6) 312
327	MOV5	ADDRESS. HEX LOCATION(00000220) IN CSECT(E3DE0) LENGTH(6) 314
329	MOV6	ADDRESS. HEX LOCATION(00000228) IN CSECT(E3DE0) LENGTH(6) 316
62	OPTN1	ADDRESS. HEX LOCATION(0000000E) IN CSECT(E3DE0) LENGTH(2) 142 369 380
71	OPTN3	ADDRESS. HEX LOCATION(00000012) IN CSECT(E3DE0) LENGTH(2) 374 379
120	PCTR	ADDRESS. HEX LOCATION(00000042) IN CSECT(E3DE0) LENGTH(2) 140 377
50	PRNTRTN	ABSOLUTE. HEX VALUE(0000181E) 375
185	RT01	ADDRESS. HEX LOCATION(000000DC) IN CSECT(E3DE0) LENGTH(1) 173
188	RT011	ADDRESS. HEX LOCATION(000000E2) IN CSECT(E3DE0) LENGTH(2) 213
194	RT012	ADDRESS. HEX LOCATION(000000F4) IN CSECT(E3DE0) LENGTH(4) 197
205	RT013	ADDRESS. HEX LOCATION(00000110) IN CSECT(E3DE0) LENGTH(4) 209
190	RT014	ADDRESS. HEX LOCATION(000000E8) IN CSECT(E3DE0) LENGTH(4) 210
211	RT015	ADDRESS. HEX LOCATION(00000122) IN CSECT(E3DE0) LENGTH(2) 192
224	RT02	ADDRESS. HEX LOCATION(00000130) IN CSECT(E3DE0) LENGTH(1) 174
227	RT021	ADDRESS. HEX LOCATION(00000136) IN CSECT(E3DE0) LENGTH(2) 247
229	RT022	ADDRESS. HEX LOCATION(0000013C) IN CSECT(E3DE0) LENGTH(4) 244
245	RT023	ADDRESS. HEX LOCATION(00000168) IN CSECT(E3DE0) LENGTH(2) 231
258	RT03	ADDRESS. HEX LOCATION(00000176) IN CSECT(E3DE0) LENGTH(1) 175
261	RT031	ADDRESS. HEX LOCATION(0000017C) IN CSECT(E3DE0) LENGTH(2) 281
263	RT032	ADDRESS. HEX LOCATION(00000182) IN CSECT(E3DE0) LENGTH(4) 278
279	RT033	ADDRESS. HEX LOCATION(000001AE) IN CSECT(E3DE0) LENGTH(2) 265
290	SETUP	ADDRESS. HEX LOCATION(000001BC) IN CSECT(E3DE0) LENGTH(1) 186 225 259
133	STLSB	ADDRESS. HEX LOCATION(00000066) IN CSECT(E3DE0) LENGTH(22) 147
46	TERM	ABSOLUTE. HEX VALUE(00000007) 157
66	TM	ABSOLUTE. HEX VALUE(00000003) 149 387
130	TYPE23	ADDRESS. HEX LOCATION(00000060) IN CSECT(E3DE0) LENGTH(2) 381

********** LAST PAGE **********

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                             3 *                    ** C34A1 EC HISTORY **                                *
                             4 ******************************************************************************
                             5 *                                                                            *
                             6 *                    ***       PREREQUISITES        ***                      *
                             7 *                                                                            *
                             8 *                              NONE                                          *
                             9 *                                                                            *
                            10 ******************************************************************************
                            11 *                                                                            *
                            12 *                    ***       MODIFICATIONS        ***                      *
                            13 *                                                                            *
                            14 *                              NONE                                          *
                            15 *                                                                            *
                            16 ******************************************************************************
                            17 *                                                                            *
                            18 *                    ***     REA'S INCORPORATED     ***                      *
                            19 *                                                                            *
                            20 *                              NONE                                          *
                            21 *                                                                            *
                            22 ******************************************************************************
                            23 *                                                                            *
                            24 *                    ***    SPECIAL INSTRUCTIONS    ***                      *
                            25 *                                                                            *
                            26 *                              NONE                                          *
                            27 *                                                                            *
                            28 ******************************************************************************
                            29 *                                                                            *
                            30 *                    ***       E. C. HISTORY        ***                      *
                            31 *                                                                            *
                            32 *          DATE 15SEP77  DATE          DATE          DATE                    *
                            33 *          E.C. 754882   E.C.          E.C.          E.C.                    *
                            34 *                                                                            *
                            35 ******************************************************************************
000000                      37 C34A1 START X'0000'                  LOAD/EXECUTION ADDRESS
000001                      38 ONE   EQU   1                        ONE
000020                      39 H0020 EQU   X'0020'                  START ADDRESS OF RELOCATED CODE
000030                      40 H0030 EQU   X'0030'                  INTERRUPT TABLE FILL BYTE
0000E0                      41 H0080 EQU   X'00E0'                  LENGTH OF CODE MOVE
000200                      42 H0200 EQU   X'0200'                  LENGTH OF INTERRUPT TABLE FILL
003030                      43 H3030 EQU   X'3030'                  LOCATION USED FOR INTERRUPT POINTER
003032                      44 H3032 EQU   X'3032'                  START ADDRESS OF RELOCATED CODE
003034                      45 H3034 EQU   X'3034'                  BRANCH POINT INTO RELOCATED CODE
003012                      46 H3012 EQU   X'3012'                  RELOCATION DATA CONSTANT
003013                      47 H3013 EQU   X'3013'                  RELOCATION DATA CONSTANT
004000                      48 H4000 EQU   X'4000'                  LAST ADDRESS FOR TEST
00341                       49 H341  EQU   X'341'                   LED PID
00342E                      50 H342E EQU   X'342E'                  LED ERROR CODE
000000  4124 34A1           52 START MVWI  H34A1,R1                 INIT PID REGISTER
000004  7830                53       SECON R1                       LOAD PID INTO LEDS
000006  5033                54       J     BEGIN                    RESTART BRANCH
                            55 *** CLASS INTERRUPT 'LSB' AND 'SIA' POINTERS
000008  00B8                56       DC    A(LSB)                   MACHINE CHECK LSB POINTER
00000A  0094                57 MCKPT DC    A(MCK16)                 *  ''     ''  SIA   ''
                            58 *
00000C  6000                59 ZPREP DC    X'6000'                  'PREPARE' IDCB
00000E  0001                60 Z0001 DC    X'0001'                  * (LEVEL 0, ENABLED)
                            61 *
                            62 ******************************************************************************
                            63 *
                            64 *** CONS *** CONSOLE INTERRUPT SERVICE SUBROUTINE
                            65 *
                            66 ******************************************************************************
000010  6580                67 CONS  DIAG  X'80'                   CLEAP DATA BUFFER
000012  0021                68       DC    X'0021'                 *
000014  0000                69       DC    X'0000'                 *
000016  7819                70       CPCL  R0                      GET CURRENT LEVEL
000018  5826 00B8           71       SELB  R0,LSB                  RETURN TO MAIN PROGRAM
                            72 ******************************************************************************
00001C  00B8                73       DC    A(LSB)                  CONSOLF INTERRUPT LSB POINTER
00001E  0010                74 CONPT DC    A(CONS)                 *  ''     ''  SIA   ''
                            75 ******************************************************************************
000020  501C                76       J     ZG                      FIRST INTERRUPT ENTRY
000022  4124 0030           77       MVWI  H0030,R1                LOAD REG WITH FILL BYTE
000026  4724 0200           78       MVWI  H0200,R7                LOAD REG WITH LENGTH
00002A  7144                79       MVW   R1,R2                   LOAD REG WITH START ADDRESS
00002C  294C                80       FFN   R1,(R2)                 FILL IN TABLE
00002E  4020 3030 3032      81       MVWI  H3032,H3030             INIT INTERRUPT ADDRESS
000034  6101                82       LEX   ONE                     LEVEL EXIT
                            83 ******************************************************************************
                            85 *
                            86 *** DISK I/O IDCB'S AND DCB'S
                            87 *
                            88 *------------------------------------------------------------------------------
                            89 *
000036  7000                90 ZSEEK DC    X'7000'                 'SEEK' IDCB
000038  304C                91       DC    A(ZSEE+X'3012')         *
                            92 *
                            93 *------------------------------------------------------------------------------
                            94 *
00003A  8005                95 ZSEE  DC    X'8005'                 'SEEK' DCB (CONTROL WORD)
00003C  0004                96 ZDIFA DC    X'0004'                 SEEK DIFF.
00003E  0000                97       DC    A(*-*)
000040  0000                98       DC    A(*-*)
000042  0000                99 ZDIFB DC    A(*-*)
000044  305C               100       DC    A(ZREA+X'3012')         CHAIN ADDRESS
000046  0000               101       DC    A(*-*)
000048  0000               102       DC    A(*-*)
                           103 *
                           104 *------------------------------------------------------------------------------
                           105 *
00004A  2009               106 ZREA  DC    X'2009'                 'READ' DCB (CONTROL WORD)
00004C  00000000           107       DC    2A(*-*)                 * NOT USED
000050  1004               108 ZREA1 DC    X'1004'                 * SECTOR LENGTH/CYLINDER ADDRESS
000052  0001               109 ZREA2 DC    X'0001'                 * HEAD/RECORD NUMBER
000054  0000               110       DC    A(*-*)                  * NOT USED
000056  0F00               111 ZREA3 DC    X'0F00'                 * BYTE COUNT (FULL TRACK)
000058  0000               112 ZREA4 DC    A(START)                * DATA ADDRESS
                           114 ******************************************************************************
                           115 *
                           116 *** ZG ******  ROUTINE FOR FETCHING THE NEXT PROGRAM FROM THE IPL DISK
                           117 *
                           118 ******************************************************************************
00005A  C728 000D          119 ZG    MVB   R7,ZPREP+ONE              MOVE 'DA' OUT OF R7 INTO SAVE LOCAT
00005E  C728 3049          120       MVB   R7,ZSEEK+H3013            *
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000062  6201               121 ZDISK EN    ONE                     ENABLE SUMMARY MASK (ALLOW INTERRUPT)
000064  680C 000C          122       IO    ZPREP                   PREPARE OPERATION (ALLOW INTERRUPT)
                           123 *
                           124 *** SEEK TO PROPER TRACK AND READ PROGRAM
                           125 *
000068  680C 3048          126 ZGO   IO    ZSEEK+H3012             SEEK OPERATION
00006C  6101               127 ZGO1  LEX   ONE                     WAIT FOR SEEK END
00006E  6201               129 BEGIN EN    ONE                     ENABLE ALL INTERRUPTS
000070  712A               130       SW    R1,R1                   ZERO R1
000072  0101               131 BEGN2 ABI   ONE,R1                  INCREMENT FOR COUNT
000074  18FE               132       JNZ   BEGN2                   BRANCH TO DELAY
000076  C440               133 BEGN1 MVB   (R1),R4                 CHECK FOR PARITY
000078  0101               134       ABI   ONE,R1                  BUMP R1 TO NEXT ADDRESS
00007A  7906 4000          135       CWI   H4000,R1                IS FIRST 16K CHECKED
00007E  18FB               136       JNE   BEGN1                   BRANCH NO
000080  6201               137 WRITE EN    ONE                     ENABLE ALL INTERRUPTS
000082  4124 3032          138       MVWI  H3032,R1                LOAD START ADDRESS OF RELOCATED CODE
000086  4124 0020          139       MVWI  H0020,R2                LOAD FROM ADDRESS OF CODE
00008A  4724 00E0          140       MVWI  H00E0,R7                LOAD LENGTH OF MOVE
00008E  2A24               141       MVFN  (R2),(R1)               MOVE THE CODE
000090  6802 3034          142       B     H3034                   BRANCH TO CODE ENTRY POINT
000094  6908 00C0          143 MCK16 MVW   LSBR1,R1                RELOAD R1
000098  4224 342E          144       MVWI  H342E,R2                LOAD LED MSG
00009C  7850               145       SECON R2                      OUTPUT MSG
00009E  4020 001E 00A8     146       MVA   MSG01,CONPT             SET UP CONSOLE INTERRUPT POINTER
0000A4  6201               147       EN    ONE                     ALLOW INTERRUPTS
0000A6  50FF               148 HANG  J     HANG                    WAIT FOR INTERRUPT
0000A8  6908 00C0          149 MSG01 MVW   LSBR1,R1                LOAD R1 WITH OUTPUT DATA
0000AC  4020 001E 0080     150       MVA   WRITE,CONPT             SET UP CONSOLE INTERRUPT POINTER
0000B2  7830               151       SECON R1                      OUTPUT DATA
0000B4  6201               152       EN    ONE                     ENABLE INTERRUPTS
0000B6  50FF               153 HANG1 J     HANG1                   HANG FOR EVER
                           154 *
                           155 *** AREA ALLOCATED TO SAVE ACTUAL LSB DURING CLASS INTERRUPTS
                           156 *
0000B8                     157 LSB   EQU   *
0000B8                     158 LSIAR EQU   *                       IAR
0000BA                     159 LSAKR EQU   *+2                     AKR
0000BC                     160 LSLSR EQU   *+4                     LSR
0000BE                     161 LSBR0 EQU   *+6                     R0
0000C0                     162 LSBR1 EQU   *+8                     R1
0000C2                     163 LSBR2 EQU   *+10                    R2
0000C4                     164 LSBR3 EQU   *+12                    R3
0000C6                     165 LSBR4 EQU   *+14                    R4
0000C8                     166 LSBR5 EQU   *+16                    R5
0000CA                     167 LSBR6 EQU   *+18                    R6
0000CC                     168 LSBR7 EQU   *+20                    R7
                           169 *
000000                     170       END   START
```

CROSS-REFERENCE LISTING

```
DECLARED  NAME      ATTRIBUTES AND REFERENCES
       0  .R0.       ABSOLUTE. HEX VALUE(00000000)
                      70   71
       0  .R1.       ABSOLUTE. HEX VALUE(00000001)
                      52   53   77   79   80  130  130  131  133
                     134  135  138  141  143  149  151
       0  .R2.       ABSOLUTE. HEX VALUE(00000002)
                      79   80  139  141  144  145
       0  .R4.       ABSOLUTE. HEX VALUE(00000004)
                     133
       0  .R7.       ABSOLUTE. HEX VALUE(00000007)
                      78  119  120  140
     129  BEGIN      ADDRESS. HEX LOCATION(0000006E) IN CSECT(C34A1   ) LENGTH(2)
                      54
     133  BEGN1      ADDRESS. HEX LOCATION(00000076) IN CSECT(C34A1   ) LENGTH(2)
                     136
     131  BEGN2      ADDRESS. HEX LOCATION(00000072) IN CSECT(C34A1   ) LENGTH(2)
                     132
      74  CONPT      ADDRESS. HEX LOCATION(0000001E) IN CSECT(C34A1   ) LENGTH(2)
                     146  150
      67  CONS       ADDRESS. HEX LOCATION(00000010) IN CSECT(C34A1   ) LENGTH(2)
                      74
      37  C34A1      CSECT. START(00000000) LENGTH(184) ESDID(0)
                      37
     148  HANG       ADDRESS. HEX LOCATION(000000A6) IN CSECT(C34A1   ) LENGTH(2)
                     148
     153  HANG1      ADDRESS. HEX LOCATION(000000B6) IN CSECT(C34A1   ) LENGTH(2)
                     153
      41  H00E0      ABSOLUTE. HEX VALUE(000000E0)
                     140
      39  H0020      ABSOLUTE. HEX VALUE(00000020)
                     139
      40  H0030      ABSOLUTE. HEX VALUE(00000030)
                      77
      42  H0200      ABSOLUTE. HEX VALUE(00000200)
                      78
      46  H3012      ABSOLUTE. HEX VALUE(00003012)
                     126
      47  H3013      ABSOLUTE. HEX VALUE(00003013)
                     120
      43  H3030      ABSOLUTE. HEX VALUE(00003030)
                      81
      44  H3032      ABSOLUTE. HEX VALUE(00003032)
                      81   138
      45  H3034      ABSOLUTE. HEX VALUE(00003034)
                     142
      49  H34A1      ABSOLUTE. HEX VALUE(000034A1)
                      52
      50  H342E      ABSOLUTE. HEX VALUE(0000342E)
                     144
      48  H4000      ABSOLUTE. HEX VALUE(00004000)
                     135
     157  LSB        ADDRESS. HEX LOCATION(000000B8) IN CSECT(C34A1   ) LENGTH(1)
                      56   71   73
     162  LSBR1      ADDRESS. HEX LOCATION(000000C0) IN CSECT(C34A1   ) LENGTH(1)
                     143  149
     143  MCK16      ADDRESS. HEX LOCATION(00000094) IN CSECT(C34A1   ) LENGTH(4)
                      57
     149  MSG01      ADDRESS. HEX LOCATION(000000A8) IN CSECT(C34A1   ) LENGTH(4)
                     146
      38  ONE        ABSOLUTE. HEX VALUE(00000001)
                      82  119  121  127  129  131  134  137  147
                     152
      52  START      ADDRESS. HEX LOCATION(00000000) IN CSECT(C34A1   ) LENGTH(4)
                     112  170
     137  WRITE      ADDRESS. HEX LOCATION(00000080) IN CSECT(C34A1   ) LENGTH(2)
                     150
     119  ZG         ADDRESS. HEX LOCATION(0000005A) IN CSECT(C34A1   ) LENGTH(4)
                      76
      59  ZPREP      ADDRESS. HEX LOCATION(0000000C) IN CSECT(C34A1   ) LENGTH(2)
                     119  122
     106  ZREA       ADDRESS. HEX LOCATION(0000004A) IN CSECT(C34A1   ) LENGTH(2)
                     100
      95  ZSEE       ADDRESS. HEX LOCATION(0000003A) IN CSECT(C34A1   ) LENGTH(2)
                      91
      90  ZSEEK      ADDRESS. HEX LOCATION(00000036) IN CSECT(C34A1   ) LENGTH(2)
                     120  126
```

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                             3 *                    ** C34A2 EC HISTORY **                  *
                             4 ************************************************************
                             5 *                                                            *
                             6 *                ***       PREREQUISITES        ***         *
                             7 *                                                            *
                             8 *                          NONE                              *
                             9 *                                                            *
                            10 ************************************************************
                            11 *                                                            *
                            12 *                ***       MODIFICATIONS        ***         *
                            13 *                                                            *
                            14 *                          NONE                              *
                            15 *                                                            *
                            16 ************************************************************
                            17 *                                                            *
                            18 *                ***     REA'S INCORPORATED     ***         *
                            19 *                                                            *
                            20 *                          NONE                              *
                            21 *                                                            *
                            22 ************************************************************
                            23 *                                                            *
                            24 *                ***    SPECIAL INSTRUCTIONS    ***         *
                            25 *                                                            *
                            26 *                          NONE                              *
                            27 *                                                            *
                            28 ************************************************************
                            29 *                                                            *
                            30 *                ***       E. C. HISTORY        ***         *
                            31 *                                                            *
                            32 *        DATE 15SEP77  DATE          DATE          DATE      *
                            33 *        E.C. 754882   E.C.          E.C.          E.C.      *
                            34 *                                                            *
                            35 ************************************************************
000000                      37 C34A2 START X'0000'
002800                      38 ENTNM EQU   X'2800'              POINTER TO START OF TABLE
002806                      39 TBST  EQU   ENTNM+6              POINTER TO START OF DATA
003FFE                      40 MOV01 EQU   X'3FFE'              PROG TO MOVE ECP START ADDRESS
003FF2                      41 MOV02 EQU   X'3FF2'               ''  ''  ''  ''
003FF6                      42 MOV03 EQU   X'3FF6'               ''  ''  ''  ''
003FFA                      43 MOV04 EQU   X'3FFA'               ''  ''  ''  ''
003FFC                      44 MOV05 EQU   X'3FFC'               ''  ''  ''  ''
000000                      45 ZERO  EQU   0                    0
FFFFFF                      46 MONE  EQU   -1                   -1
000001                      47 ONE   EQU   1                    1
000002                      48 TWO   EQU   2                    2
000003                      49 THREE EQU   3                    3
000006                      50 SIX   EQU   6                    6
000007                      51 SEVEN EQU   7                    7
0000FF                      52 H00FF EQU   X'00FF'             IPL DEV ADDRESS MASK FOR R7
000100                      53 H0100 EQU   X'0100'             ERROR COUNTER
002230                      54 H0230 EQU   X'0230'             ADDRESS WITHIN ECP FOR PARMS
000FFF                      55 H0FFF EQU   X'0FFF'             MASK FIELD
00FFFC                      56 HFFFC EQU   X'FFFC'             *
002000                      57 H2000 EQU   X'2000'             HIGH ORDER PROCESSOR NUMBER
001E00                      58 H1E00 EQU   X'1E00'             LENGTH OF MOVE OF ECP
003000                      59 H3000 EQU   X'3000'             STGCT = FOR 16K MACHINE
0034A2                      60 H34A2 EQU   X'34A2'             PID FOR LEDS
003FFE                      61 H3FFE EQU   X'3FFE'             BRANCH TO ADDRESS FOR MOVING ECP
003FFE                      62 H3FFE EQU   X'3FFE'             MASK USED TO CHECK FOR 32K
003FFF                      63 H3FFF EQU   X'3FFF'             MASK TO BUMP 16K BLOCK INC.
004000                      64 H4000 EQU   X'4000'             START ADDRESS OF TEST
007FFE                      65 H7FFE EQU   X'7FFE'             MASK USED TO CHECK FOR 48K
00BFFE                      66 HBFFE EQU   X'BFFE'             MASK USED TO CHECK FOR 64K
00F000                      67 HF000 EQU   X'F000'             64K MASK
                            69 ************************************************************
                            70 *                                                            *
                            71 *                                                            *
                            72 *                ALL PROGRAMS FROM THIS POINT START HERE     *
                            73 *                                                            *
                            74 *                                                            *
                            75 ************************************************************
000000  6802 02F0           76 START B     STRT                 RESTART BRANCH
000004  6000                77 ZPREP DC    X'6000'              'PREPARE' IDCB
000006  0001                78 Z0001 DC    X'0001'              * (LEVEL 0, ENABLED)
                            79 *** CLASS INTERRUPT 'LSB' AND 'SIA' POINTERS
000008  0230                80         DC  A(LSB)               MACHINE CHECK LSB POINTER
00000A  02EE                81 MCKPT DC    A(ERSTP)             *  ''   ''  SIA  ''
00000C  0230                82         DC  A(LSB)               PROGRAM CHECK LSB POINTER
00000E  02EE                83 PGMPT DC    A(ERSTP)             *  ''   ''  SIA  ''
000010  0230                84         DC  A(LSB)               SUPERVISOR CALL LSB POINTER
000012  02EE                85         DC  A(ERSTP)             *  ''   ''  SIA  ''
000014  0230                86         DC  A(LSB)               POWER/THERMAL LSB POINTER
000016  02EE                87         DC  A(ERSTP)             *  ''   ''  SIA  ''
000018  0230                88         DC  A(LSB)               TRACE LSB POINTER
00001A  02EE                89         DC  A(ERSTP)             *  ''   SIA  ''
00001C  0230                90         DC  A(LSB)               CONSOLE INTERRUPT LSB POINTER
00001E  026A                91 CONPT DC    A(CONS)              *  ''   ''   SIA  ''
000020  0230                92         DC  A(LSB)               SOFT EXCEPTION LSB POINTER
000022  02EE                93         DC  A(ERSTP)             *  ''   ''   SIA  ''
                            94 ************************************************************
                            95 *
000024  02D8                96 ZDDB  DC    A(ZGO2)              IPL DEVICE 'DDB' (DEVICE DATA BLOCK)
000026  0296                97 ZINIT DC    A(ZG)                COMMON DDB (INITIALLY SET TO THE ADDR
                            98 *                                OF 'ZG'). UPON ENTRY EACH TRANSFER
                            99 *                                VECTOR POINTS TO 'ZINIT', INSURING
                           100 *                                THAT ANY DEVICE ADDRESS FROM WHICH
                           101 *                                THE IPL WAS RECEIVED WILL BE SERVICED
                           102 *                                BY THE ROUTINE 'ZG'.  WITHIN THE 'ZG'
                           103 *                                ROUTINE, THE IPL DEVICE VECTOR IS SET
                           104 *                                TO 'ZDDB' AND 'ZINIT' IS SET TO
                           105 *                                ERSTP FOR ANY UNEXPECTED INTERRUPTS.
000028  0000               106 STGCT DC    A(*-*)               BITS 0-3 = HIGHEST INSTALLED INNER
                           107 *                                * STG SIZE (SET BY C34A2)
                           108 *                                BITS 4-15 = NUMBER OF 16K STG BLKS IN
                           109 *                                * OUTER STG (SET BY C34A3)
00002A  0000               110 ZADDR DC    A(*-*)               CONTENTS OF R7 ARE SAVED HERE DURING
                           111 *                                * THE POST-IPL INTERRUPT SERVICE
                           112 *                                * (DEVICE ADDRESS OF THE IPL DEVICE)
00002C  0000               113 ECPNX DC    A(*-*)               FLAG AREA TO INDICATE ECP IS NEXT
00002E  0000               114 LSTAD DC    A(*-*)               ADDRESS SAVE AREA FOR BUILDING TAB
                           115 ************************************************************
                           117 ************************************************************
                           118 *
                           119 *** DEVICE DDB POINTERS          FROM: DA = 00 ( DDB POINTER = 0030 )
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           120 *                                        TO: DA = FF ( DDB POINTER = 022E )
000030  00260026002600260  121 DDBPT DC    128A(ZINIT)
000130  00260026002600260  122         DC  128A(ZINIT)
                           124 *
                           125 ************************************************************
                           126 *
                           127 *** AREA ALLOCATED TO SAVE ACTUAL LSB DURING CLASS INTERRUPTS
                           128 *
000230                     129 LSB    EQU  *
000230  0000               130 LSIAR  DC   A(*-*)               IAR
000232  0000               131 LSAKR  DC   A(*-*)               AKR
000234  0000               132 LSLSR  DC   A(*-*)               LSR
000236  0000               133 LSBR0  DC   A(*-*)               R0
000238  0000               134 LSBR1  DC   A(*-*)               R1
00023A  0000               135 LSBR2  DC   A(*-*)               R2
00023C  0000               136 LSBR3  DC   A(*-*)               R3
00023E  0000               137 LSBR4  DC   A(*-*)               R4
000240  0000               138 LSBR5  DC   A(*-*)               R5
000242  0000               139 LSBR6  DC   A(*-*)               R6
000244  0000               140 LSBR7  DC   A(*-*)               R7
                           141 *
                           143 *
                           144 *** DISK I/O IDCB'S AND DCB'S
                           145 *
                           146 *------------------------------------------------------------
                           147 *
000246  7000               148 ZSEEK DC   X'7000'               'SEEK' IDCB
000248  024A               149         DC  A(ZSEE)              *
                           150 *
                           151 *------------------------------------------------------------
                           152 *
00024A  8005               153 ZSEE   DC   X'8005'              'SEEK' DCB (CONTROL WORD)
00024C  0002               154 ZDIFA  DC   X'0002'              SEEK DIFF.
00024E  0000               155         DC  A(*-*)               NOT USED
000250  0000               156         DC  A(*-*)               NOT USED
000252  0000               157 ZDIFB  DC   A(*-*)               NOT USED
000254  025A               158         DC  A(ZREA)              CHAIN ADDRESS
000256  0000               159         DC  A(*-*)               NOT USED
000258  0000               160         DC  A(*-*)               NOT USED
                           161 *
                           162 *------------------------------------------------------------
                           163 *
00025A  A009               164 ZREA   DC   X'A009'              'READ' DCB (CONTROL WORD)
00025C  00000000           165         DC  2A(*-*)              * NOT USED
000260  1006               166 ZREA1  DC   X'1006'              * SECTOR LENGTH/CYLINDER ADDRESS
000262  0001               167 ZREA2  DC   X'0001'              * HEAD/RECORD NUMBER
000264  026A               168         DC  A(SEEK2)             * CHAIN ADDRESS
000266  0F00               169 ZREA3  DC   X'0F00'              * BYTE COUNT (FULL TRACK)
000268  02F0               170 ZREA4  DC   A(STRT)               * DATA ADDRESS
                           171 *
                           172 *------------------------------------------------------------
                           173 *
00026A  8005               174 SEEK2  DC   X'8005'              'SEEK' DCB (CONTROL WORD)
00026C  000000000000       175         DC  3A(*-*)              NOT USED
000272  0100               176         DC  X'0100'              SELECT HEAD 1
000274  027A               177         DC  A(READ2)             CHAIN ADDRESS
000276  00000000           178         DC  2A(*-*)              NOT USED
                           179 *
                           180 *------------------------------------------------------------
                           181 *
00027A  2009               182 READ2  DC   X'2009'              'READ' DCB (CONTROL WORD)
00027C  00000000           183         DC  2A(*-*)              * NOT USED
000280  1006               184         DC  X'1006'              * SECTOR LENGTH/CYLINDER ADDRESS
000282  0101               185         DC  X'0101'              * HEAD/RECORD NUMBER
000284  0000               186         DC  A(*-*)               * NOT USED
000286  0F00               187         DC  X'0F00'              * BYTE COUNT (FULL TRACK)
000288  11F0               188         DC  A(STRT+X'0F00')      * DATA ADDRESS
                           190 ************************************************************
                           191 *
                           192 *** CONS *** CONSOLE INTERRUPT SERVICE SUBROUTINE
                           193 *
                           194 ************************************************************
00028A  6580               195 CONS   DIAG X'80'                CLEAR DATA BUFFER
00028C  0021               196         DC  X'0021'              *
00028E  0000               197         DC  X'0000'              *
000290  7819               198         CPCL R0                  GET CURRENT LEVEL
000292  5826 0230          199         SELB R0,LSB              RETURN TO MAIN PROGRAM
                           200 ************************************************************
                           201 *
                           202 *** ZG ******  ROUTINE FOR FETCHING THE NEXT PROGRAM FROM THE IPL DISK
                           203 *
                           204 ************************************************************
000296  6B04 029E          205 ZG     BCC    THREE,ZG1             TEST IF CC OK
00029A  6802 02EE          206 ERRST  B      ERSTP                 IF NO
00029E  C728 002B          207 ZG1    MVB    R7,ZADDR+ONE          MOVE 'DA' OUT OF R7 INTO SAVE LOCAT
0002A2  7FE0 00FF          208         NWI    H00FF,R7              DEVELOP ADDRESS OF IPL-DEVICE VECTOR
0002A6  7724               209         MVW    R7,R1                 * (X'DA' X 2) + X'30'
0002A8  3109               210         SLL    ONE,R1                * AND SAVE D.A. IN R7
0002AA  4060 0030 0024     211 ZG2    MVA    ZDDB,(R1,DDBPT)       SET 'DDB' ADDRESS INTO IPL-DEVICE
                           212 *                                   * TRANSFER VECTOR
0002B0  4020 0026 02EE     213 *      MVA    ERSTP,ZINIT           SET TRAP FOR UNEXPECTED INTERRUPTS
                           214 *                                   * INTO REMAINING VECTORS
0002B6  C728 0005          215         MVB    R7,ZPREP+1            *
0002BA  C728 0247          216         MVB    R7,ZSEEK+1            *
0002BE  5018               217         J      STRT                  BRANCH TO START PROGRAM
0002C0  6201               218 ZDISK EN   ONE                       ENABLE SUMMARY MASK (ALLOW INTERRUPT)
0002C2  680C 0004          219         IO     ZPREP                 PREPARE OPERATION (ALLOW INTERRUPT)
0002C6  6F04 02CC          220         BCC    SEVEN,ZGO             TEST IF CC OK
0002CA  50E7               221         J      ERRST                 IF NO
                           222 *
                           223 *** SEEK TO PROPER TRACK AND READ PROGRAM
                           224 *
0002CC  680C 0246          225 ZGO    IO     ZSEEK                 SEEK OPERATION
0002D0  6F04 02D6          226         BCC    SEVEN,ZGO1            TEST IF CC IS OK
0002D4  50E2               227         J      ERRST                 IF NO
0002D6  6101               228 ZGO1   LEX    ONE                   WAIT FOR SEEK END
                           229 *                                   * (SERVICE INTERRUPT AT 'ZGO2')
0002D8  6B04 02DE          230 ZGO2   BCC    THREE,ZGOA            BRANCH IF GOOD INTERRUPT
0002DC  50DE               231         J      ERRST                 BRANCH IF NOT
0002DE  6808 002C          232 ZGOA   MVW    ECPNX,R0              TEST IF NEXT PGM IS ECP SUPP
0002E2  1006               233         JZ     STRT                  IF NO GO TO RESTART POINT
                           234 *
                           235 *** MOVE THE ECP SUPR (LOADED AT 'STRT') DOWN TO LOCATION X'0000'.
                           236 *** AFTER MOVING, BRANCH TO LOCATION X'0000'.
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           237 *
0002E4  9028 0028 0520     238 ZGOB   MVD   STGCT,STRT+H0230      SET 'STGCT' AND 'ZADDR' INTO SUPERV.
0002EA  6802 3FEE          239        B     H3FEE                 PASS CONTROL TO 'MOVE' ROUTINE, SET
                           240 *                                  * INTO HIGH STORAGE BY PREVIOUS PGM
                           241 *
                           242 *
                           243 *** UNEXPECTED CLASS INTERRUPT TRAP
0002EE  6400               244 ERSTP  STOP                        UPEXPECTED ERROR TRAP
0002F0  4124 34A2          245 STRT   MVWI  #34A2,R1              LOAD PROG ID
0002F4  7830               246        SECON R1                    SET IN LEDS
0002F6  4124 0000          247        MVWI  ZERO,R1               SET MAX COUNT
0002FA  01FF               248 STRTO  ABI   MONE,R1               DECREMENT COUNT
0002FC  18FE               249        JNZ   STRTO                 BRANCH IF NOT DONE
0002FE  75AA               250        SW    R5,R5                 ZERO R5
000300  D125 2800          251        MVDZ  ENTNM,R1              ZERO TABLE START
000304  4020 002E 2806     252        MVWI  TBST,LSTAD            INIT DATA POINTER
00030A  4020 000A 031E     253        MVA   STRT1,MCKPT           INIT MACHINE CHECK POINTER
000310  4020 000E 0342     254        MVA   PGMCK,PGMPT           INIT PROG CHECK POINTER
000316  4124 3FFE          255        MVWI  H3FFE,R1              SET UP FOR TEST OF 32K
00031A  6A28 0002          256        MVW   (R1,2),R2             DO TEST
00031E  4020 000A 032C     257 STRT1  MVA   STRT2,MCKPT           INIT MACHINE CHECK POINTER
000324  4124 7FFE          258        MVWI  H7FFE,R1              SET UP FOR TEST OF 48K
000328  6A28 0002          259        MVW   (R1,2),R2             DO TEST
00032C  4020 000A 033A     260 STRT2  MVA   STRT3,MCKPT           INIT MACHINE CHECK POINTER
000332  4124 BFFE          261        MVWI  HBFFE,R1              SET UP FOR TEST OF 64K
000336  6A28 0002          262        MVW   (R1,2),R2             DO TEST
00033A  4020 0028 F000     263 STRT3  MVWI  HF000,STGCT           SET 64K INDICATOR
000340  5006               264        J     TSTSG                 BRANCH
000342  8828 0238 0028     265 PGMCK  MVW   LSBR1,STGCT           RESTORE R1
000348  402D 0028 0FFF     266        RBTWI H0FFF,STGCT           MASK OFF UNUSED BITS
00034E  6201               267 TSTSG  EN    ONE                   ENABLE INTERRUPTS
000350  4020 000E 02EE     268        MVA   ERSTP,PGMPT           INIT PROG CHECK POINTER
000356  402F 0028 3000     269        CWI   H3000,STGCT           CHECK FOR 16K OF STORE
00035C  6800 0380          270        BE    LDNXT                 BRANCH IF ONLY 16K
000360  4124 4000          271        MVWI  H4000,R1              INIT R1
000364  6C08 0028          272        MVW   STGCT,R4              INIT R4
000368  7C83 0FFF          273        OWI   H0FFF,R4              POINT R4 AT LAST ADDRESS OF MACHINE
00036C  7C81 0001          274        AWI   ONE,R4                *
000370  4020 000A 03B6     275        MVA   MCKPT,MCKPT           INIT MACHINE CHECK POINTER
000376  C240               276 CKBYT  MVB   (R1),R2               MOVE A BYTE AT A TIME
000378  7921 0001          277        AWI   ONE,R1                INCRE R1
00037C  7185               278 CKBY1  CW    R1,R4                 IS TEST DONE
00037E  18FB               279        JNE   CKBYT                 BRANCH IF NO
000380  9028 040A 3FEE     280 LDNXT  MVD   LDR5,MOV01            RELOCATE PROG THAT WILL MOVE ECP
000386  9028 040E 3FF2     281        MVD   LDR6,MOV02            *
00038C  9028 0412 3FF6     282        MVD   LDR7,MOV03            *
000392  8828 0416 3FFA     283        MVW   LDR8,MOV04            *
000398  9028 0418 3FFC     284        MVD   BRNC,MOV05            *
00039E  6504               285        DIAG  X'04'                 FIND THE TYPE OF CPU
0003A0  C028 002A          286        MVB   R0,ZADDR              LOAD INTO SAVE AREA
0003A4  402C 002A 2000     287        OWI   H2000,ZADDR           OR IN TO INDICATE 2X TYPE
0003AA  712A               288        SW    R1,R1                 ZERO R1
0003AC  7830               289        SECON R1                    ZERO LEDS
0003AE  582F 0244          290        CPPSR LSBR7                 CLEAR PSW
0003B2  6802 02C0          291        B     ZDISK                 BRANCH
0003B6  6201               293 MCKBT  EN    ONE                   ENABLE INTERRUPTS
0003B8  6908 0238          294        MVW   LSBR1,R1              RELOAD R1
0003BC  7144               295        MVW   R1,R2                 SAVE R1 INTO R2
0003BE  3210               296        SLC   TWO,R2                SHIFT TO ISOLATE WHICH 16K BLOCK
0003C0  7A44 FFFC          297        RBTWI HFFFC,R2              RESET ALL OTHER BITS
0003C4  7A41 2800          298        AWI   ENTNM,R2              ADD TO START OF TABLE
0003C8  C680               299        MVB   (R2),R6               LOAD THIS BYTE
0003CA  F601               300        CBI   ONE,R6                HAS THERE BEEN AN ERROR ALREADY
0003CC  1012               301        JE    BUMP                  BRANCH YES
0003CE  691D 002E          302        MVW   R1,LSTAD*             STORE INTO DATA FIELD
0003D2  6C08 023E          303        MVW   LSBR4,R4              RESTORE R4
0003D6  402E 002E 0002     304        SWI   TWO,LSTAD             DECREMENT ADDRESS TO INDICATE TYPE
0003DC  4C29 2800 0100     305        AWI   H0100,ENTNM           ADD ONE TO TOTAL ERROR COUNT
0003E2  0601               306        ABI   ONE,R6                BUMP R6
0003E4  C688               307        MVB   R6,(R2)               LOAD NUM INTO DATA AREA
0003E6  4030 002E 0000     308        MVWI  ZERO,LSTAD*           ZERO INDICATOR BITS
0003EC  4029 002E 0006     309        AWI   SIX,LSTAD             BUMP TO POINT TO NEXT DATA FIELD
0003F2  7924 3FFF          310 BUMP   RBTWI H3FFF,R1              RESET ADDRESS BITS IN R1
0003F6  7921 4000          311        AWI   H4000,R1              BUMP TO NEXT 16K BLOCK
0003FA  690D 0238          312        MVW   R1,LSBR1              INDICATE NEW ADDRESS TO TEST
0003FE  4020 0230 037C     313        MVA   CKBY1,LSIAR           INDICATE ADDRESS TO BRANCH TO
000404  7819               314        CPCL  R0                    GET LEVEL
000406  5826 0230          315        SELB  R0,LSB                BRANCH VIA LSB
00040A  4524 02F0          317 LDR5   MVW   STRT,R5               LOAD START OF ECP
00040E  4624 0000          318 LDR6   MVWI  ZERO,R6               LOAD TO ADDRESS
000412  4724 1E00          319 LDR7   MVWI  H1E00,R7              LOAD LENGTH
000416  2DC4               320 LDR8   MVFN  (R5),(R6)             MOVE ECP
000418  6802 0000          321 BRNC   B     ZERO                  BRANCH TO START ECP
000000                     322        END   C34A2
```


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DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R0.     ABSOLUTE. HEX VALUE(00000000)
                   198   199   232   286   314   315
       0  .R1.     ABSOLUTE. HEX VALUE(00000001)
                   209   210   211   245   246   247   248   251   255
                   256   258   259   261   262   271   276   277   278
                   288   288   289   294   295   302   310   311   312
       0  .R2.     ABSOLUTE. HEX VALUE(00000002)
                   256   259   262   276   295   296   297   298   299
                   307
       0  .R4.     ABSOLUTE. HEX VALUE(00000004)
                   272   273   274   278   303
       0  .R5.     ABSOLUTE. HEX VALUE(00000005)
                   250   250   317   320
       0  .R6.     ABSOLUTE. HEX VALUE(00000006)
                   299   300   306   307   318   320
       0  .R7.     ABSOLUTE. HEX VALUE(00000007)
                   207   208   209   215   216   319
     321  BRNC     ADDRESS. HEX LOCATION(00000418) IN CSECT(C34A2   ) LENGTH(4)
                   284
     310  BUMP     ADDRESS. HEX LOCATION(000003F2) IN CSECT(C34A2   ) LENGTH(4)
                   301
     276  CKBYT    ADDRESS. HEX LOCATION(00000376) IN CSECT(C34A2   ) LENGTH(2)
                   279
     278  CKBY1    ADDRESS. HEX LOCATION(0000037C) IN CSECT(C34A2   ) LENGTH(2)
                   313
     195  CONS     ADDRESS. HEX LOCATION(0000028A) IN CSECT(C34A2   ) LENGTH(2)
                    91
      37  C34A2    CSECT. START(00000000) LENGTH(1052) ESDID(0)
                    37   322
     121  DDBPT    ADDRESS. HEX LOCATION(00000030) IN CSECT(C34A2   ) LENGTH(2)
                   211
     113  ECPNX    ADDRESS. HEX LOCATION(0000002C) IN CSECT(C34A2   ) LENGTH(2)
                   232
      38  ENTNM    ABSOLUTE. HEX VALUE(00002800)
                    39   251   298   305
     206  ERRST    ADDRESS. HEX LOCATION(0000029A) IN CSECT(C34A2   ) LENGTH(4)
                   221   227   231
     244  ERSTP    ADDRESS. HEX LOCATION(000002EE) IN CSECT(C34A2   ) LENGTH(2)
                    81    83    85    87    89    93   206   213   268
      66  HBFFE    ABSOLUTE. HEX VALUE(0000BFFE)
                   261
      56  HFFFC    ABSOLUTE. HEX VALUE(0000FFFC)
                   297
      67  HF000    ABSOLUTE. HEX VALUE(0000F000)
                   263
      55  H0FFF    ABSOLUTE. HEX VALUE(00000FFF)
                   266   273
      52  H00FF    ABSOLUTE. HEX VALUE(000000FF)
                   208
      53  H0100    ABSOLUTE. HEX VALUE(00000100)
                   305
      54  H0230    ABSOLUTE. HEX VALUE(00000230)
                   238
      58  H1E00    ABSOLUTE. HEX VALUE(00001E00)
                   319
      57  H2000    ABSOLUTE. HEX VALUE(00002000)
                   287
      61  H3FEE    ABSOLUTE. HEX VALUE(00003FEE)
                   239
      62  H3FFE    ABSOLUTE. HEX VALUE(00003FFE)
                   255
      63  H3FFF    ABSOLUTE. HEX VALUE(00003FFF)
                   310
      59  H3000    ABSOLUTE. HEX VALUE(00003000)
                   269
      60  H34A2    ABSOLUTE. HEX VALUE(000034A2)
                   245
      64  H4000    ABSOLUTE. HEX VALUE(00004000)
                   271   311
      65  H7FFE    ABSOLUTE. HEX VALUE(00007FFE)
                   258
     280  LDNXT    ADDRESS. HEX LOCATION(00000380) IN CSECT(C34A2   ) LENGTH(6)
                   270
     317  LDR5     ADDRESS. HEX LOCATION(0000040A) IN CSECT(C34A2   ) LENGTH(4)
                   280
     318  LDR6     ADDRESS. HEX LOCATION(0000040E) IN CSECT(C34A2   ) LENGTH(4)
                   281
     319  LDR7     ADDRESS. HEX LOCATION(00000412) IN CSECT(C34A2   ) LENGTH(4)
                   282
     320  LDR8     ADDRESS. HEX LOCATION(00000416) IN CSECT(C34A2   ) LENGTH(2)
                   283
     129  LSB      ADDRESS. HEX LOCATION(00000230) IN CSECT(C34A2   ) LENGTH(1)
                    80    82    84    86    88    90    92   199   315
     134  LSBR1    ADDRESS. HEX LOCATION(00000238) IN CSECT(C34A2   ) LENGTH(2)
                   265   294   312
     137  LSBR4    ADDRESS. HEX LOCATION(0000023E) IN CSECT(C34A2   ) LENGTH(2)
                   303
     140  LSBR7    ADDRESS. HEX LOCATION(00000244) IN CSECT(C34A2   ) LENGTH(2)
                   290
     130  LSIAR    ADDRESS. HEX LOCATION(00000230) IN CSECT(C34A2   ) LENGTH(2)
                   313
     114  LSTAD    ADDRESS. HEX LOCATION(0000002E) IN CSECT(C34A2   ) LENGTH(2)
                   252   302   304   308   309
     293  MCKBT    ADDRESS. HEX LOCATION(000003B6) IN CSECT(C34A2   ) LENGTH(2)
                   275
      81  MCKPT    ADDRESS. HEX LOCATION(0000000A) IN CSECT(C34A2   ) LENGTH(2)
                   253   257   260   275
      46  MONE     ABSOLUTE. HEX VALUE(FFFFFFFF)
                   248
      40  MOV01    ABSOLUTE. HEX VALUE(00003FEE)
                   280
      41  MOV02    ABSOLUTE. HEX VALUE(00003FF2)
                   281
      42  MOV03    ABSOLUTE. HEX VALUE(00003FF6)
                   282
      43  MOV04    ABSOLUTE. HEX VALUE(00003FFA)
                   283
      44  MOV05    ABSOLUTE. HEX VALUE(00003FFC)
                   284
      47  ONE      ABSOLUTE. HEX VALUE(00000001)
                   207   210   218   228   267   274   277   293   300
                   306
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CROSS-REFERENCE LISTING


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DECLARED  NAME      ATTRIBUTES AND REFERENCES
   265    PGMCK       ADDRESS. HEX LOCATION(00000342) IN CSECT(C34A2   ) LENGTH(6)
                      254
    83    PGMPT       ADDRESS. HEX LOCATION(0000000E) IN CSECT(C34A2   ) LENGTH(2)
                      254   268
   182    READ2       ADDRESS. HEX LOCATION(0000027A) IN CSECT(C34A2   ) LENGTH(2)
                      177
   174    SEEK2       ADDRESS. HEX LOCATION(0000026A) IN CSECT(C34A2   ) LENGTH(2)
                      168
    51    SEVEN       ABSOLUTE. HEX VALUE(00000007)
                      220   226
    50    SIX         ABSOLUTE. HEX VALUE(00000006)
                      309
   106    STGCT       ADDRESS. HEX LOCATION(00000028) IN CSECT(C34A2   ) LENGTH(2)
                      238   263   265   266   269   272
   245    STRT        ADDRESS. HEX LOCATION(000002F0) IN CSECT(C34A2   ) LENGTH(4)
                       76   170   188   217   233   238   317
   248    STRT0       ADDRESS. HEX LOCATION(000002FA) IN CSECT(C34A2   ) LENGTH(2)
                      249
   257    STRT1       ADDRESS. HEX LOCATION(0000031E) IN CSECT(C34A2   ) LENGTH(6)
                      253
   260    STRT2       ADDRESS. HEX LOCATION(0000032C) IN CSECT(C34A2   ) LENGTH(6)
                      257
   263    STRT3       ADDRESS. HEX LOCATION(0000033A) IN CSECT(C34A2   ) LENGTH(6)
                      260
    39    TBST        ABSOLUTE. HEX VALUE(00002806)
                      252
    49    THREE       ABSOLUTE. HEX VALUE(00000003)
                      205   230
   267    TSTSG       ADDRESS. HEX LOCATION(0000034E) IN CSECT(C34A2   ) LENGTH(2)
                      264
    48    TWO         ABSOLUTE. HEX VALUE(00000002)
                      296   304
   110    ZADDR       ADDRESS. HEX LOCATION(0000002A) IN CSECT(C34A2   ) LENGTH(2)
                      207   286   287
    96    ZDDB        ADDRESS. HEX LOCATION(00000024) IN CSECT(C34A2   ) LENGTH(2)
                      211
   218    ZDISK       ADDRESS. HEX LOCATION(000002C0) IN CSECT(C34A2   ) LENGTH(2)
                      291
    45    ZERO        ABSOLUTE. HEX VALUE(00000000)
                      247   308   318   321
   205    ZG          ADDRESS. HEX LOCATION(00000296) IN CSECT(C34A2   ) LENGTH(4)
                       97
   225    ZGO         ADDRESS. HEX LOCATION(000002CC) IN CSECT(C34A2   ) LENGTH(4)
                      220
   232    ZGOA        ADDRESS. HEX LOCATION(000002DE) IN CSECT(C34A2   ) LENGTH(4)
                      230
   228    ZGO1        ADDRESS. HEX LOCATION(000002D6) IN CSECT(C34A2   ) LENGTH(2)
                      226
   230    ZGO2        ADDRESS. HEX LOCATION(000002D8) IN CSECT(C34A2   ) LENGTH(4)
                       96
   207    ZG1         ADDRESS. HEX LOCATION(0000029E) IN CSECT(C34A2   ) LENGTH(4)
                      205
    97    ZINIT       ADDRESS. HEX LOCATION(00000026) IN CSECT(C34A2   ) LENGTH(2)
                      121   121   121   121   121   121   121   121   121
                      121   121   121   121   121   121   121   121   121
                      121   121   121   121   121   121   121   121   121
                      121   121   121   121   121   121   121   121   121
                      121   121   121   121   121   121   121   121   121
                      121   121   121   121   121   121   121   121   121
                      121   121   121   121   121   121   121   121   121
                      121   121   121   121   121   121   121   121   121
                      121   121   121   121   121   121   121   121   121
                      121   121   121   121   121   121   121   121   121
                      121   121   121   121   121   121   121   121   121
                      121   121   121   121   121   121   121   121   121
                      121   121   121   121   121   121   121   121   121
                      121   121   121   121   121   121   121   121   121
                      122   122   122   122   122   122   122   122   122
                      122   122   122   122   122   122   122   122   122
                      122   122   122   122   122   122   122   122   122
                      122   122   122   122   122   122   122   122   122
                      122   122   122   122   122   122   122   122   122
                      122   122   122   122   122   122   122   122   122
                      122   122   122   122   122   122   122   122   122
                      122   122   122   122   122   122   122   122   122
                      122   122   122   122   122   122   122   122   122
                      122   122   122   122   122   122   122   122   122
                      122   122   122   122   122   122   122   122   122
                      122   122   122   122   122   122   122   122   122
                      122   122   122   122   213
    77    ZPREP       ADDRESS. HEX LOCATION(00000004) IN CSECT(C34A2   ) LENGTH(2)
                      215   219
   164    ZREA        ADDRESS. HEX LOCATION(0000025A) IN CSECT(C34A2   ) LENGTH(2)
                      158
   153    ZSEE        ADDRESS. HEX LOCATION(0000024A) IN CSECT(C34A2   ) LENGTH(2)
                      149
   148    ZSEEK       ADDRESS. HEX LOCATION(00000246) IN CSECT(C34A2   ) LENGTH(2)
                      216   225
```

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                             3 *                    ** C34A3 E.C. HISTORY **                  *
                             4 ******************************************************************
                             5 *                                                                *
                             6 *                  ***       PREREQUISITES         ***           *
                             7 *                                                                *
                             8 *                              NONE                              *
                             9 *                                                                *
                            10 ******************************************************************
                            11 *                                                                *
                            12 *                  ***       MODIFICATIONS         ***           *
                            13 *                                                                *
                            14 *                              NONE                              *
                            15 *                                                                *
                            16 ******************************************************************
                            17 *                                                                *
                            18 *                  ***     REA'S INCORPORATED      ***           *
                            19 *                                                                *
                            20 *                              NONE                              *
                            21 *                                                                *
                            22 ******************************************************************
                            23 *                                                                *
                            24 *                  ***    SPECIAL INSTRUCTIONS     ***           *
                            25 *                                                                *
                            26 *                              NONE                              *
                            27 *                                                                *
                            28 ******************************************************************
                            29 *                                                                *
                            30 *                  ***       E. C. HISTORY         ***           *
                            31 *                                                                *
                            32 *        DATE 15SEP77  DATE          DATE          DATE          *
                            33 *        E.C. 754882   E.C.          E.C.          E.C.          *
                            34 *                                                                *
                            35 ******************************************************************
                            37 *
0002F0                      38 C34A3 START X'02F0'              LOAD/EXECUTION ADDRESS
000230                      39 LSB   EQU   X'0230'              INTERRUPT LSB SAVE AREA
000230                      40 LSIAR EQU   X'0230'              *
000232                      41 LSAKR EQU   X'0232'              *
000234                      42 LSLSR EQU   X'0234'              *
000236                      43 LSBR0 EQU   X'0236'              *
000238                      44 LSBR1 EQU   X'0238'              *
00023A                      45 LSBR2 EQU   X'023A'              *
00023C                      46 LSBR3 EQU   X'023C'              *
00023E                      47 LSBR4 EQU   X'023E'              *
000240                      48 LSBR5 EQU   X'0240'              *
000242                      49 LSBR6 EQU   X'0242'              *
000244                      50 LSBR7 EQU   X'0244'              *
00002A                      51 ZADDR EQU   X'002A'              ADDRESS OF THE PROC> TYPE FIELD
0002EE                      52 ERSTP EQU   X'02EE'              ADDRESS FOR ALL ERROR STOPS
000028                      53 STGCT EQU   X'0028'              ADDRESS OF TOTAL STORAGE SIZE
00002E                      54 LSTAD EQU   X'002E'              ADDRESS OF THE TABLE POINTER
00000A                      55 MCKPT EQU   X'000A'              ADDRESS OF THE MACHINE CHECK POINTER
00000E                      56 PGMPT EQU   X'000E'              ADDRESS OF THE PROG CHECK POINTER
00024C                      57 ZDIFA EQU   X'024C'              ADDRESS WITHIN THE LOAD DCB''S
000260                      58 ZREA1 EQU   X'0260'              *
000280                      59 ZREA5 EQU   X'0280'              *
00002C                      60 ECPNX EQU   X'002C'              ADDRESS OF INDICATOR TO LOAD ECP
0002C0                      61 ZDISK EQU   X'02C0'              BRANCH POINT WITHIN LOAD ROUTINE
00F000                      62 HF000 EQU   X'F000'              OUTER STORAGE ADDRESS KEY
00E000                      63 HE000 EQU   X'E000'              INNER STORAGE ADDRESS KEY
00000E                      64 H000E EQU   X'000E'              COUNT FOR A ONE SEC DELAY LOOP
008000                      65 H8000 EQU   X'8000'              DELAY LOOP COUNTER
000002                      66 TRANS EQU   X'02'                EQU FOR TRANSLATOR
002800                      67 TABST EQU   X'2800'              START ADDRESS OF TABLE
002804                      68 DATST EQU   X'2804'              START ADDRESS OF DATA
000800                      69 HEX2K EQU   X'0800'              2K BLOCK
004000                      70 HEX16 EQU   X'4000'              16K BLOCK
000000                      71 ZERO  EQU   0                    0
000001                      72 ONE   EQU   1                    1
FFFFFF                      73 MONE  EQU   -1                   -1
000002                      74 TWO   EQU   2                    2
000004                      75 FOUR  EQU   4                    4
000008                      76 EIGHT EQU   8                    8
000023                      77 H0023 EQU   X'0023'              PROS. TYPE 0023
00100A                      78 H100A EQU   X'100A'              ECP LOCATOIN ON DISK
0000B0                      79 H00B0 EQU   X'00B0'              LOOP COUNT FOR PROS. TYPE 23
00FFF8                      80 HFFF8 EQU   X'FFF8'              MASK FIELD
000FFF                      81 H0FFF EQU   X'0FFF'              *
003FFF                      82 H3FFF EQU   X'3FFF'              *
0034A3                      83 H34A3 EQU   X'34A3'              PID FOR LEDS
000004                      84 H0004 EQU   X'0004'              CONSTANTS USED FOR INIT OF SEG REGS
000100                      85 H0100 EQU   X'0100'              *
000104                      86 H0104 EQU   X'0104'              *
000200                      87 H0200 EQU   X'0200'              *
000204                      88 H0204 EQU   X'0204'              *
000300                      89 H0300 EQU   X'0300'              *
000304                      90 H0304 EQU   X'0304'              *
000400                      91 H0400 EQU   X'0400'              *
000404                      92 H0404 EQU   X'0404'              *
000500                      93 H0500 EQU   X'0500'              *
000504                      94 H0504 EQU   X'0504'              *
000600                      95 H0600 EQU   X'0600'              *
000604                      96 H0604 EQU   X'0604'              *
000700                      97 H0700 EQU   X'0700'              *
000704                      98 H0704 EQU   X'0704'              *
                           100 *
                           101 ** TEST FOR 'RELOCATION TRANSLATOR INSTALLED'
                           102 *
0002F0  6802 02F4          103 START B     STRT                BRANCH TO START PROG
0002F4  4124 34A3          104 STRT  MVWI  H34A3,R1            LOAD PID INTO R1
0002F8  7830               105       SECON R1                  LOAD INTO LEDS
0002FA  4124 0000          106       MVWI  ZERO,R1             LOAD MAX LOOP COUNT
0002FE  01FF               107 STRT1 ABI   MONE,R1             DECREMENT BY ONE
000300  18FE              108       JNZ   STRT1               BRANCH IF NOT ZERO
000302  C120 2800          109       MVB   TABST,R1            LOAD TOTAL ERROR COUNT
000306  3111               110       SLL   TWO,R1              SHIFT TO ISOLATE
000308  7921 2804          111       AWI   DATST,R1            ADD TO START OF DATA
00030C  690D 002E          112       MVW   R1,LSTAD            INIT LAST ADDRESS POINTER
000310  D135 002E          113       MVDZ  LSTAD*,R1           ZERO THIS LOCATION
000314  C020 002A          114       MVB   ZADDR,R0            LOAD PROC TYPE BYTE
000318  7806 0023          115       CWI   H0023,R0            IS THIS TYPE 23
00031C  6800 0458          116       BE    LDNXT               BRANCH YES
000320  724A               117 RETST SW    R2,R2               ZERO R2
000322  4020 000E 0458     118       MVA   LDNXT,PGMPT         CHANGE PROG CHECK POINTER
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000328  5A21 0436          119       SESR  R2,H0000               TEST FOR ADDRESS TRANS
00032C  4020 000E 02EE     120       MVWI  ERSTP,PGMPT           CHANGE POINTER TO WHAT IT WAS
000332  8829 042E 0028     121       OW    H0800,STGCT           INDICATE THAT ADDRESS TRANS IS THERE
                           123 ******************************************************************
                           124 *
                           125 *                        OUTER STORAGE TEST
                           126 *
                           127 * THIS TEST VERIFIES ALL STORAGE, ABOVE 64K, IF THE RELOCATION
                           128 * TRANSLATOR IS INSTALLED.  THIS IS ACCOMPLISHED BY UTILIZING THE
                           129 * TRANSLATOR TO READ ALL INSTALLED STORAGE.
                           130 *
                           131 * SINCE ONE STACK OF SEGMENTATION REGISTERS (SEG REGS) WILL TEST 64K,
                           132 * EACH STACK IS SET UP FOR A 64 KBYTE GROUPING.  EACH STACK
                           133 * (OTHER THAN 0) IS UTILIZED FOR TESTING OUTER STORAGE (0 ACCESSES THE
                           134 * PROGRAM).  LAYOUT IS THUS: STACK 0, LOCATIONS 0 - 64K
                           135 *                           STACK 1, LOCATIONS 64K - 128K
                           136 *                           STACK 2, LOCATIONS 128K - 192K
                           137 *                                    |
                           138 *                                   ETC.
                           139 *
                           140 ******************************************************************
                           141 ** SET UP ALL STACKS OF SEGMENTATION REGISTERS
                           142 *
000338  4020 000E 0450     143 STG10 MVA   STG30,PGMPT           SET PGMCK AND
00033E  4020 000A 0500     144       MVA   MCKST,MCKPT           * MACHK SIA VECTORS
000344  0900               145       MVBI  ZERO,R1               INITIALIZE 'GOOD STORAGE SIZE' INDEX
000346  0A00               146       MVBI  ZERO,R2               SET 'SEG REG 0,0' ADDRESS
000348  C825 0426          147       MWZ   STG24,R0              INITIALIZE OP2K VALUE
00034C                     148 STG13 EQU   *                     INITIALIZE SEG REG DATA VALUE
00034C  4324 0000          149       MVWI  ZERO,R3               STK 0
000350  4224 0004          150       MVWI  H0004,R2              REG 0 DATA
000354  9C24               151       JAL   WREG,R4
000356  4324 0100          152       MVWI  H0100,R3              STK 1
00035A  4224 0104          153       MVWI  H0104,R2              REG 0 DATA
00035E  9C1F               154       JAL   WREG,R4
000360  4324 0200          155       MVWI  H0200,R3              STK 2
000364  4224 0204          156       MVWI  H0204,R2              REG 0 DATA
000368  9C1A               157       JAL   WREG,R4
00036A  4324 0300          158       MVWI  H0300,R3              STK 3
00036E  4224 0304          159       MVWI  H0304,R2              REG 0 DATA
000372  9C15               160       JAL   WREG,R4
000374  4324 0400          161       MVWI  H0400,R3              STK 4
000378  4224 0404          162       MVWI  H0404,R2              REG 0 DATA
00037C  9C10               163       JAL   WREG,R4
00037E  4324 0500          164       MVWI  H0500,R3              STK 5
000382  4224 0504          165       MVWI  H0504,R2              REG 0 DATA
000386  9C0B               166       JAL   WREG,R4
000388  4324 0600          167       MVWI  H0600,R3              STK 6
00038C  4224 0604          168       MVWI  H0604,R2              REG 0 DATA
000390  9C06               169       JAL   WREG,R4
000392  4324 0700          170       MVWI  H0700,R3              STK 7
000396  4224 0704          171       MVWI  H0704,R2              REG 0 DATA
00039A  9C01               172       JAL   WREG,R4
00039C  500C               173       J     SG16A                 BRANCH TO CONTINUE
                           175 ******************************************************************
                           176 *  SUBROUTINE TO WRITE A WHOLE STACK'S SEG REGS (32)
                           177 *
                           178 *  ENTER WITH R2 CONTAINING THE STARTING DATA TO GO INTO THE LEFT
                           179 *  WORD OF THE FIRST SEG REG OF THE STACK. THIS DATA WILL BE WRITTEN
                           180 *  AND THEN INCREMENTED BY X'0008' AND WRITTEN INTO THE NEXT SEG REG
                           181 *  ETC. UNTIL 32 CONSECUTIVE SEG REGS HAVE BEEN WRITTEN. THIS WILL
                           182 *  MAP 64K OF CONTIGUOUS STORAGE.
                           183 *
                           184 *  ENTER WITH R3 CONTAINING THE STACK ADDR IN BITS 5-7. HAVE ALL
                           185 *  OTHER BITS EQUAL TO 0.
                           186 *
                           187 *  ENTER WITH THE RETURN ADDR IN R4.
                           188 ******************************************************************
                           189 WREG  EQU   *
0003B2  6882 0000          190       MVW   R2,STG22              PUT SEG REG'S DATA IN STORAGE
                           191       SESR  R3,STG22              WRITE SEG REG
0003A2  5B21 0422          192       AW    H0800,R3              INCR. SEG REG ADDR
0003A6  6B0E 042E          193       JCY   WREG5                 JUMP IF LAST REG WAS WRITTEN
0003AA  1703               194       AW    H0008,R2              INCR. SEG REG'S DATA
0003AC  6A0E 0430          195       J     WREG                  WRITE NEXT REG
0003B0  50F6               196 *
                           197 WREG5 B     (R4)                  RETURN
                           199 ******************************************************************
0003B6  8828 042A 0426     200 SG16A MVW   HFFFF,STG24           INITIALIZE 'OP2K VALUE' (1 - 7)
0003BC  8828 0436 0428     201 SG15B MVW   H0000,STG27           INITIALIZE STARTING ADDR
0003C2  A828 0434 0426     202 STG17 AW    H0001,STG24           INCR OP2K VALUE
0003C8  5922 0426          203       SEOTK STG24                 SET OP2K TO CURRENT TEST VALUE
0003CC  6C08 0428          204 STG18 MVW   STG27,R4              GET STARTING ADDRESS
                           205 *
                           206 ** TEST 16 KBYTES OF STORAGE, 2 KBYTES AT THE TIME
                           207 *
0003D0  9B34               208       JAL   STG28,R3              GO TEST 1ST 2K
0003D2  6C0E 042E          209       AW    H0800,R4              INCREMENT STARTING ADDRESS
0003D6  9B31               210       JAL   STG28,R3              GO TEST 2ND 2K
0003D8  6C0E 042E          211       AW    H0800,R4              INCREMENT STARTING ADDPESS
0003DC  9B2E               212       JAL   STG28,R3              GO TEST 3RD 2K
0003DE  6C0E 042E          213       AW    H0800,R4              INCREMENT STARTING ADDRESS
0003B2  9B2B               214       JAL   STG28,R3              GO TEST 4TH 2K
0003E4  6C0E 042E          215       AW    H0800,R4              INCREMENT STARTING ADDRESS
0003E8  9B28               216       JAL   STG28,R3              GO TEST 5TH 2K
0003EA  6C0E 042E          217       AW    H0800,R4              INCREMENT STARTING ADDRESS
0003EE  9B25               218       JAL   STG28,R3              GO TEST 6TH 2K
0003F0  6C0E 042E          219       AW    H0800,R4              INCREMENT STARTING ADDRESS
0003F4  9B22               220       JAL   STG28,R3              GO TEST 7TH 2K
0003F6  6C0E 042E          221       AW    H0800,R4              INCREMENT STARTING ADDRESS
0003FA  9B1F               222       JAL   STG28,R3              GO TEST 8TH 2K
0003FC  6908 0426          223 RTN   MVW   STG24,R1              LOAD OP2K VALUE
000400  1006               224       JZ    RTN01                 BRANCH IF IN LOWER 64K
000402  6B08 0438          225       MVW   PASCT,R3              LOAD PASS COUNT INDICATOR
000406  1803               226       JNZ   RTN01                 BRANCH NOT FIRST TIME
000408  A828 0434 0028     227       AW    H0001,STGCT           COUNT THAT 16K BLOCK THERE
00040E  A828 042C 0428     228 RTN01 AW    H4000,STG27           NO, INCR START ADDR TO NEXT 16K BLOCK
000414  18DB               229       JNZ   STG18                 GO TEST NEXT 16K
000416  882B 0432 0426     230       CW    H0007,STG24           ALL KEYS TESTED?
00041C  18CF               231       JNE   SG15B                 NO, JUMP
00041E  501C               232       J     LDNXT                 BRANCH TO LOAD NEXT PROG
000420  000C               233 H000C DC    X'000C'               CONSTANT
000422  00040000           234 STG22 DC    X'00040000'           SEG REG 'SET' VALUE(S)
000426  0000               235 STG24 DC    X'0000'               OP2K VALUE
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000428  0000              236 STG27 DC    A(*-*)                 ADDR OF START OF 16K BEING TESTED
00042A  FFFF              237 HFFFF DC    X'FFFF'                MASK TO INDICATE MIN ONE
00042C  4000              238 H4000 DC    X'4000'                16K BLOCK INCREMENT
00042E  0800              239 H0800 DC    X'0800'                2K BLOCK INCREMENT
000430  0008              240 H0008 DC    X'0008'                SEG REG INCREMENT
000432  0007              241 H0007 DC    X'0007'                TOTAL NUMBER OF KEYS
000434  0001              242 H0001 DC    X'0001'                ONE
000436  0000              243 H0000 DC    X'0000'                ZERO
000438  0000              244 PASCT DC    X'0000'                PASS COUNTER
                          246 *
                          247 ** 2 KBYTE TESTS
                          248 *
                          249 *** NOTE:  THE FOLLOWING CODE RUNS TRANSLATED, SO REG AND REG/IMMED OPS
                          250 ***       SHOULD BE USED, RATHER THAN STG AND STG/IMMED
                          251 *
00043A  6202              252 STG28 EN    TRANS                  ENABLE TRANSLATOR
00043C  4724 0800         253 STG29 MVWI  HEX2K,R7               NUMBER OF BYTES TO BE FILLED
000440  7404              254       MVW   R4,R0                  STARTING BYTE ADDRESS OF FILL
000442  C100              255 STG19 MVB   (R0),R1                MOVE BYTE FROM OUTER STORAGE
000444  0001              256       ABI   ONE,R0                 INCREMENT ADDRESS
000446  07FF              257       ABI   MONE,R7                DECREMENT COUNT
000448  18FC              258       JNZ   STG19                  BRANCH UNTIL DONE
00044A  6302              259       DIS   TRANS                  DISABLE TRANSLATOR
00044C  6862 0000         260       B     (R3)                   RETURN
                          261 *
                          262 ************* MACHINE / PROGRAM CHECK ROUTINE ***************************
                          263 *
000450  6302              264 STG30 DIS   TRANS                  DISABLE TRANSLATOR
000452  6908 0426         265       MVW   STG24,R1               LOAD STORAGE INDICATOR
000456  1071              266       JZ    RVIAL                  BRANCH IF LOWER 64K
000458  6808 0438         267 LDNXT MVW   PASCT,R0               LOAD PASS COUNT INDICATOR
00045C  183E              268       JNZ   LOADN                  BRANCH IF SECOND PASS
00045E  582F 0244         269       CPPSR LSBR7                  COPY PSW
000462  712A              270       SW    R1,R1                  ZERO R1
000464  7830              271       SECON R1                     LOAD LEDS WITH ZEROS
000466  4020 02F2 0572    272       MVA   RESRT,START+TWO        CHANGE RESET/START ENTRY
00046C  C020 002A         273       MVB   ZADDR,R0               LOAD PROC. TYPE
000470  7806 0023         274       CWI   H0023,R0               COMPARE TO 23 TYPE
000474  1014              275       JE    TELB                   BRANCH IF EQUAL
000476  4724 0300         276       MVWI  H0300,R7               LOAD R7 WITH COUNT
00047A  4424 000E         277       MVWI  H000E,R4               LOAD SECOND COUNT
00047E  70A4              278 TCLI2 MVW   R4,R5                 LOAD COUNT REG
000480  7DA2 0001         279 TCLI1 SWI   ONE,R5                 DECREMENT BY ONE
000484  1807              280       JNZ   TCLIG                  BRANCH IF NOT ZERO
000486  A828 0434 0438    281       AW    H0001,PASCT            ADD ONE TO PASS COUNT
00048C  6A08 0438         282       MVW   PASCT,R2               LOAD PASS COUNT INTO REG
000490  7850              283       SECON R2                     LOAD REG INTO LEDS
000492  50F5              284       J     TCLI2                  BRANCH
000494  07FF              285 TCLIG ABI   MONE,R7                DECREMENT COUNT REG
000496  181C              286       JNZ   DELAY                  BRANCH FOR DELAY
000498  712A              287       SW    R1,R1                  ZERO R1
00049A  7830              288       SECON R1                     SET ZERO INTO LEDS
00049C  5005              289       J     TSTSG                  BRANCH
00049E  4724 00B0         290 TELB  MVWI  H00B0,R7               LOAD COUNT FOR 60 SEC DELAY
0004A2  4424 0004         291       MVWI  H0004,R4               LOAD COUNT FOR ONE SEC
0004A6  50EB              292       J     TCLI2                  BRANCH
0004A8  4020 000A 0546    293 TSTSG MVA   TSTMK,MCKPT           CHANGE MACHINE CHECK POINTER
0004AE  6908 0028         294       MVW   STGCT,R1               LOAD TOTAL STG COUNT
0004B2  7923 0FFF         295       OWI   H0FFF,R1               TURN OFF LOW ORDER INDICATORS
0004B6  724A              296       SW    R2,R2                  ZERO R2
0004B8  C380              297 TSTCN MVB   (R2),R3                MOVE LOWER STORAGE
0004BA  7225              298 TSTRN CW    R2,R1                  IS MOVE FINISHED
0004BC  1002              299       JE    TSTNX                  BRANCH YES
0004BE  0201              300       ABI   ONE,R2                 INCREMENT R2
0004C0  50FB              301       J     TSTCN                  BRANCH
0004C2  C020 002A         302 TSTNX MVB   ZADDR,R0               LOAD PROC. TYPE
0004C6  7806 0023         303       CWI   H0023,R0               COMPARE TO 23
0004CA  1007              304       JE    LOADN                  BRANCH EQUAL
0004CC  6802 0320         305       B     RETST                  BRANCH
0004D0  4624 8000         307 DELAY MVWI  H8000,R6               LOAD COUNT REG
0004D4  06FF              308 DELA1 ABI   MONE,R6                DECREMENT BY ONE
0004D6  18FE              309       JNZ   DELA1                  BRANCH NOT ZERO
0004D8  50D3              310       J     TCLI1                  BRANCH
0004DA  582F 0244         311 LOADN CPPSR LSBR7                  CLEAR CHECK
0004DE  4020 000E 02EE    312       MVWI  ERSTP,PGMPT            LOAD ADDRESS OF ERROR STOP
0004E4  4020 024C 0004    313       MVWI  H0004,ZDIFA            CHANGE DCB ATTRIBUTES
0004EA  4020 0260 100A    314       MVWI  H100A,ZREA1            *
0004F0  4020 0280 100A    315       MVWI  H100A,ZREA5            *
0004F6  8828 0434 002C    316       MVW   H0001,ECPNX            INDICATE ECP IS NEXT
0004FC  6802 02C0         317       B     ZDISK                  GO GET IT
                          318 *
000500  6302              319 MCKST DIS   TRANS                  DISABLE ADDRESS TRANS
000502  C120 0233         320       MVB   LSAKR+ONE,R1           LOAD LOWER ORDER BYTE OF AKR
000506  3122              321       SRL   FOUR,R1                SHIFT TO OBTAIN PROPER BITS
000508  6A08 0236         322       MVW   LSBR0,R2               RELOAD R0 INTO R2
00050C  7924 FFF8         323       RBTWI HFFF8,R1               RESET ALL UNWANTED BITS
000510  6C08 0438         324       MVW   PASCT,R4               LOAD PASS COUNTER
000514  1009              325       JZ    MCKS1                  BRANCH IF FIRST PASS
000516  882B 0436 0426    326       CW    H0000,STG24            TEST FOR LOWER 64K
00051C  1803              327       JNZ   MCKS2                  BRANCH NO
00051E  7923 E000         328       OWI   HE000,R1               INDICATE LOWER STORAGE
000522  5002              329       J     MCKS1                  BRANCH
000524  7923 F000         330 MCKS2 OWI   HF000,R1               INDICATE OUTER STORAGE
000528  7923 0800         331 MCKS1 OWI   HEX2K,R1               INDICATE TRANS. ENABLED
00052C  D138 002E         332       MVD   R1,LSTAD*              LOAD ADDRESS INTO SAVE AREA
000530  4029 002E 0004    333       AWI   FOUR,LSTAD             BUMP TABLE POINTER
000536  D135 002E         334       MVDZ  LSTAD*,R1              ZERO NEXT ENTRY
00053A  4020 0230 03FC    335 RVIAL MVA   RTN,LSIAR             LOAD RETURN POINT
000540  7819              336       CPCL  R0                     COPY CURRENT LEVEL
000542  5826 0230         337       SELB  R0,LSB                 RETURN
000546  6A08 023A         338 TSTMK MVW   LSBR2,R2               RELOAD R2
00054A  4124 E000         339       MVWI  HE000,R1               INDICATE LOWER STORAGE
00054E  D138 002E         340       MVD   R1,LSTAD*              LOAD ADDRESS IN ERROR
000552  4029 002E 0004    341       AWI   FOUR,LSTAD             INCREMENT TABLE POINTER
000558  D035 002E         342       MVDZ  LSTAD*,R0              ZERO NEXT ENTRY
00055C  6908 0238         343       MVW   LSBR1,R1               REINIT R1
000560  7A43 3FFF         344       OWI   H3FFF,R2               POINT R2 AT LAST 16K BLOCK
000564  7145              345       CW    R1,R2                  COMPARE ADDRESSES
000566  10AD              346       JE    TSTNX                  BRANCH IF EQUAL
000568  7A41 4000         347       AWI   HEX16,R2               INCREMENT TO NEXT 16K BLOCK
00056C  7A44 3FFF         348       RBTWI H3FFF,R2               RESET ALL UNWANTED BITS
000570  50A4              349       J     TSTRN                  BRANCH
000572  D125 2800         350 RESRT MVDZ  TABST,R1               ZERO TABLE DUE TO RESET/START
000576  D125 2804         351       MVDZ  TABST+FOUR,R1          *
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
00057A  D125 2808         352       MVDZ  TABST+EIGHT,R1         *
00057E  50AD              353       J     LOADN                  BRANCH TO LOAD NEXT PROGRAM
0002F0                    354       END   C34A3
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CROSS-REFERENCE LISTING


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DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R0.       ABSOLUTE. HEX VALUE(00000000)
                    114   115   147   254   255   256   267   273   274
                    302   303   336   337   342
       0  .R1.       ABSOLUTE. HEX VALUE(00000001)
                    104   105   106   107   109   110   111   112   113
                    145   223   255   265   270   270   271   287   287
                    288   294   295   298   320   321   323   328   330
                    331   332   334   339   340   343   345   350   351
                    352
       0  .R2.       ABSOLUTE. HEX VALUE(00000002)
                    117   117   119   146   150   153   156   159   162
                    165   168   171   190   194   282   283   296   296
                    297   298   300   322   338   344   345   347   348
       0  .R3.       ABSOLUTE. HEX VALUE(00000003)
                    149   152   155   158   161   164   167   170   191
                    192   208   210   212   214   216   218   220   222
                    225   260   297
       0  .R4.       ABSOLUTE. HEX VALUE(00000004)
                    151   154   157   160   163   166   169   172   197
                    204   209   211   213   215   217   219   221   254
                    277   278   291   324
       0  .R5.       ABSOLUTE. HEX VALUE(00000005)
                    278   279
       0  .R6.       ABSOLUTE. HEX VALUE(00000006)
                    307   308
       0  .R7.       ABSOLUTE. HEX VALUE(00000007)
                    253   257   276   285   290
      38  C34A3      CSECT. START(000002F0) LENGTH(656) ESDID(0)
                     38   354
      68  DATST      ABSOLUTE. HEX VALUE(00002804)
                    111
     307  DELAY      ADDRESS. HEX LOCATION(000004D0) IN CSECT(C34A3   ) LENGTH(4)
                    286
     308  DELA1      ADDRESS. HEX LOCATION(000004D4) IN CSECT(C34A3   ) LENGTH(2)
                    309
      60  ECPNX      ABSOLUTE. HEX VALUE(0000002C)
                    316
      76  EIGHT      ABSOLUTE. HEX VALUE(00000008)
                    352
      52  ERSTP      ABSOLUTE. HEX VALUE(000002EE)
                    120   312
      75  FOUR       ABSOLUTE. HEX VALUE(00000004)
                    321   333   341   351
      70  HEX16      ABSOLUTE. HEX VALUE(00004000)
                    347
      69  HEX2K      ABSOLUTE. HEX VALUE(00000800)
                    253   331
      63  HE000      ABSOLUTE. HEX VALUE(0000E000)
                    328   339
     237  HFFFF      ADDRESS. HEX LOCATION(0000042A) IN CSECT(C34A3   ) LENGTH(2)
                    200
      80  HFFF8      ABSOLUTE. HEX VALUE(0000FFF8)
                    323
      62  HF000      ABSOLUTE. HEX VALUE(0000F000)
                    330
      81  H0FFF      ABSOLUTE. HEX VALUE(00000FFF)
                    295
      79  H00B0      ABSOLUTE. HEX VALUE(000000B0)
                    290
      64  H000E      ABSOLUTE. HEX VALUE(0000000E)
                    277
     243  H0000      ADDRESS. HEX LOCATION(00000436) IN CSECT(C34A3   ) LENGTH(2)
                    119   201   326
     242  H0001      ADDRESS. HEX LOCATION(00000434) IN CSECT(C34A3   ) LENGTH(2)
                    202   227   281   316
      84  H0004      ABSOLUTE. HEX VALUE(00000004)
                    150   291   313
     241  H0007      ADDRESS. HEX LOCATION(00000432) IN CSECT(C34A3   ) LENGTH(2)
                    230
     240  H0008      ADDRESS. HEX LOCATION(00000430) IN CSECT(C34A3   ) LENGTH(2)
                    194
      77  H0023      ABSOLUTE. HEX VALUE(00000023)
                    115   274   303
      85  H0100      ABSOLUTE. HEX VALUE(00000100)
                    152
      86  H0104      ABSOLUTE. HEX VALUE(00000104)
                    153
      87  H0200      ABSOLUTE. HEX VALUE(00000200)
                    155
      88  H0204      ABSOLUTE. HEX VALUE(00000204)
                    156
      89  H0300      ABSOLUTE. HEX VALUE(00000300)
                    158   276
      90  H0304      ABSOLUTE. HEX VALUE(00000304)
                    159
      91  H0400      ABSOLUTE. HEX VALUE(00000400)
                    161
      92  H0404      ABSOLUTE. HEX VALUE(00000404)
                    162
      93  H0500      ABSOLUTE. HEX VALUE(00000500)
                    164
      94  H0504      ABSOLUTE. HEX VALUE(00000504)
                    165
      95  H0600      ABSOLUTE. HEX VALUE(00000600)
                    167
      96  H0604      ABSOLUTE. HEX VALUE(00000604)
                    168
      97  H0700      ABSOLUTE. HEX VALUE(00000700)
                    170
      98  H0704      ABSOLUTE. HEX VALUE(00000704)
                    171
     239  H0800      ADDRESS. HEX LOCATION(0000042E) IN CSECT(C34A3   ) LENGTH(2)
                    121   192   209   211   213   215   217   219   221
      78  H100A      ABSOLUTE. HEX VALUE(0000100A)
                    314   315
      82  H3FFF      ABSOLUTE. HEX VALUE(00003FFF)
                    344   348
      83  H34A3      ABSOLUTE. HEX VALUE(000034A3)
                    104
     238  H4000      ADDRESS. HEX LOCATION(0000042C) IN CSECT(C34A3   ) LENGTH(2)
                    228
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CROSS-REFERENCE LISTING


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DECLARED  NAME     ATTRIBUTES AND REFERENCES
      65  H8000      ABSOLUTE. HEX VALUE(00008000)
                    307
     267  LDNXT      ADDRESS. HEX LOCATION(00000458) IN CSECT(C34A3   ) LENGTH(4)
                    116   118   232
     311  LOADN      ADDRESS. HEX LOCATION(000004DA) IN CSECT(C34A3   ) LENGTH(4)
                    268   304   353
      41  LSAKR      ABSOLUTE. HEX VALUE(00000232)
                    320
      39  LSB        ABSOLUTE. HEX VALUE(00000230)
                    337
      43  LSBR0      ABSOLUTE. HEX VALUE(00000236)
                    322
      44  LSBR1      ABSOLUTE. HEX VALUE(00000238)
                    343
      45  LSBR2      ABSOLUTE. HEX VALUE(0000023A)
                    338
      50  LSBR7      ABSOLUTE. HEX VALUE(00000244)
                    269   311
      40  LSIAR      ABSOLUTE. HEX VALUE(00000230)
                    335
      54  LSTAD      ABSOLUTE. HEX VALUE(0000002E)
                    112   113   332   333   334   340   341   342
      55  MCKPT      ABSOLUTE. HEX VALUE(0000000A)
                    144   293
     319  MCKST      ADDRESS. HEX LOCATION(00000500) IN CSECT(C34A3   ) LENGTH(2)
                    144
     331  MCKS1      ADDRESS. HEX LOCATION(00000528) IN CSECT(C34A3   ) LENGTH(4)
                    325   329
     330  MCKS2      ADDRESS. HEX LOCATION(00000524) IN CSECT(C34A3   ) LENGTH(4)
                    327
      73  MONE       ABSOLUTE. HEX VALUE(FFFFFFFF)
                    107   257   285   308
      72  ONE        ABSOLUTE. HEX VALUE(00000001)
                    256   279   300   320
     244  PASCT      ADDRESS. HEX LOCATION(00000438) IN CSECT(C34A3   ) LENGTH(2)
                    225   267   281   282   324
      56  PGMPT      ABSOLUTE. HEX VALUE(0000000E)
                    118   120   143   312
     350  RESRT      ADDRESS. HEX LOCATION(00000572) IN CSECT(C34A3   ) LENGTH(4)
                    272
     117  RETST      ADDRESS. HEX LOCATION(00000320) IN CSECT(C34A3   ) LENGTH(2)
                    305
     223  RTN        ADDRESS. HEX LOCATION(000003FC) IN CSECT(C34A3   ) LENGTH(4)
                    335
     228  RTN01      ADDRESS. HEX LOCATION(0000040E) IN CSECT(C34A3   ) LENGTH(6)
                    224   226
     335  RVIAL      ADDRESS. HEX LOCATION(0000053A) IN CSECT(C34A3   ) LENGTH(6)
                    266
     201  SG15B      ADDRESS. HEX LOCATION(000003BC) IN CSECT(C34A3   ) LENGTH(6)
                    231
     200  SG16A      ADDRESS. HEX LOCATION(000003B6) IN CSECT(C34A3   ) LENGTH(6)
                    173
     103  START      ADDRESS. HEX LOCATION(000002F0) IN CSECT(C34A3   ) LENGTH(4)
                    272
      53  STGCT      ABSOLUTE. HEX VALUE(00000028)
                    121   227   294
     204  STG18      ADDRESS. HEX LOCATION(000003CC) IN CSECT(C34A3   ) LENGTH(4)
                    229
     255  STG19      ADDRESS. HEX LOCATION(00000442) IN CSECT(C34A3   ) LENGTH(2)
                    258
     234  STG22      ADDRESS. HEX LOCATION(00000422) IN CSECT(C34A3   ) LENGTH(4)
                    190   191
     235  STG24      ADDRESS. HEX LOCATION(00000426) IN CSECT(C34A3   ) LENGTH(2)
                    147   200   202   203   223   230   265   326
     236  STG27      ADDRESS. HEX LOCATION(00000428) IN CSECT(C34A3   ) LENGTH(2)
                    201   204   228
     252  STG28      ADDRESS. HEX LOCATION(0000043A) IN CSECT(C34A3   ) LENGTH(2)
                    208   210   212   214   216   218   220   222
     264  STG30      ADDRESS. HEX LOCATION(00000450) IN CSECT(C34A3   ) LENGTH(2)
                    143
     104  STRT       ADDRESS. HEX LOCATION(000002F4) IN CSECT(C34A3   ) LENGTH(4)
                    103
     107  STRT1      ADDRESS. HEX LOCATION(000002FE) IN CSECT(C34A3   ) LENGTH(2)
                    108
      67  TABST      ABSOLUTE. HEX VALUE(00002800)
                    109   350   351   352
     285  TCLIG      ADDRESS. HEX LOCATION(00000494) IN CSECT(C34A3   ) LENGTH(2)
                    280
     279  TCLI1      ADDRESS. HEX LOCATION(00000480) IN CSECT(C34A3   ) LENGTH(4)
                    310
     278  TCLI2      ADDRESS. HEX LOCATION(0000047E) IN CSECT(C34A3   ) LENGTH(2)
                    284   292
     290  TELB       ADDRESS. HEX LOCATION(0000049E) IN CSECT(C34A3   ) LENGTH(4)
                    275
      66  TRANS      ABSOLUTE. HEX VALUE(00000002)
                    252   259   264   319
     297  TSTCN      ADDRESS. HEX LOCATION(000004B8) IN CSECT(C34A3   ) LENGTH(2)
                    301
     338  TSTMK      ADDRESS. HEX LOCATION(00000546) IN CSECT(C34A3   ) LENGTH(4)
                    293
     302  TSTNX      ADDRESS. HEX LOCATION(000004C2) IN CSECT(C34A3   ) LENGTH(4)
                    299   346
     298  TSTRN      ADDRESS. HEX LOCATION(000004BA) IN CSECT(C34A3   ) LENGTH(2)
                    349
     293  TSTSG      ADDRESS. HEX LOCATION(000004A8) IN CSECT(C34A3   ) LENGTH(6)
                    289
      74  TWO        ABSOLUTE. HEX VALUE(00000002)
                    110   272
     189  WREG       ADDRESS. HEX LOCATION(0000039E) IN CSECT(C34A3   ) LENGTH(1)
                    151   154   157   160   163   166   169   172   195
     197  WREG5      ADDRESS. HEX LOCATION(000003B2) IN CSECT(C34A3   ) LENGTH(4)
                    193
      51  ZADDR      ABSOLUTE. HEX VALUE(0000002A)
                    114   273   302
      57  ZDIFA      ABSOLUTE. HEX VALUE(0000024C)
                    313
      61  ZDISK      ABSOLUTE. HEX VALUE(000002C0)
                    317
      71  ZERO       ABSOLUTE. HEX VALUE(00000000)
                    106   145   146   149
      58  ZREA1      ABSOLUTE. HEX VALUE(00000260)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                     314
    59    %REA5    ABSOLUTE. HEX VALUE(00000280)
                     315
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                      COPYRIGHT IBM CORP 1976
001800                       3 U34E0 START 6144
                             4 ********************************************************************
                             5 *                                                                  *
                             6 *                  ***       PREREQUISITES       ***               *
                             7 *                                                                  *
                             8 *                            LEVEL 4 PROCESSOR                     *
                             9 *                  REALTIME PROGRAMMING SYSTEM (RPS)               *
                            10 *                                                                  *
                            11 ********************************************************************
                            12 *                                                                  *
                            13 *                  ***       MODIFICATIONS       ***               *
                            14 *                                                                  *
                            15 *                               NONE                               *
                            16 *                                                                  *
                            17 ********************************************************************
                            18 *                                                                  *
                            19 *                  ***     REA'S INCORPORATED    ***               *
                            20 *                                                                  *
                            21 *                               NONE                               *
                            22 *                                                                  *
                            23 ********************************************************************
                            24 *                                                                  *
                            25 *                  ***    SPECIAL INSTRUCTIONS   ***               *
                            26 *                                                                  *
                            27 *                               NONE                               *
                            28 *                                                                  *
                            29 ********************************************************************
                            30 *                                                                  *
                            31 *                  ***       E. C. HISTORY       ***               *
                            32 *                                                                  *
                            33 *      DATE 15SEP77  DATE          DATE          DATE              *
                            34 *      E.C. 754882   E.C.          E.C.          E.C.              *
                            35 *                                                                  *
                            36 ********************************************************************
                            38 ********************************************************************
                            39 *                                                                  *
                            40 *     NAME     U34E0 - ERROR RETRIEVAL AND PRINT (ERAP)            *
                            41 *                                                                  *
                            42 *     ***  TO SUPPORT REALTIME PROGRAMMING SYSTEM (RPS) ONLY  ***   *
                            43 *                                                                  *
                            44 *     PURPOSE  TO LOCATE THE ERROR LOG ON THE RPS DISK AND         *
                            45 *              RETRIEVE THE ERROR RECORDS AND PRINT THEM ON        *
                            46 *              THE PRINTER OR TTY.                                 *
                            47 *                                                                  *
                            48 *     METHOD   THE PROGRAM WILL LOCATE THE RPS SYSTEM TABLE OF     *
                            49 *              CONTENTS (STOC) ON THE DISK. FROM THE STOC IT WILL  *
                            50 *              LOCATE THE SYSTEM ERROR VOLUME.                     *
                            51 *              USING THE SYSTEM ERROR VOLUME TABLE OF CONTENTS     *
                            52 *              (VTOC) ERAP WILL LOCATE THE SYSTEM ERROR LOG.       *
                            53 *              DATA SET. THIS DATA SET WILL THEN BE SCANNED FOR     *
                            54 *              VARIOUS TYPES OF ERROR RECORDS. THESE RECORDS WILL   *
                            55 *              BE GROUPED BY RECORD TYPE AND DEVICE ADDRESS AND     *
                            56 *              EDITTED TO A HARDCOPY DEVICE.                       *
                            57 *                                                                  *
                            58 *              IF THE ECP ALTERNATE CONSOLE IS A DISPLAY THEN      *
                            59 *              ERAP WILL ASK FOR A HARDCOPY DEVICE THAT IS ECP     *
                            60 *              CONSOLE SUPPORTTED AND OVERLAY THE ECP CONSOLE.     *
                            61 *              UPON COMPLETION OF ERAP THE ORIGINAL CONSOLE WILL   *
                            62 *              BE RESTORED AND CONTROL RETURNED TO ECP.            *
                            63 *                                                                  *
                            64 *              THE RECORD TYPES CURRENTLY SUPPORTTED ARE:          *
                            65 *                                                                  *
                            66 *                  1. PROCESSOR ERROR RECORD                       *
                            67 *                       MACHINE CHECK                              *
                            68 *                       PROGRAM CHECK                              *
                            69 *                       SOFT EXCEPTION CHECK                       *
                            70 *                                                                  *
                            71 *                  2. DEVICE ERROR RECORD                          *
                            72 *                       DEVICE NOT RECOVERED ERROR (PERMANENT)     *
                            73 *                       DEVICE RECOVERED ERROR (TEMPORARY)         *
                            74 *                       DEVICE TIME OUT                            *
                            75 *                                                                  *
                            76 *                  3. NULL INTERRUPT RECORD                        *
                            77 *                                                                  *
                            78 *                  4. SYSTEM TERMINATION RECORD                    *
                            79 *                                                                  *
                            80 *                  5. USER RECORD                                  *
                            81 *                                                                  *
                            82 *                                                                  *
                            83 *                                                                  *
                            84 *                                                                  *
                            85 ********************************************************************
                            87 ********************************************************************
                            88 *                                                                  *
                            89 *     PROGRAM OPERATION:                                           *
                            90 *                                                                  *
                            91 *     1. THIS PROGRAM IS LOADED VIA ECP (B34E0) AND USES STAND     *
                            92 *        ALONE I/O TO READ AND WRITE THE DISK.                     *
                            93 *        IF THE DISPLAY IS BEING USED AS A CONSOLE AN ATTEMPT      *
                            94 *        WILL BE MADE TO CHANGE IT TO A HARDCOPY DEVICE.           *
                            95 *                                                                  *
                            96 *     2. ALL OPERATOR COMMUNICATION IS VIA THE ECP CONSOLE.        *
                            97 *                                                                  *
                            98 *     3. NORMAL PROCESSING OPERATOR CODED MESSAGES ARE:            *
                            99 *                                                                  *
                           100 *          '34E0' HARDCOPY CONSOLE PREFERRED - IS ONE AVAILABLE?   *
                           101 *                                                                  *
                           102 *          '34E1' ENTER HARDCOPY CONSOLE ADDRESS                   *
                           103 *                                                                  *
                           104 *          '34E2' ENTER RPS DISK ADDRESS                           *
                           105 *                                                                  *
                           106 *          '34E3' SHOULD SYSTEM ERROR LOG BE INITIALIZED?          *
                           107 *                                                                  *
                           108 *          '34E4' SHOULD ALL RECORDS BE PRINTED?                   *
                           109 *                                                                  *
                           110 *          '34E5' ENTER RECORD TYPES DESIRED                       *
                           111 *                                                                  *
                           112 *          '34E6' SHOULD ALL DEVICE RECORDS BE PRINTED?            *
                           113 *                                                                  *
                           114 *          '34E7' ENTER DEVICE ADDRESSES DESIRED                   *
                           115 *                                                                  *
                           116 *          '34E8' SYSTEM DATA SET LABELS                           *
                           117 *                                                                  *
                           118 *          '34E9' LINE OF FORMATTED OUTPUT                         *
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                      COPYRIGHT IBM CORP 1976
                           119 *                                                                  *
                           120 *          '3407' CONSOLE BEING CHANGED FOR ERAP FORMATTING        *
                           121 *                                                                  *
                           122 *          '3408' CONSOLE RETURNED                                 *
                           123 *                                                                  *
                           124 *                                                                  *
                           125 *                                                                  *
                           126 *                                                                  *
                           127 ********************************************************************
                           129 ********************************************************************
                           130 *                                                                  *
                           131 *     PROGRAM STOPS AND MESSAGES:                                  *
                           132 *                                                                  *
                           133 *          '34EA' HARDCOPY CONSOLE NOT USABLE                      *
                           134 *                 AN ERROR HAS OCCURRED ATTEMPTING TO LOAD THE     *
                           135 *                 CONSOLE OVERLAY OF DEVICE RESPONDED INCORRECTLY. *
                           136 *                                                                  *
                           137 *          '34EB' DATA SET XXXXXXX NOT FOUND ON DISK               *
                           138 *                 PROGRAM COULD NOT LOCATE THE DATA SET INDICATED  *
                           139 *                 IN ONE OF THE RPS TABLE OF CONTENTS (STOC/VTOC). *
                           140 *                 ERAP WILL TERMINATE.                             *
                           141 *                                                                  *
                           142 *          '34EC' PREPARE DISK ERROR                               *
                           143 *                 AN ERROR HAS OCCURRED ATTEMPTING TO PREPARE THE  *
                           144 *                 RPS DISK. ERAP WILL TERMINATE.                   *
                           145 *                                                                  *
                           146 *          '34ED' DISK ERROR WHILE SEARCHING FOR DATA SET XXXXXXX  *
                           147 *                 AN ERROR HAS OCCUPRED READING ONE OF THE RPS     *
                           148 *                 TABLE OF CONTENTS (STOC/VTOC) IN SEARCH OF THE   *
                           149 *                 DATA SET INDICATED. ERAP WILL TERMINATE.         *
                           150 *                                                                  *
                           151 *          '34EE' DISK ERROR READING SYSTEM ERROR LOG              *
                           152 *                 AN ERROR HAS OCCURRED READING ONE OF THE RECORDS *
                           153 *                 ON THE SYSTEM ERROR LOG. ERAP WILL SKIP THAT     *
                           154 *                 RECORD AND CONTINUE. THE SYSTEM ERROR LOG WILL   *
                           155 *                 NOT BE INITIALIZED.                              *
                           156 *                                                                  *
                           157 *          '34EF' DISK ERROR WRITING SYSTEM ERROR LOG              *
                           158 *                 AN ERROR OCCURRED WRITING THE INITIALIZED RECORD *
                           159 *                 ON SYSTEM ERROR LOG. ERAP WILL TERMINATE.        *
                           160 *                                                                  *
                           161 *                                                                  *
                           162 *          '3401' ERROR ATTEMPTING TO RESTORE ORIGINAL CONSOLE     *
                           163 *                 AN ERROR OCCURRED READING THE CONSOLE OVERLAY OR *
                           164 *                 THE DEVICE RESPONDED INCORRECTLY.                *
                           165 *                                                                  *
                           166 ********************************************************************
                           168 ********************************************************************
                           169 *                                                                  *
                           170 *     THE FOLLOWING IS THE DESCRIPTION OF CONTROL RECORD FORMAT:    *
                           171 *                                                                  *
                           172 ********************************************************************
                           173 *      DC     AL1(*-*)              SIZE OF RECORD                 *
                           174 *      DC     AL1(*-*)              PARTITION NUMBER               *
                           175 *      DC     AL2(*-*)              FLAG FIELD                     *
                           176 *                                    BIT 10 - CONTROL RECORD       *
                           177 *      DC     AL2(*-*)              ACTIVE TCB ADDRESS             *
                           178 *      DC     AL2(*-*)              ADDRESS KEY REG (AKR)          *
                           179 *      DC     AL3(*-*)              TIME OF DAY RECORD CREATED (HHMMSS)
                           180 *      DC     AL3(*-*)              DATE RECORD CREATED (YYDDD)    *
                           181 *      DC     AL1(*-*)              ACTIVE LEVEL                   *
                           182 *      DC     AL1(*-*)              SPARE - ALIGNMENT              *
                           183 *      DC     AL4(*-*)              OLD RECORD ADDRESS             *
                           184 *      DC     AL4(*-*)              NEXT RECORD ADDRESS            *
                           185 *      DC     AL4(*-*)              CURRENT RECORD ADDRESS         *
                           186 *      DC     AL100(*-*)            PAD AREA                       *
                           188 ********************************************************************
                           189 *                                                                  *
                           190 *     THE FOLLOWING IS THE DESCRIPTION OF PROCESSOR ERROR          *
                           191 *     RECORD FORMAT:                                               *
                           192 *     MACHINE CHECK RECORD                                         *
                           193 *     PROGRAM CHECK RECORD                                         *
                           194 *     SOFT EXCEPTION CHECK RECORD                                  *
                           195 *                                                                  *
                           196 ********************************************************************
                           197 *      DC     AL1(*-*)              SIZE OF RECORD                 *
                           198 *      DC     AL1(*-*)              PARTITION NUMBER               *
                           199 *      DC     AL2(*-*)              FLAG FIELD                     *
                           200 *                                    BIT 0 - MACHINE CHECK RECORD  *
                           201 *                                    BIT 1 - PROGRAM CHECK RECORD  *
                           202 *                                    BIT 2 - SOFT EXCEPTION CHECK RECORD
                           203 *      DC     AL2(*-*)              ACTIVE TCB ADDRESS             *
                           204 *      DC     AL2(*-*)              ADDRESS KEY REG (AKR)          *
                           205 *      DC     AL3(*-*)              TIME OF DAY RECORD CREATED (HHMMSS)
                           206 *      DC     AL3(*-*)              DATE RECORD CREATED (YYDDD)    *
                           207 *      DC     AL1(*-*)              ACTIVE LEVEL                   *
                           208 *      DC     AL1(*-*)              SPARE - ALIGNMENT              *
                           209 *      DC     AL2(*-*)              FAILING ADDRESS                *
                           210 *      DC     AL2(*-*)              INSTRUCTION ADDRESS REG (IAR)  *
                           211 *      DC     AL2(*-*)              ADDRESS KEY REG (AKR)          *
                           212 *      DC     AL2(*-*)              LEVEL STATUS REG (LSR)         *
                           213 *      DC     AL2(*-*)              REGISTER 0                     *
                           214 *      DC     AL2(*-*)              REGISTER 1                     *
                           215 *      DC     AL2(*-*)              REGISTER 2                     *
                           216 *      DC     AL2(*-*)              REGISTER 3                     *
                           217 *      DC     AL2(*-*)              REGISTER 4                     *
                           218 *      DC     AL2(*-*)              REGISTER 5                     *
                           219 *      DC     AL2(*-*)              REGISTER 6                     *
                           220 *      DC     AL2(*-*)              REGISTER 7                     *
                           221 *      DC     AL2(*-*)              COMPLETION CODE (CC)           *
                           222 *      DC     AL2(*-*)              PROGRAM STATUS WORD (PSW)      *
                           223 *      DC     AL1(*-*)              ACTIVE ADDRESS KEY (AAK)       *
                           224 *      DC     AL83(*-*)             PAD AREA                       *
                           226 ********************************************************************
                           227 *                                                                  *
                           228 *     THE FOLLOWING IS THE DESCRIPTION OF DEVICE ERROR             *
                           229 *     RECORD FORMAT:                                               *
                           230 *     DEVICE ERROR RECORD                                          *
                           231 *     TIMEOUT ERROR RECORD                                         *
                           232 *                                                                  *
                           233 ********************************************************************
                           234 *      DC     AL1(*-*)              SIZE OF RECORD                 *
                           235 *      DC     AL1(*-*)              PARTITION NUMBER               *
                           236 *      DC     AL2(*-*)              FLAG FIELD                     *
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           237 *                                  BIT 3 - DEVICE ERROR RECORD
                           238 *                                  BIT 5 - I/O TIMEOUT ERROR RECORD
                           239 *                                  BIT 9 - PERMANENT ERROR
                           240 *      DC     AL2(*-*)             ACTIVE TCB ADDRESS
                           241 *      DC     AL2(*-*)             ADDRESS KEY REG (AKR)
                           242 *      DC     AL3(*-*)             TIME OF DAY RECORD CREATED (HHMMSS)
                           243 *      DC     AL3(*-*)             DATE RECORD CREATED (YYDDD)
                           244 *      DC     AL1(*-*)             ACTIVE LEVEL
                           245 *      DC     AL1(*-*)             SPARE - ALIGNMENT
                           246 *      DC     AL2(*-*)             DEVICE READ ID
                           247 *      DC     AL4(*-*)             IMMEDIATE DEVICE CNTL BLOCK (IDCB)
                           248 *      DC     AL1(*-*)             DEVICE ADDRESS
                           249 *      DC     AL1(*-*)             RETRY COUNT
                           250 *      DC     AL1(*-*)             OIO CONDITION CODE
                           251 *      DC     AL1(*-*)             INTERRUPT CONDITION CODE
                           252 *      DC     AL1(*-*)             INTERRUPT STATUS BYTE (ISB)
                           253 *      DC     AL6(*-*)             DEVICE DEPENDENT STATUS
                           254 *      DC     AL1(*-*)             NUMBER OF DCB'S IN THIS RECORD
                           255 *      DC     AL10(*-*)            CYCLE STEAL STATUS WORDS (CSSW)
                           256 *      DC     AL16(*-*)            DEVICE CONTROL BLOCK (DCB) 1
                           257 *      DC     AL16(*-*)            DEVICE CONTROL BLOCK (DCB) 2
                           258 *      DC     AL16(*-*)            DEVICE CONTROL BLOCK (DCB) 3
                           259 *      DC     AL16(*-*)            DEVICE CONTROL BLOCK (DCB) 4
                           260 *      DC     AL16(*-*)            DEVICE CONTROL BLOCK (DCB) 5
                           261 *      DC     AL4(*-*)             PAD AREA
                           262 ********************************************************************
                           263 *                                                                  *
                           264 *      THE FOLLOWING IS THE DESCRIPTION OF NULL INTERRUPT          *
                           265 *      RECORD FORMAT:                                              *
                           266 *                                                                  *
                           267 ********************************************************************
                           268 *      DC     AL1(*-*)             SIZE OF RECORD
                           269 *      DC     AL1(*-*)             PARTITION NUMBER
                           270 *      DC     AL2(*-*)             FLAG FIELD
                           271 *                                   BIT 4 - NULL INTERRUPT RECORD
                           272 *      DC     AL2(*-*)             ACTIVE TCB ADDRESS
                           273 *      DC     AL2(*-*)             ADDRESS KEY REG (AKR)
                           274 *      DC     AL3(*-*)             TIME OF DAY RECORD CREATED (HHMMSS)
                           275 *      DC     AL3(*-*)             DATE RECORD CREATED (YYDDD)
                           276 *      DC     AL1(*-*)             ACTIVE LEVEL
                           277 *      DC     AL1(*-*)             SPARE - ALIGNMENT
                           278 *      DC     AL2(*-*)             INTERRUPT ID WORD
                           279 *      DC     AL110(*-*)           PAD AREA
                           280 ********************************************************************
                           281 *                                                                  *
                           282 *      THE FOLLOWING IS THE DESCRIPTION OF SYSTEM TERMINATION      *
                           283 *      RECORD FORMAT:                                              *
                           284 *                                                                  *
                           285 ********************************************************************
                           286 *      DC     AL1(*-*)             SIZE OF RECORD
                           287 *      DC     AL1(*-*)             PARTITION NUMBER
                           288 *      DC     AL2(*-*)             FLAG FIELD
                           289 *                                   BIT 6 - SYSTEM TERMINATION RECORD
                           290 *      DC     AL2(*-*)             ACTIVE TCB ADDRESS
                           291 *      DC     AL2(*-*)             ADDRESS KEY REG (AKR)
                           292 *      DC     AL3(*-*)             TIME OF DAY RECORD CREATED (HHMMSS)
                           293 *      DC     AL3(*-*)             DATE RECORD CREATED (YYDDD)
                           294 *      DC     AL1(*-*)             ACTIVE LEVEL
                           295 *      DC     AL1(*-*)             SPARE - ALIGNMENT
                           296 *      DC     AL2(*-*)             TERMINATION COMPLETION CODE
                           297 *      DC     AL110(*-*)           PAD AREA
                           298 ********************************************************************
                           299 *                                                                  *
                           300 *      THE FOLLOWING IS THE DESCRIPTION OF USER RECORD FORMAT:     *
                           301 *                                                                  *
                           302 ********************************************************************
                           303 *      DC     AL1(*-*)             SIZE OF RECORD
                           304 *      DC     AL1(*-*)             PARTITION NUMBER
                           305 *      DC     AL2(*-*)             FLAG FIELD
                           306 *                                   BIT 7 - USER RECORD
                           307 *      DC     AL2(*-*)             ACTIVE TCB ADDRESS
                           308 *      DC     AL2(*-*)             ADDRESS KEY REG (AKR)
                           309 *      DC     AL3(*-*)             TIME OF DAY RECORD CREATED (HHMMSS)
                           310 *      DC     AL3(*-*)             DATE RECORD CREATED (YYDDD)
                           311 *      DC     AL1(*-*)             ACTIVE LEVEL
                           312 *      DC     AL1(*-*)             SPARE - ALIGNMENT
                           313 *      DC     AL112(*-*)           USER DATA (112 BYTES MAXIMUN)
                           314 ********************************************************************
                           315 *                                                                  *
                           316 *      CONSOLE LED DISPLAY ACTION/DISPLAY CODES                    *
                           317 *                                                                  *
                           318 ********************************************************************
 0034E0                    319 CODE0  EQU    X'34E0'              DISPLAY CONSOLE MSG
 0034E1                    320 CODE1  EQU    X'34E1'              HARDCOPY ADDRESS MSG
 0034E2                    321 CODE2  EQU    X'34E2'              RPS DISK ADDRESS MSG
 0034E3                    322 CODE3  EQU    X'34E3'              SYSTEM ERROR LOG INITIALIZATION MSG
 0034E4                    323 CODE4  EQU    X'34E4'              RECORD SELECTION MSG
 0034E5                    324 CODE5  EQU    X'34E5'              SELECT RECORD TYPE MSG
 0034E6                    325 CODE6  EQU    X'34E6'              DEVICE TYPE SELECTION MSG
 0034E7                    326 CODE7  EQU    X'34E7'              SELECT DEVICE ADDRESS MSG
 0034E8                    327 CODE8  EQU    X'34E8'              SYSTEM DATA SET LABELS
 0034E9                    328 CODE9  EQU    X'34E9'              PRINT A LINE OF OUTPUT
 0034EA                    329 COD10  EQU    X'34EA'              HARDCOPY CONSOLE NOT USEABLE MSG
 0034EB                    330 COD11  EQU    X'34EB'              DATA SET NOT FOUND MSG
 0034EC                    331 COD12  EQU    X'34EC'              PREPARE DISK ERROR MSG
 0034ED                    332 COD13  EQU    X'34ED'              DISK ERROR READING TOC MSG
 0034EE                    333 COD14  EQU    X'34EE'              DISK ERROR READING SYSTEM ERROR LOG
 0034EF                    334 COD15  EQU    X'34EF'              DISK ERROR WRITTING SYSTEM ERROR LOG
 003400                    335 RECD1  EQU    X'3400'              ECP READY CODE
 003401                    336 ALTCD  EQU    X'3401'              ALTERNATE CONSOLE NO GOOD
 003407                    337 CNOFF  EQU    X'3407'              CONSOLE BEING CHANGED MSG
 003408                    338 CNRES  EQU    X'3408'              CONSOLE RETURNED
                           339 ********************************************************************
                           340 *                                                                  *
                           341 *      ECP SVC'S                                                   *
                           342 *                                                                  *
                           343 ********************************************************************
 000000                    344 OUT    EQU    0                    OUTPUT A MESSAGE
 000001                    345 OUTIN  EQU    1                    OUTPUT A MESSAGE WITH RESPONSE
 000002                    346 IDLE   EQU    2                    DELAY APPROXIMATELY 250 USEC
 000007                    347 TERM   EQU    7                    TERMINATE PROGRAM
 00001A                    348 HTOE   EQU    26                   CONVERT HEX TO EBCDIC
 00001F                    349 READI  EQU    31                   READ DATA SET INTO STORAGE
                           350 ********************************************************************
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           351 *                                                                  *
                           352 *      PROGRAM EQUATES                                             *
                           353 *                                                                  *
                           354 ********************************************************************
 000000                    355 ZERO   EQU    0                        VALUE OF 0
 000001                    356 ONE    EQU    1                                 1
 000002                    357 TWO    EQU    2                                 2
 000003                    358 THREE  EQU    3                                 3
 000004                    359 FOUR   EQU    4                                 4
 000005                    360 FIVE   EQU    5                                 5
 000006                    361 SIX    EQU    6                                 6
 000007                    362 SEVEN  EQU    7                                 7
 000008                    363 EIGHT  EQU    8                                 8
 000009                    364 NINE   EQU    9                                 9
 00000A                    365 TEN    EQU    10                               10
 00000B                    366 ELEVN  EQU    11                               11
 00000C                    367 TWELV  EQU    12                               12
 00000E                    368 FORTN  EQU    14                               14
 000010                    369 SIXTN  EQU    16                               16
 000014                    370 TWNTY  EQU    20                               20
 000016                    371 TWNT2  EQU    22                               22
 000018                    372 TWNT4  EQU    24                               24
 00001D                    373 TWNT9  EQU    29                               29
 00001E                    374 THRTY  EQU    30                               30
 000020                    375 THRT2  EQU    32                               32
 000021                    376 THRT3  EQU    33                               33
 00003B                    377 FIFT9  EQU    59                               59
 00003C                    378 SIXTY  EQU    60                               60
 000040                    379 SIXT4  EQU    64                               64
 000080                    380 ONE28  EQU    128                             128
 0000FF                    381 TWO55  EQU    255                             255
 0001F4                    382 FIVHD  EQU    500                             500
 000800                    383 TWOK   EQU    2048                           2048
 001000                    384 FOURK  EQU    4096                           4096
 008000                    385 THR2K  EQU    32768                         32768
 00F000                    386 HF000  EQU    61440                         61440
 00FF00                    387 HFF00  EQU    65280                         65280
 FFFFFF                    388 M1     EQU    -1                               -1
 FFFFFE                    389 M2     EQU    -2                               -2
 000040                    390 EBBK   EQU    C' '                  EBCDIC BLANK
                           391 ********************************************************************
                           392 *                                                                  *
                           393 *      EQUATED STORAGE AREAS IN ECP USED BY THIS PROGRAM           *
                           394 *                                                                  *
                           395 ********************************************************************
 000030                    396 DEVPT  EQU    48                   START OF DEVICE VECTOR AREA ADDRESS
 000234                    397 INDIC  EQU    564                  ECP INDICATOR ADDRESS
 000250                    398 ECP01  EQU    592                  ECP COMMAND 7 ADDRESS
 00025C                    399 ECP07  EQU    604                  ECP SCHEDULAR ADDRESS
 000240                    400 OPADR  EQU    576                  CONSOLE DEVICE ADDRESS
 000241                    401 OPTYP  EQU    577                               TYPE
 0014F0                    402 ACMSG  EQU    5360                              ENTER MESSAGE ADDRESS
 0014F4                    403 ACINT  EQU    5364                              INTERRUPT ADDRESS
 0014F6                    404 WIDCB  EQU    5366                              WRITE IDCB ADDRESS
 0014FA                    405 CIDCB  EQU    5370                              CONTROL IDCB ADDRESS
 0014FE                    406 ACRES  EQU    5374                              RESET IDCB ADDRESS
 001502                    407 RIDCB  EQU    5378                              READ IDCB ADDRESS
 001506                    408 ACPRE  EQU    5382                              PREPARE IDCB ADDRESS
 00178C                    409 ACSTR  EQU    6028                 STRAY INTERRUPT ADDRESS
 00178E                    410 ACVTR  EQU    6030                 CONSOLE DEVICE VECTOR ADDRESS
 001790                    411 PRBA   EQU    6032                 ALT CONSOLE CONTROL FLD 1
 0017BE                    412 IDCB   EQU    6078                 LAST IDCB ISSUED ADDRESS
 000006                    413 STOP   EQU    6                    STOP AFTER MESSAGE OUT
 000007                    414 ALTDV  EQU    7                    ALTERNATE OUTPUT DEVICE ASSIGNED
                           415 ********************************************************************
                           416 *                                                                  *
                           417 *      SYSTEM ERROR LOG RECORD DESCRIPTION SWITCHES                *
                           418 *                                                                  *
                           419 ********************************************************************
 000010                    420 MCKSW  EQU    16                   MACHINE CHECK RECORD
 000011                    421 PCKSW  EQU    17                   PROGRAM CHECK RECORD
 000012                    422 SFTSW  EQU    18                   SOFT EXCEPTION CHECK RECORD
 000013                    423 DEVSW  EQU    19                   DEVICE ERROR RECORD
 000014                    424 NULSW  EQU    20                   NULL INTERRUPT RECORD
 000015                    425 TMOSW  EQU    21                   DEVICE TIME OUT RECORD
 000016                    426 STMSW  EQU    22                   SYSTEM TERMINATION RECORD
 000017                    427 USESW  EQU    23                   USER RECORD
 000018                    428 OSYSW  EQU    24                   OTHER SYSTEM RECORD
 000019                    429 PRMSW  EQU    25                   PERMENANT ERROR RECORD
 00001A                    430 CTLSW  EQU    26                   CONTROL RECORD
                           431 ********************************************************************
                           432 *                                                                  *
                           433 *      RPS DISK EQUATES                                            *
                           434 *                                                                  *
                           435 ********************************************************************
 000078                    436 SPTD2  EQU    120                  SECTORS/CYLINDER DISK
 0000B4                    437 SPTD3  EQU    180                  SECTORS/CYLINDER DISK
 0000F0                    438 STOC2  EQU    240                  SECTOR NUMBER OF SYSTEM TOC
 000168                    439 STOC3  EQU    360                  SECTOR NUMBER OF SYSTEM TOC
 000008                    440 TOCIX  EQU    8                    ENTRY LENGTH IN TOC INDEX
 000000                    441 TCIT   EQU    0                     TOC INDEX TYPE
 000010                    442 TCI    EQU    16                      TOC INDEX ID
 000040                    443 TCIF   EQU    64                      TOC INDEX FREESPACE
 000000                    444 TCIU   EQU    0                       TOC INDEX UNUSED
 000002                    445 TCID   EQU    2                       TOC INDEX DELETED
 000002                    446 TCIE   EQU    2                     TOC INDEX # ENTRIES
 000004                    447 TCIB   EQU    4                     TOC INDEX # BLOCKS
 000020                    448 TOCLA  EQU    32                   ENTRY LENGTH IN TOC LABEL
 000000                    449 TCLF   EQU    0                     TOC LABEL FLAGS
 000002                    450 TCLB   EQU    2                     TOC LABEL BOE (RBA)
 000006                    451 TCLE   EQU    6                     TOC LABEL EOE (RBA)
 00000C                    452 TCLEN  EQU    12                    TOC LABEL EOD BLOCK #
 000010                    453 TCLEO  EQU    16                    TOC LABEL EOD OFFSET
 000012                    454 TCLRL  EQU    18                    TOC LABEL RECORD LENGTH
                           455 *
 0000CA                    456 DSKID  EQU    202                   DISK READ ID
                           457 ********************************************************************
                           458 *                                                                  *
                           459 *      PROGRAM HEADING USED BY ECP                                 *
                           460 *                                                                  *
                           461 ********************************************************************
 001800  F3F4C5F0          462 PID    DC     C'34E0'              PROGRAM ID
 001804  00                463 LEVEL  DC     X'0'                 PROGRAM LEVEL
 001805  00                464 SPARE  DC     X'0'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

001806  26CA               479 ENADR DC    A(INIT)                 INITIAL ENTRY ADDRESS
001808  1812               480 DTADR DC    A(DEVTB)                DEVICE TABLE
00180A  34E0               481 RTNE  DC    X'34E0'                 ROUTINE NUMBER
00180C  0001               482 CHKP  DC    A(ONE)                  CHECK POINT NUMBER
00180E  0000               483 OPT1  DC    A(0)                    OPTION WORDS
001810  0000               484 OPT2  DC    A(0)                    OPTION WORDS
001812  0000               486 DEVTB DC    A(0)                    NO ENTRIES IN DEVICE TABLE
001814  0000               487       DC    A(0)                    NULL
001816  0000               488       DC    A(0)                      ENTRIES
                           490 ************************************************************************
                           491 *                                                                      *
                           492 *     MESSAGES USED BY PROGRAM                                         *
                           493 *                                                                      *
                           494 ************************************************************************
                           495 *
                           496 *     OPERATIONAL SETUP MESSAGES
                           497 *
001818  34E0               498       DC    A(CODE0)                MESSAGE CODE
00181A  C8C1D9C4C3D6D7E84  499 FSTMG DC    C'HARDCOPY CONSOLE PREFERRED - IS ONE AVAILABLE?'
001848  0000               500       DC    X'0000'                 EOM AND MESSAGE CONTROL
00184A  181A               501 FSTMA DC    A(FSTMG)                MESSAGE ADDRESS
00184C  2178               502       DC    A(HRDBF)                INPUT BUFFER ADDRESS
00184E  0001               503       DC    A(1)                    INPUT BUFFER LENGTH
001850  0000               504       DC    A(0)                    RETURN DATA IN EBCDIC
001852  34E1               506       DC    A(CODE1)                MESSAGE CODE
001854  C5D5E3C5D940C8C1D  507 SECMG DC    C'ENTER HARDCOPY CONSOLE ADDRESS'
001872  0080               508       DC    X'0080'                 EOM AND MESSAGE CONTROL
001874  1854               509 SECMA DC    A(SECMG)                MESSAGE ADDRESS
001876  2154               510       DC    A(OUTAD)                INPUT BUFFER ADDRESS
001878  0001               511       DC    A(1)                    INPUT BUFFER LENGTH
00187A  0001               512       DC    A(1)                    RETURN DATA IN HEX
00187C  34E2               514       DC    A(CODE2)                MESSAGE CODE
00187E  C5D5E3C5D940D9D7E  515 TRDMG DC    C'ENTER RPS DISK ADDRESS'
001894  0080               516       DC    X'0080'                 EOM AND MESSAGE CONTROL
001896  187E               517 TRDMA DC    A(TRDMG)                MESSAGE ADDRESS
001898  2174               518       DC    A(INAD)                 INPUT BUFFER ADDRESS
00189A  0001               519       DC    A(1)                    INPUT BUFFER LENGTH
00189C  0001               520       DC    A(1)                    RETURN DATA IN HEX
00189E  34E3               522       DC    A(CODE3)                MESSAGE CODE
0018A0  E2C8D6E4D3C440E2E  523 FORMG DC    C'SHOULD SYSTEM ERROR LOG BE INITIALIZED? '
0018C8  0080               524       DC    X'0080'                 EOM AND MESSAGE CONTROL
0018CA  18A0               525 FORMA DC    A(FORMG)                MESSAGE ADDRESS
0018CC  2175               526       DC    A(ERIBF)                INPUT BUFFER ADDRESS
0018CE  0001               527       DC    A(1)                    INPUT BUFFER LENGTH
0018D0  0000               528       DC    A(0)                    RETURN DATA IN EBCDIC
0018D2  34E4               530       DC    A(CODE4)                MESSAGE CODE
0018D4  E2C8D6E4D3C440C1D  531 FIVMG DC    C'SHOULD ALL RECORDS BE PRINTED?'
0018F2  0080               532       DC    X'0080'                 EOM AND MESSAGE CONTROL
0018F4  18D4               533 FIVMA DC    A(FIVMG)                MESSAGE ADDRESS
0018F6  2176               534       DC    A(RSDBF)                INPUT BUFFER AREA
0018F8  0001               535       DC    A(1)                    INPUT BUFFER LENGTH
0018FA  0000               536       DC    A(0)                    RETURN DATA IN EBCDIC
0018FC  34E5               538       DC    A(CODE5)                MESSAGE CODE
0018FE  C5D5E3C5D940D9C5C  539 SIXMS DC    C'ENTER RECORD TYPES DESIRED'
00191B  0080               540       DC    X'0080'                 EOM AND MESSAGE CONTROL
00191A  18FE               541 SIXM1 DC    A(SIXMS)                MESSAGE ADDRESS
00191C  34E5               543       DC    A(CODE5)                MESSAGE CODE
00191E  F0F1406040D4C1C3C  544 SIXMU DC    C'01 - MACHINE CHECK'
001930  0080               545       DC    X'0080'                 EOM AND MESSAGE CONTROL
001932  191E               546 SIXM3 DC    A(SIXMU)                MESSAGE ADDRESS
001934  34E5               548       DC    A(CODE5)                MESSAGE CODE
001936  F0F2406040D7D9D6C  549 SIXMV DC    C'02 - PROGRAM CHECK'
001948  0080               550       DC    X'0080'                 EOM AND MESSAGE CONTROL
00194A  1936               551 SIXM4 DC    A(SIXMV)                MESSAGE ADDRESS
00194C  34E5               553       DC    A(CODE5)                MESSAGE CODE
00194E  F0F3406040E2D6C6E  554 SIXMW DC    C'03 - SOFT EXCEPTION CHECK '
001968  0080               555       DC    X'0080'                 EOM AND MESSAGE CONTROL
00196A  194E               556 SIXM5 DC    A(SIXMW)                MESSAGE ADDRESS
00196C  34E5               558       DC    A(CODE5)                MESSAGE CODE
00196E  F0F4406040C4C5E5C  559 SIXMX DC    C'04 - DEVICE '
00197A  0080               560       DC    X'0080'                 EOM AND MESSAGE CONTROL
00197C  196E               561 SIXM6 DC    A(SIXMX)                MESSAGE ADDRESS
00197E  34E5               563       DC    A(CODE5)                MESSAGE CODE
001980  F0F5406040D5E4D3D  564 SIXMY DC    C'05 - NULL INTERRUPT '
001994  0080               565       DC    X'0080'                 EOM AND MESSAGE CONTROL
001996  1980               566 SIXM7 DC    A(SIXMY)                MESSAGE ADDRESS
001998  34E5               568       DC    A(CODE5)                MESSAGE CODE
00199A  F0F6406040E2E8E2E  569 SIXMZ DC    C'06 - SYSTEM TERMINATION '
0019B2  0080               570       DC    X'0080'                 EOM AND MESSAGE CONTROL
0019B4  199A               571 SIXM8 DC    A(SIXMZ)                MESSAGE ADDRESS
0019B6  34E5               573       DC    A(CODE5)                MESSAGE CODE
0019B8  F0F7406040E4E2C5D  574 SIXMG DC    C'07 - USER '
0019C2  0080               575       DC    X'0080'                 EOM AND MESSAGE CONTROL
0019C4  19B8               576 SIXMA DC    A(SIXMG)                MESSAGE ADDRESS
0019C6  216A               577       DC    A(RECTF)                INPUT BUFFER AREA
0019C8  0007               578       DC    A(7)                    INPUT BUFFER LENGTH
0019CA  0001               579       DC    A(1)                    RETURN DATA IN HEX
0019CC  34E6               581       DC    A(CODE6)                MESSAGE CODE
0019CE  E2C8D6E4D3C440C1D  582 SEVMG DC    C'SHOULD ALL DEVICE RECORDS BE PRINTED? '
0019F4  0080               583       DC    X'0080'                 EOM AND MESSAGE CONTROL
0019F6  19CE               584 SEVMA DC    A(SEVMG)                MESSAGE ADDRESS
0019F8  2177               585       DC    A(SDABF)                INPUT BUFFER AREA
0019FA  0001               586       DC    A(1)                    INPUT BUFFER LENGTH
0019FC  0000               587       DC    A(0)                    RETURN DATA IN EBCDIC
0019FE  34E7               589       DC    A(CODE7)                MESSAGE CODE
001A00  C5D5E3C5D940C4C5E  590 EHTMG DC    C'ENTER DEVICE ADDRESSES DESIRED'
001A1E  0080               591       DC    X'0080'                 EOM AND MESSAGE CONTROL
001A20  1A00               592 EHTMA DC    A(EHTMG)                MESSAGE ADDRESS
001A22  215E               593       DC    A(DEVAD)                INPUT BUFFER AREA
001A24  000A               594       DC    A(10)                   INPUT BUFFER LENGTH
001A26  0001               595       DC    A(1)                    RETURN DATA IN HEX
001A28  34E8               597       DC    A(CODE8)                MESSAGE CODE
001A2A  C9E240E3C8C540E5D  598 VOLMG DC    C'IS THE VOLUME LABEL CONTAINING SYSTEM ERROR LOG '
001A5A  7DE2E8E2C5D9D3D6C  599       DC    C'''SYSERLOG''? '
001A66  0080               600       DC    X'0080'                 EOM AND MESSAGE CONTROL
001A68  1A2A               601 VOLMA DC    A(VOLMG)                MESSAGE ADDRESS
001A6A  217A               602       DC    A(VLNAM)                INPUT BUFFER AREA
001A6C  0001               603       DC    A(1)                    INPUT BUFFER LENGTH
001A6E  0000               604       DC    A(0)                    RETURN DATA IN EBCDIC
001A70  34E8               606       DC    A(CODE8)                MESSAGE CODE
001A72  C5D5E3C5D940C5C9C  607 NINMG DC    C'ENTER EIGHT CHARACTER VOLUME LABEL CONTAINING ERROR LOG '
001AAA  0080               608       DC    X'0080'                 EOM AND MESSAGE CONTROL
001AAC  1A72               609 NINMA DC    A(NINMG)                MESSAGE ADDRESS
001AAE  213C               610       DC    A(RESVL)                INPUT BUFFER AREA
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

001AB0  0008               611       DC    A(8)                    INPUT BUFFER LENGTH
001AB2  0000               612       DC    A(0)                    RETURN DATA IN EBCDIC
001AB4  34E8               614       DC    A(CODE8)                MESSAGE CODE
001AB6  C5D5E3C5D940C5C9C  615 TENMG DC    C'ENTER EIGHT CHARACTER SYSTEM ERROR LOG LABEL'
001AE2  0080               616       DC    X'0080'                 EOM AND MESSAGE CONTROL
001AE4  1AB6               617 TENMA DC    A(TENMG)                MESSAGE ADDRESS
001AB6  2144               618       DC    A(ERLOG)                INPUT BUFFER AREA
001AE8  0008               619       DC    A(8)                    INPUT BUFFER LENGTH
001AEA  0000               620       DC    A(0)                    RETURN DATA IN EBCDIC
001AEC  3407               622       DC    A(CNOFF)                MESSAGE CODE
001AEE  C3D6D5E2D6D3C540C  623 ELVMG DC    C'CONSOLE BEING CHANGED FOR ERAP FORMATTING '
001B18  0080               624       DC    X'0080'                 EOM AND MESSAGE CONTROL
001B1A  1AEE               625 ELVMA DC    A(ELVMG)                MESSAGE ADDRESS
001B1C  3408               627       DC    A(CNRES)                MESSAGE CODE
001B1E  C3D6D5E2D6D3C540D  628 TWLMG DC    C'CONSOLE RETURNED'
001B2E  0080               629       DC    X'0080'                 EOM AND MESSAGE CONTROL
001B30  1B1E               630 TWLMA DC    A(TWLMG)                MESSAGE ADDRESS
                           632 *
                           633 *     ERROR MESSAGES
                           634 *
001B32  34EA               636       DC    A(COD10)                MESSAGE CODE
001B34  C8C1D9C4C3D6D7E84  637 THNMG DC    C'HARDCOPY CONSOLE NOT USABLE '
001B50  0040               638       DC    X'0040'                 EOM AND MESSAGE CONTROL
001B52  1B34               639 THNMA DC    A(THNMG)                MESSAGE ADDRESS
001B54  34EB               641       DC    A(COD11)                MESSAGE CODE
001B56  C4C1E3C140E2C5E34  642 FRNMG DC    C'DATA SET  '
001B60  E7E7E7E7E7E7E7E74  643 DSNME DC    C'XXXXXXXX NOT FOUND ON DISK'
001B7A  0040               644       DC    X'0040'                 EOM AND MESSAGE CONTROL
001B7C  1B56               645 FRNMA DC    A(FRNMG)                MESSAGE ADDRESS
001B7E  34EC               647       DC    A(COD12)                MESSAGE CODE
001B80  D7D9C5D7C1D9C540C  648 FFNMG DC    C'PREPARE DISK ERROR'
001B92  0040               649       DC    X'0040'                 EOM AND MESSAGE CONTROL
001B94  1B80               650 FFNMA DC    A(FFNMG)                MESSAGE ADDRESS
001B96  34ED               652       DC    A(COD13)                MESSAGE CODE
001B98  C4C9E2D240C5D9D9D  653 SXNMG DC    C'DISK ERROR WHILE SEARCHING FOR DATA SET '
001BC0  E7E7E7E7E7E7E7E7   654 DSNAM DC    C'XXXXXXXX'
001BC8  0040               655       DC    X'0040'                 EOM AND MESSAGE CONTROL
001BCA  1B98               656 SXNMA DC    A(SXNMG)                MESSAGE ADDRESS
001BCC  34EE               656       DC    A(COD14)                MESSAGE CODE
001BCE  C4C9E2D240C5D9D9D  659 SVNMG DC    C'DISK ERROR READING SYSTEM ERROR LOG '
001BF2  0040               660       DC    X'0040'                 EOM AND MESSAGE CONTROL
001BF4  1BCE               661 SVNMA DC    A(SVNMG)                MESSAGE ADDRESS
001BF6  34EF               663       DC    A(COD15)                MESSAGE CODE
001BF8  C4C9E2D240C5D9D9D  664 EGTMG DC    C'DISK ERROR WRITING SYSTEM ERROR LOG '
001C1C  0040               665       DC    X'0040'                 EOM AND MESSAGE CONTROL
001C1E  1BF8               666 EGTMA DC    A(EGTMG)                MESSAGE ADDRESS
001C20  3401               668       DC    A(ALTCD)                MESSAGE CODE
001C22  0040               669 NNTMG DC    X'0040'                 EOM AND MESSAGE CONTROL
001C24  1C22               670 NNTMA DC    A(NNTMG)                MESSAGE ADDRESS
                           672 *
                           673 *     EDITTED HEADER MESSAGES
                           674 *
001C26  34E9               675       DC    A(CODE9)                MESSAGE CODE
001C28  5C5C40D7D9D6C3C5E  676 TW0MG DC    C'** PROCESSOR MACHINE CHECK LOG SUMMARY ** '
001C52  0080               677       DC    X'0080'                 EOM AND MESSAGE CONTROL
001C54  1C28               678 TW0MA DC    A(TW0MG)                MESSAGE ADDRESS
001C56  34E9               680       DC    A(CODE9)                MESSAGE CODE
001C58  5C5C40D7D9D6C3C5E  681 TW1MG DC    C'** PROCESSOR PROGRAM CHECK LOG SUMMARY ** '
001C82  0080               682       DC    X'0080'                 EOM AND MESSAGE CONTROL
001C84  1C58               683 TW1MA DC    A(TW1MG)                MESSAGE ADDRESS
001C86  34E9               685       DC    A(CODE9)                MESSAGE CODE
001C88  5C5C40D7D9D6C3C5E  686 TW2MG DC    C'** PROCESSOR SOFT EXCEPTION CHECK LOG SUMMARY **'
001CB8  0080               687       DC    X'0080'                 EOM AND MESSAGE CONTROL
001CBA  1C88               688 TW2MA DC    A(TW2MG)                MESSAGE ADDRESS
001CBC  34E9               690       DC    A(CODE9)                MESSAGE CODE
001CBE  5C5C40C4C5E5C9C3C  691 TW3MG DC    C'** DEVICE ERROR LOG **'
001CD4  0080               692       DC    X'0080'                 EOM AND MESSAGE CONTROL
001CD6  1CBE               693 TW3MA DC    A(TW3MG)                MESSAGE ADDRESS
001CD8  5C5C40C4C5E5C9C3C  695 TW4MG DC    C'** DEVICE ERROR SUMMARY **'
001CF2  0080               696       DC    X'0080'                 EOM AND MESSAGE CONTROL
001CF4  1CD8               697 TW4MA DC    A(TW4MG)                MESSAGE ADDRESS
001CF6  34E9               699       DC    A(CODE9)                MESSAGE CODE
001CF8  5C5C40D5E4D3D340C  700 TW5MG DC    C'** NULL INTERRUPT LOG SUMMARY **'
001D18  0080               701       DC    X'0080'                 EOM AND MESSAGE CONTROL
001D1A  1CF8               702 TW5MA DC    A(TW5MG)                MESSAGE ADDRESS
001D1C  34E9               704       DC    A(CODE9)                MESSAGE CODE
001D1E  5C5C40E2E8E2E3C5D  705 TW6MG DC    C'** SYSTEM TERMINATION LOG SUMMARY **'
001D42  0080               706       DC    X'0080'                 EOM AND MESSAGE CONTROL
001D44  1D1E               707 TW6MA DC    A(TW6MG)                MESSAGE ADDRESS
001D46  34E9               709       DC    A(CODE9)                MESSAGE CODE
001D48  5C5C40E4E2C5D940D  710 TW8MG DC    C'** USER LOG *** DUMP OF EACH RECORD FOLLOWS **'
001D76  0080               711       DC    X'0080'                 EOM AND MESSAGE CONTROL
001D78  1D48               712 TW8MA DC    A(TW8MG)                MESSAGE ADDRESS
001D7A  34E9               714       DC    A(CODE9)                MESSAGE CODE
001D7C  5C5C40D5D640D9C5C  715 TW9MG DC    C'** NO  RECORDS FOUND **'
001D92  0080               716       DC    X'0080'                 EOM AND MESSAGE CONTROL
001D94  1D7C               717 TW9MA DC    A(TW9MG)                MESSAGE ADDRESS
001D96  34E9               719       DC    A(CODE9)                MESSAGE CODE
001D98  5C5C40E2E8E2E3C5D  720 TH0MG DC    C'** SYSTEM ERROR LOG EMPTY **'
001DB4  0080               721       DC    X'0080'                 EOM AND MESSAGE CONTROL
001DB6  1D98               722 TH0MA DC    A(TH0MG)                MESSAGE ADDRESS
                           724 ************************************************************************
                           725 *                                                                      *
                           726 *     THE FOLLOWING ARE THE RESERVED STORAGE BUFFERS USED BY           *
                           727 *     THE ERAP PROGRAM.                                                *
                           728 *                                                                      *
                           729 ************************************************************************
                           730 *     PRINT LINE BUFFER
                           731 *
001DB8  34E9               732       DC    A(CODE9)                MESSAGE CODE
001DBA  4040404040404040404 733 PRTLN DC    64C' '
001DFA  00C0               734       DC    X'00C0'                 EOM AND MESSAGE CONTROL
001DFC  1DBA               735 PRTBK DC    A(PRTLN)                MESSAGE ADDRESS
                           736 *
                           737 *     DISK SECTOR BUFFER
                           738 *
001DFE  00000000000000000  739 EREC1 DC    128X'00'                SECTOR BUFFER
001E7E  00000000000000000  740 EREC2 DC    128X'00'                SECTOR BUFFER
001DFE                     742 RECSZ EQU   EREC1+ZERO
001E06                     743 TOD   EQU   EREC1+EIGHT
001E0E                     744 DVRID EQU   EREC1+SIXTN
001E14                     745 DA    EQU   EREC1+TWNT2
001E1F                     746 DCBCT EQU   EREC1+THRT3
                           747 *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           748 *     DISK CYCLE STEAL STATUS AND SECTOR ID BUFFERS
                           749 *
001EFE  0000000000000000   750 CSSBF DC    4A(0)                    CYCLE STEAL STATUS BUFFER
001F06  000000000000       751 SECID DC    3A(0)                    SECTOR ID BUFFER
001F0C  0000               752 ISB   DC    A(0)                     INTERRUPT STATUS BYTE
                           754 *
                           755 *     SYSTEM ERROR LOG CONTROL RECORD SAVE AREA
                           756 *
001F0E  00000000000000000  757 CNTLR DC    30X'00'                  CONTROL RECORD
001F1C                     759 CNTLV EQU   CNTLR+FORTN
001F1E                     760 OLDAD EQU   CNTLR+SIXTN
001F22                     761 NXTAD EQU   CNTLR+TWNTY
001F26                     762 CURAD EQU   CNTLR+TWNT4
                           764 *
                           765 *     EBCDIC DATA BUILD AREA
                           766 *
001F2C  40404040           767 DAY   DC    C'    '                  DAY
001F30  40404040           768 TPP   DC    C'    '                  TEMP/PERM INDICATION
001F34  40404040404040404  769 DVTP  DC    C'        '              DEVICE TYPE
001F3E  4040404040404040   770 TMOUT DC    C'        '              TIMEOUT INDICATION
                           772 *
                           773 *     LABELS USED TO PROCESS DEVICE RECORDS
                           774 *
001F46  D7C5D9D4           775 PERM  DC    C'PERM'                  PERMANENT INDICATION
001F4A  E3C5D4D7           776 TEMP  DC    C'TEMP'                  TEMPORARY INDICATION
001F4E  E3C9D4C560D6E4E3   778 TMOT  DC    C'TIME-OUT'              TIMEOUT RECORD INDICATION
001F56  4040404040404040   779 NTMOT DC    C'        '              NOT TIMEOUT RECORD INDICATION
001F5E  0010               781 DVTYP DC    X'0010'                  READ ID
001F60  0000               782       DC    X'0000'                  MASK
001F62  E3E3E840404040404  783       DC    C'TTY     '              DEVICE TYPE NAME
001F6C  0206               784       DC    X'0206'                  READ ID
001F6E  0000               785       DC    X'0000'                  MASK
001F70  D7D9C9D5E3C5D9404  786       DC    C'PRINTER '              DEVICE TYPE NAME
001F7A  0306               787       DC    X'0306'                  READ ID
001F7C  0000               788       DC    X'0000'                  MASK
001F7E  D7D9C9D5E3C5D9404  789       DC    C'PRINTER '              DEVICE TYPE NAME
001F88  0106               790       DC    X'0106'                  READ ID
001F8A  0000               791       DC    X'0000'                  MASK
001F8C  C4C9E2D2C5E3E3C54  792       DC    C'DISKETTE'              DEVICE TYPE NAME
001F96  0082               793       DC    X'0082'                  READ ID
001F98  0078               794       DC    X'0078'                  MASK
001F9A  C4C9E2D2404040404  795       DC    C'DISK    '              DEVICE TYPE NAME
001FA4  0406               796       DC    X'0406'                  READ ID
001FA6  0000               797       DC    X'0000'                  MASK
001FA8  C4C9E2D740E2E3C1E  798       DC    C'DISP STAT '            DEVICE TYPE NAME
001FB2  040E               799       DC    X'040E'                  READ ID
001FB4  0000               800       DC    X'0000'                  MASK
001FB6  C4C9E2D740E2E3C1E  801       DC    C'DISP STAT '            DEVICE TYPE NAME
001FC0  0028               802       DC    X'0028'                  READ ID
001FC2  0000               803       DC    X'0000'                  MASK
001FC4  E3C9D4C5D94040404  804       DC    C'TIMER   '              DEVICE TYPE NAME
001FCE  C010               805       DC    X'C010'                  READ ID
001FD0  0000               806       DC    X'0000'                  MASK
001FD2  C9D5E3C5C740C4C94  807       DC    C'INTEG DI  '            DEVICE TYPE NAME
001FDC  C018               808       DC    X'C018'                  READ ID
001FDE  0000               809       DC    X'0000'                  MASK
001FE0  C9D5E3C5C740C4D64  810       DC    C'INTEG DO  '            DEVICE TYPE NAME
001FEA  8008               811       DC    X'8008'                  RFAD ID
001FEC  0000               812       DC    X'0000'                  MASK
001FEE  E2C5D540C4C940C9E  813       DC    C'SEN DI ISO'            DEVICE TYPE NAME
001FF8  8010               814       DC    X'8010'                  READ ID
001FFA  0000               815       DC    X'0000'                  MASK
001FFC  E2C5D540C4C940404  816       DC    C'SEN DI    '            DEVICE TYPE NAME
002006  8018               817       DC    X'8018'                  READ ID
002008  0000               818       DC    X'0000'                  MASK
00200A  E2C5D540C4D640404  819       DC    C'SEN DO    '            DEVICE TYPE NAME
002014  8020               820       DC    X'8020'                  READ ID
002016  0000               821       DC    X'0000'                  MASK
002018  E2C5D540C1C940404  822       DC    C'SEN AI    '            DEVICE TYPE NAME
002022  8028               823       DC    X'8028'                  READ ID
002024  0000               824       DC    X'0000'                  MASK
002026  E2C5D540C1C940C1D  825       DC    C'SEN AI AMP'            DEVICE TYPE NAME
002030  8030               826       DC    X'8030'                  READ ID
002032  0000               827       DC    X'0000'                  MASK
002034  E2C5D540D9D940D4D  828       DC    C'SEN FR MPX'            DEVICE TYPE NAME
00203E  8038               829       DC    X'8038'                  READ ID
002040  0000               830       DC    X'0000'                  MASK
002042  E2C5D540E2E240D4D  831       DC    C'SEN SS MPX'            DEVICE TYPE NAME
00204C  8040               832       DC    X'8040'                  READ ID
00204E  0000               833       DC    X'0000'                  MASK
002050  E2C5D540C1D640404  834       DC    C'SEN AO    '            DEVICE TYPE NAME
00205A  100E               835       DC    X'100E'                  READ ID
00205C  0000               836       DC    X'0000'                  MASK
00205E  C1C3C3C140E24BD34  837       DC    C'ACCA S.L. '            DEVICE TYPE NAME
002068  1006               838       DC    X'1006'                  READ ID
00206A  0020               839       DC    X'0020'                  MASK
00206C  C2E2C3C140E24BD34  840       DC    C'BSCA S.L. '            DEVICE TYPE NAME
002076  1016               841       DC    X'1016'                  READ ID
002078  0020               842       DC    X'0020'                  MASK
00207A  E2C4D3C340E24BD34  843       DC    C'SDLC S.L. '            DEVICE TYPE NAME
002084  200E               844       DC    X'200E'                  READ ID
002086  0700               845       DC    X'0700'                  MASK
002088  C1C3C3C140D44BD34  846       DC    C'ACCA M.L. '            DEVICE TYPE NAME
002092  2006               847       DC    X'2006'                  READ ID
002094  0700               848       DC    X'0700'                  MASK
002096  C2E2C3C140D44BD34  849       DC    C'BSCA M.L. '            DEVICE TYPE NAME
0020A0  0000               850       DC    X'0000'                  END OF TABLE
0020A2  0000               851       DC    X'0000'                  NULL ENTRY
0020A4  E4D5D2D5D6E6D5404  852       DC    C'UNKNOWN   '            DEVICE TYPE NAME
                           854 ********************************************************************
                           855 *                                                                  *
                           856 *     THE FOLLOWING EQUATES ARE THE DISPLACEMENTS FROM THE 1ST     *
                           857 *     WORD OF THE SEEK DCB TO THE VARIOUS INFORMATION IN THE       *
                           858 *     SEEK, READ, WRITE AND VERIFY DCB FOR THE DISK.               *
                           859 *                                                                  *
                           860 ********************************************************************
                           861 *     SEEK DCB
000000                     862 SKW1  EQU   0                        DCB CONTROL WORD
000002                     863 SKW2  EQU   2                        SEEK CONTROL WORD
000004                     864 SKW3  EQU   4                        PHYSICAL SECTOR COUNT/FLAGS
000006                     865 SKW4  EQU   6                        CYLINDER
000008                     866 SKW5  EQU   8                        HEAD/SECTOR
00000A                     867 SKW6  EQU   10                       CHAIN ADDRESS
00000C                     868 SKW7  EQU   12                       BYTE COUNT
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
00000E                     869 SKW8  EQU   14                       DATA ADDRESS
                           870 *     READ DCB
000010                     871 RDW1  EQU   16                       DCB CONTROL WORD
000012                     872 RDW2  EQU   18                       SEEK CONTROL WORD
000014                     873 RDW3  EQU   20                       PHYSICAL SECTOR COUNT/FLAGS
000016                     874 RDW4  EQU   22                       CYLINDER
000018                     875 RDW5  EQU   24                       HEAD/SECTOR
00001A                     876 RDW6  EQU   26                       CHAIN ADDRESS
00001C                     877 RDW7  EQU   28                       BYTE COUNT
00001E                     878 RDW8  EQU   30                       DATA ADDRESS
                           879 *     WRITE DCB
000020                     880 WRW1  EQU   32                       DCB CONTROL WORD
000022                     881 WRW2  EQU   34                       SEEK CONTROL WORD
000024                     882 WRW3  EQU   36                       PHYSICAL SECTOR COUNT/FLAGS
000026                     883 WRW4  EQU   38                       CYLINDER
000028                     884 WRW5  EQU   40                       HEAD/SECTOR
00002A                     885 WRW6  EQU   42                       CHAIN ADDRESS
00002C                     886 WRW7  EQU   44                       BYTE COUNT
00002E                     887 WRW8  EQU   46                       DATA ADDRESS
                           888 *     VERIFY DCB
000030                     889 VFW1  EQU   48                       DCB CONTROL WORD
000032                     890 VFW2  EQU   50                       SEEK CONTROL WORD
000034                     891 VFW3  EQU   52                       PHYSICAL SECTOR COUNT/FLAGS
000036                     892 VFW4  EQU   54                       CYLINDER
000038                     893 VFW5  EQU   56                       HEAD/SECTOR
00003A                     894 VFW6  EQU   58                       CHAIN ADDRESS
00003C                     895 VFW7  EQU   60                       BYTE COUNT
00003E                     896 VFW8  EQU   62                       DATA ADDRESS
                           898 ********************************************************************
                           899 *                                                                  *
                           900 *     I/O CONTROL IDCB'S FOR DISK DRIVE                            *
                           901 *                                                                  *
                           902 ********************************************************************
                           903       ALIGN WORD
                           904 *     PREPARE IDCB
0020AE  6000               905 DKPRE DC    X'6000'                  PREPARE IDCB
0020B0  0005               906       DC    A(5)                     LEVEL 2
                           907 *     START IDCB
0020B2  7000               908 DKSTR DC    X'7000'                  START IDCB
0020B4  20CE               909       DC    A(SEDCB)
                           910 *     RESET IDCB
0020B6  6F00               911 DKRST DC    X'6F00'                  RESET IDCB
0020B8  0000               912       DC    A(0)
                           913 *     RECALIBRATE IDCB
0020BA  7000               914 DKRCL DC    X'7000'                  RECALIBRATE IDCB
0020BC  212E               915       DC    A(RECAL)
                           916 *     UNPREPARE IDCB
0020BE  6000               917 DKUPR DC    X'6000'                  UNPREPARE IDCB
0020C0  0004               918       DC    A(4)
                           919 *     READ ID IDCB
0020C2  2000               920 DKRID DC    X'2000'                  READ ID IDCB
0020C4  0000               921       DC    A(*-*)
                           922 *     READ CYCLE STEAL STATUS
0020C6  7F00               923 DKCSS DC    X'7F00'                  READ CYCLE STEAL STATUS IDCB
0020C8  210E               924       DC    A(CSDCB)
                           925 *     READ SECTOR ID / READ SECTOR ID SKEWED
0020CA  7000               926 DKRSI DC    X'7000'                  READ SECTOR ID IDCB
0020CC  211E               927       DC    A(RSDCB)
                           929 ********************************************************************
                           930 *                                                                  *
                           931 *     I/O CONTROL DCB'S FOR DISK DRIVE                             *
                           932 *                                                                  *
                           933 ********************************************************************
                           934 *     SEEK DCB
0020CE  8005               935 SEDCB DC    X'8005'                  DCB CONTROL WORD
0020D0  0000               936       DC    A(0)                     SEEK CONTROL WORD
0020D2  0000               937       DC    A(0)                     PHYSICAL SECTOR COUNT/FLAGS
0020D4  0000               938       DC    A(0)                     CYLINDER
0020D6  0000               939       DC    A(0)                     HEAD/SECTOR
0020D8  0000               940       DC    A(0)                     CHAIN ADDRESS
0020DA  0000               941       DC    A(0)                     BYTE COUNT
0020DC  0000               942       DC    A(0)                     DATA ADDRESS
                           943 *     READ DCB
0020DE  2009               944 RDCB  DC    X'2009'                  DCB CONTROL WORD
0020E0  0000               945       DC    A(0)                     SEEK CONTROL WORD
0020E2  0000               946       DC    A(0)                     PHYSICAL SECTOR COUNT/FLAGS
0020E4  0000               947       DC    A(0)                     CYLINDER
0020E6  0000               948       DC    A(0)                     HEAD/SECTOR
0020E8  0000               949       DC    A(0)                     CHAIN ADDRESS
0020EA  0100               950       DC    A(256)                   BYTE COUNT
0020EC  1DFE               951       DC    A(EREC1)                 DATA ADDRESS
                           952 *     WRITE DCB
0020EE  8001               953 WRDCB DC    X'8001'                  DCB CONTROL WORD
0020F0  0000               954       DC    A(0)                     SEEK CONTROL WORD
0020F2  0000               955       DC    A(0)                     PHYSICAL SECTOR COUNT/FLAGS
0020F4  0000               956       DC    A(0)                     CYLINDER
0020F6  0000               957       DC    A(0)                     HEAD/SECTOR
0020F8  20FE               958       DC    A(VDCB)                  CHAIN ADDRESS
0020FA  0100               959       DC    A(256)                   BYTE COUNT
0020FC  1DFE               960       DC    A(EREC1)                 DATA ADDRESS
                           961 *     VERIFY DCB
0020FE  200C               962 VDCB  DC    X'200C'                  DCB CONTROL WORD
002100  0000               963       DC    A(0)                     SEEK CONTROL WORD
002102  0000               964       DC    A(0)                     PHYSICAL SECTOR COUNT/FLAGS
002104  0000               965       DC    A(0)                     CYLINDER
002106  0000               966       DC    A(0)                     HEAD/SECTOR
002108  0000               967       DC    A(0)                     CHAIN ADDRESS
00210A  0100               968       DC    A(256)                   BYTE COUNT
00210C  0000               969       DC    A(0)                     DATA ADDRESS
                           970 *     CYCLE STEAL STATUS DCB
00210E  2000               971 CSDCB DC    X'2000'                  DCB CONTROL WORD
002110  0000               972       DC    A(0)                     SEEK CONTROL WORD
002112  0000               973       DC    A(0)                     PHYSICAL SECTOR COUNT/FLAGS
002114  0000               974       DC    A(0)                     CYLINDER
002116  0000               975       DC    A(0)                     HEAD/SECTOR
002118  0000               976       DC    A(0)                     CHAIN ADDRESS
00211A  0008               977       DC    A(8)                     BYTE COUNT
00211C  1EFE               978       DC    A(CSSBF)                 DATA ADDRESS
                           979 *     READ SECTOR ID DCB
00211E  200A               980 RSDCB DC    X'200A'                  DCB CONTROL WORD
002120  0000               981       DC    A(0)                     SEEK CONTROL WORD
002122  0000               982       DC    A(0)                     PHYSICAL SECTOR COUNT/FLAGS
002124  0000               983       DC    A(0)                     CYLINDER
002126  0000               984       DC    A(0)                     HEAD/SECTOR
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                          COPYRIGHT IBM CORP 1976

002128  0000                 985         DC    A(0)                  CHAIN ADDRESS
00212A  0006                 986         DC    A(6)                  BYTE COUNT
00212C  1F06                 987         DC    A(SECID)              DATA ADDRESS
                             988 *       RECALIBRATE DCB
00212E  0007                 989 RECAL   DC    X'0007'               DCB CONTROL WORD
                             991 ********************************************************************
                             992 *                                                                  *
                             993 *       I/O CONTROL IDCB'S FOR CONSOLE                             *
                             994 *                                                                  *
                             995 ********************************************************************
                             996 *       RESET IDCB
002130  6F00                 997 PRRST   DC    X'6F00'               RESET IDCB
002132  0000                 998         DC    A(0)
                             999 *       UNPREPARE IDCB
002134  6000                1000 PRUPR   DC    X'6000'               UNPREPARE IDCB
002136  0004                1001         DC    A(4)
                            1002 *       READ ID IDCB
002138  2000                1003 PRRID   DC    X'2000'               READ ID IDCB
002139                      1004 PRRI1   EQU   PRRID+ONE
00213A  0000                1005 PRRI2   DC    A(0)
                            1007 ********************************************************************
                            1008 *                                                                  *
                            1009 *       RPS DATA SET SEARCH ARGUMENTS                              *
                            1010 *                                                                  *
                            1011 ********************************************************************
00213C  E2E8E2C5D9D3D6C7    1012 RESVL   DC    C'SYSERLOG'           SYSTEM ERROR VOLUME LABEL
002144  E2E8E2C5D9D3D6C7    1013 ERLOG   DC    C'SYSERLOG'           SYSTEM ERROR LOG LABEL
                            1015 ********************************************************************
                            1016 *                                                                  *
                            1017 *       SWITCHES AND BUFFERS                                       *
                            1018 *                                                                  *
                            1019 ********************************************************************
00214C  0000                1020 PCYLA   DC    A(0)                  CYLINDER HEAD PRESENTLY AT
00214E  FFFF                1022 OLDCN   DC    A(65535)              OLD CONSOLE TABLE ADDRESS
002150  FFFF                1023 NEWCN   DC    A(65535)              NEW CONSOLE TABLE ADDRESS
002152  FFFF                1024 OLDCA   DC    A(65535)              OLD CONSOLE DEVICE ADDRESS/TYPE
002154  FFFF                1025 NEWCA   DC    A(65535)              NEW CONSOLE DEVICE ADDRESS/TYPE
002154                      1026 OUTAD   EQU   NEWCA                  CONSOLE DEVICE ADDRESS
002156  FFFF                1027 NEWIS   DC    A(65535)              NEW CONSOLE INTERRUPT SAVE
002158  FFFF                1028 DSKIS   DC    A(65535)              DISK INTERRUPT SAVE
00215A  FFFF                1029 OLDVS   DC    A(65535)              OLD CONSOLE VECTOR SAVE AREA
00215C  FFFF                1030 DSKVS   DC    A(65535)              DISK VECTOR SAVE AREA
00215E  FFFFFFFFFFFFFFFF    1031 DEVAD   DC    6A(65535)             DEVICE ADDRESSES
00216A  FFFFFFFFFFFFFFFF    1032 RECTP   DC    5A(65535)             RECORD TYPES
002174  FF                  1033 INAD    DC    X'FF'                 DISK DEVICE ADDRESS
002175  FF                  1034 ERIBF   DC    X'FF'                 ERROR LOG INITIALIZATION
002176  FF                  1035 RSDBF   DC    X'FF'                 RECORD SELECTION
002177  FF                  1036 SDABF   DC    X'FF'                 SELECT DEVICE ADDRESSES
002178  FF                  1037 HRDBF   DC    X'FF'                 HARDCOPY CONSOLE AVAILABLE
002179  FF                  1038 REPRC   DC    X'FF'                 RECORD PROCESSED SWITCH
00217A  FF                  1039 VLNAM   DC    X'FF'                 SYSTEM ERROR VOLUME LABEL
00217B  FF                  1040 ERRM1   DC    X'FF'                 HARDCOPY CONSOLE UNUSEABLE ERROR
00217C  FF                  1041 ERRM2   DC    X'FF'                 SPARE
00217D  FF                  1042 ERRM3   DC    X'FF'                 PREPARE DISK ERROR
00217E  FF                  1043 ERRM4   DC    X'FF'                 DISK ERROR READING RPS VTOC
00217F  FF                  1044 ERRM5   DC    X'FF'                 DISK ERROR READING SYSTEM ERROR LOG
002180  FF                  1045 ERRM6   DC    X'FF'                 DISK ERROR WRITING SYSTEM ERROR LOG
002181                      1047 BFND    EQU   *
000033                      1048 LNGTH   EQU   BFND-OLDCN              BUFFER AREA LENGTH
                            1050 ********************************************************************
                            1051 *                                                                  *
                            1052 *       DATA CONSTANTS                                             *
                            1053 *                                                                  *
                            1054 ********************************************************************
                            1055         ALIGN WORD
002181  00                  1056 YES     DC    C'Y'                  EBCDIC RESPONSE OF YES 'Y'
002182  E8                  1057 DSP1    DC    X'44'                 DISPLAY CONSOLE TYPE
002183  44                  1058 DSP2    DC    X'45'                 DISPLAY CONSOLE TYPE
002184  45                  1059 EBC0    DC    C'0'                  EBCDIC CONSTANT OF 0
002185  F0                  1060 BLKMG   DC    C' '                                BLANK
002186  40                  1061 HEX00   DC    AL1(0)                BYTE CONSTANT OF 0
002187  00                  1062 HEX01   DC    AL1(1)                                1
002188  01                  1063 HEX02   DC    AL1(2)                                2
002189  02                  1064 HEX08   DC    AL1(8)                                8
00218A  08                  1065 HEX0A   DC    AL1(10)                              10
00218B  0A                  1066 HEX20   DC    AL1(32)                              32
00218C  20                  1067 HEX64   DC    AL1(100)                            100
00218D  64                  1068 HEXCC   DC    AL1(204)                            204
00218E  CC                  1069 HEXFE   DC    AL1(254)                            254
00218F  FE                  1070 HEXFF   DC    AL1(255)                            255
002190  FF                  1071 DW1     DC    D'1'                  DOUBLE WORD CONSTANT OF 1
002192  00000001            1073 CURDA   DC    A(DVSUM)              CURRENT DEVICE ADDRESS POINTER
002196  3402                1075 WORK1   DC    A(*-*)                RECORD DESCRIPTION TABLE ADDRESS
002198  0000                1076 WORK2   DC    A(*-*)                DATA RECORD ADDRESS
00219A  0000                1077 WORK3   DC    A(*-*)                RECORD LABEL ADDRESS
00219C  0000                1079 ALL     DC    X'01020304050607FF'   ALL RECORD DEFAULT ORDER
00219E  01020304050607FF    1081 CNVT0   DC    A(*-*)                LENGTH OF DATA TO CONVERT
0021A6  0000                1082 CNVT1   DC    A(*-*)                FROM ADDRESS
0021A8  0000                1083 CNVT2   DC    A(*-*)                TO ADDRESS
0021AA  0000                1084 CNVDA   DC    A(*-*)                DATA TO CONVERT
0021AC  0000                1086 CNVTD   DC    A(2)                  LENGTH OF DATA TO CONVERT
0021AE  0002                1087         DC    A(CNVDA)              FROM ADDRESS
0021B0  21AC                1088         DC    A(DAY)                TO ADDRESS
0021B2  1F2C                1090 CMND7   DC    A(*-*)                ADDRESS SAVE AREA ECP CMND 7
0021B4  0000                1091 ADSAV   DC    A(*-*)                ADDRESS SAVE AREA NEXT RECORD
0021B6  0000                1092 DKINT   DC    A(DSKIT)              DISK INTERRUPT ROUTINE ADDRESS
0021B8  32CA                1093 DKRTY   DC    F'0'                  DISK RETRY COUNTER
0021BA  0000                1094 SPTD    DC    A(120)                # SECTORS/CYLINDER (120) - DISK
0021BC  0078                1095 SPTD1   DC    AL1(60)               # SECTORS/TRACK (60)
0021BE  3C                  1096 PASS    DC    AL1(0)                PASS INDICATOR
0021BF  00                  1097 STOC    DC    A(240)                STOC STARTINS SECTOR #
0021C0  00F0                1098 START   DC    D'240'                STARTING SECTOR #
0021C2  000000F0            1099 EOEND   DC    D'240'                ENDING SECTOR #
0021C6  000000F0            1100 COUNT   DC    D'0'                  SECTOR COUNT
0021CA  00000000            1101 TMPST   DC    D'0'                  TEMPORARY STORAGE AREA
0021CE  00000000            1103 DKSV    DC    A(DKHEA)              TEA
0021D2  21FC                1104 DKS     DC    A(DKHEA)              HEA
0021D4  21FC                1105         DC    A(DKLEA)              LEA
0021D6  21D8                1106 DKLEA   DC    10A(0)                TEA INFO
0021D8  00000000000000000   1107 DKR7    DC    A(0)                  R7 SAVE AREA
0021EC  0000                1108 DKR0    DC    A(0)                  R0 SAVE AREA
0021EE  0000                1109 DKR1    DC    A(0)                  R1 SAVE AREA
0021F0  0000                1110 DKR2    DC    A(0)                  R2 SAVE AREA
0021F2  0000                1111 DKR3    DC    A(0)                  R3 SAVE AREA
0021F4  0000
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0021F6  0000                1112 DKR4    DC    A(0)                  R4 SAVE AREA
0021F8  0000                1113 DKR5    DC    A(0)                  R5 SAVE AREA
0021FA  0000                1114 DKR6    DC    A(0)                  R6 SAVE AREA
0021FC                      1115 DKHEA   EQU   *                     END OF REGISTER STACK ADDRESS
                            1117 ********************************************************************
                            1118 *                                                                  *
                            1119 *       ALTERNATE CONSOLE OVERLAY CONSTANTS                        *
                            1120 *                                                                  *
                            1121 ********************************************************************
                            1122         ALIGN WORD
                            1123 *       TTY
0021FC  40                  1124 ACOVL   DC    X'40'                 DEVICE TYPE
0021FD  C3F3F8F0F1          1125         DC    C'C3801'              OVERLAY NAME
002202  0000                1126         DC    A(*-*)                NEXT AVAIL STORAGE
002204  0010                1127         DC    X'0010'               READ ID ASSIGNED
                            1128 *       DISPLAY STATION
002206  44                  1129         DC    X'44'                 DEVICE TYPE
002207  C3F3F8F0F2          1130         DC    C'C3802'              OVERLAY NAME
00220C  0000                1131         DC    A(*-*)                NEXT AVAIL STORAGE
00220E  0406                1132         DC    X'0406'               READ ID ASSIGNED
                            1133 *       DISPLAY STATION
002210  45                  1134         DC    X'45'                 DEVICE TYPE
002211  C3F3F8F0F2          1135         DC    C'C3802'              OVERLAY NAME
002216  0000                1136         DC    A(*-*)                NEXT AVAIL STORAGE
002218  040E                1137         DC    X'040E'               READ ID ASSIGNED
                            1138 *       PRINTER (MATRIX)
00221A  64                  1139         DC    X'64'                 DEVICE TYPE
00221B  C3F3F8F0F3          1140         DC    C'C3803'              OVERLAY NAME
002220  0000                1141         DC    A(*-*)                NEXT AVAIL STORAGE
002222  0206                1142         DC    X'0206'               READ ID ASSIGNED
                            1143 *       PRINTER (LINE)
002224  68                  1144         DC    X'68'                 DEVICE TYPE
002225  C3F3F8F0F3          1145         DC    C'C3803'              OVERLAY NAME
00222A  0000                1146         DC    A(*-*)                NEXT AVAIL STORAGE
00222C  0306                1147         DC    X'0306'               READ ID ASSIGNED
                            1148 *       END OF TABLE
00222E  00                  1149         DC    X'00'                 END INDICATOR
                            1151 ********************************************************************
                            1152 *                                                                  *
                            1153 *       RECORD HANDLING ROUTINE ADDRESSES                          *
                            1154 *                                                                  *
                            1155 ********************************************************************
002230  2BDA                1156 RTNTB   DC    A(MCK)                MACHINE CHECK RECORD ROUTINE
002232  2C22                1157         DC    A(PCK)                PROGRAM CHECK RECORD ROUTINE
002234  2C6A                1158         DC    A(SOFT)               SOFT EXCEPTION CHECK RECORD ROUTINE
002236  2CB2                1159         DC    A(DEV)                DEVICE RECORD ROUTINE
002238  2E70                1160         DC    A(NULL)               NULL INTERRUPT RECORD ROUTINE
00223A  2EC4                1161         DC    A(STERM)              SYSTEM TERMINATION RECORD ROUTINE
00223C  2F18                1162         DC    A(USER)               USER RECORD ROUTINE
                            1164 ********************************************************************
                            1165 *                                                                  *
                            1166 *       DCB HANDLING POINTERS                                      *
                            1167 *                                                                  *
                            1168 ********************************************************************
00223E  237D                1169 DCBPT   DC    A(DCB0)               NO    DCB'S
002240  23B3                1170         DC    A(DCB1)               ONE   DCB'S
002242  23D4                1171         DC    A(DCB2)               TWO   DCB'S
002244  23F5                1172         DC    A(DCB3)               THREE DCB'S
002246  2416                1173         DC    A(DCB4)               FOUR  DCB'S
002248  0000                1174 DCBSV   DC    A(*-*)                SAVE  DCB'S  ADDRESS
                            1176 ********************************************************************
                            1177 *                                                                  *
                            1178 *       RECORD DESCRIPTION AND LABEL TABLES                        *
                            1179 *                                                                  *
                            1180 ********************************************************************
                            1181 *                                                                  *
                            1182 *       TABLE FORMAT                                               *
                            1183 *       DC    X'00'                 DATA TYPE                      *
                            1184 *                                     00 - EBCDIC DATA             *
                            1185 *                                     01 - HEX DATA                *
                            1186 *                                     02 - CONVERT HEX TO DECIMAL  *
                            1187 *                                     0F - END OF RECORD           *
                            1188 *                                     FF - END OF LINE             *
                            1189 *       DC    X'00'                 LENGTH OF DATA FIELD (# BYTES) *
                            1190 *       DC    X'00'                 OFFSET INTO RECORD FOR DATA    *
                            1191 *       DC    X'00'                 OFFSET INTO PRINT LINE         *
                            1192 *                                                                  *
                            1193 *       LABEL TABLE FORMAT                                         *
                            1194 *       DC    X'00'                 OFFSET INTO PRINT LINE         *
                            1195 *                                     FF - END OF LINE             *
                            1196 *       DC    C'LABEL'              LABEL TO BE PUT IN PRINT LINE  *
                            1197 *       DC    C'$'                  END OF LABEL CHARACTER         *
                            1198 *                                                                  *
                            1199 ********************************************************************
                            1200         ALIGN WORD
                            1201 *
                            1202 *       PROCESSOR CHECK RECORDS (MACHINE/PROGRAM/SOFT EXCEPTION)
                            1203 *
002250  FF                  1204 PRCRA   DC    X'FF'                 DATA TYPE - END OF LINE
                            1205 *
002251  FF                  1206         DC    X'FF'                 DATA TYPE - END OF LINE
                            1207 *
002252  FF                  1208         DC    X'FF'                 DATA TYPE - END OF LINE
                            1209 *
002253  FF                  1210         DC    X'FF'                 DATA TYPE - END OF LINE
                            1211 *
002254  02                  1212 PRCRB   DC    X'02'       DATE-YY   DATA TYPE - DECIMAL
002255  05                  1213         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002256  01                  1214         DC    X'0B'                 OFFSET INTO RECORD FOR DATA
002257  01                  1215         DC    X'00'                 OFFSET INTO PRINT LINE
002258  0E                  1216         DC    X'00'       DATE-DDD  DATA TYPE - EBCDIC
002259  0C                  1217         DC    X'03'                 LENGTH OF DATA FIELD (# BYTES)
00225A  01                  1218         DC    X'00'                 OFFSET INTO RECORD FOR DATA
00225B  02                  1219         DC    X'05'                 OFFSET INTO PRINT LINE
00225C  18                  1220         DC    X'01'       LVL       DATA TYPE - HEX
00225D  11                  1221         DC    X'01'                 LENGTH OF DATA FIELD (# BYTES)
00225E  01                  1222         DC    X'0E'                 OFFSET INTO RECORD FOR DATA
00225F  02                  1223         DC    X'0C'                 OFFSET INTO PRINT LINE
                            1224         DC    X'01'       R0        DATA TYPE - HEX
                            1225         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
                            1226         DC    X'18'                 OFFSET INTO RECORD FOR DATA
                            1227         DC    X'11'                 OFFSET INTO PRINT LINE
                            1228         DC    X'01'       R1        DATA TYPE - HEX
                            1229         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
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002260  1A           1230        DC    X'1A'                 OFFSET INTO RECORD FOR DATA
002261  16           1231        DC    X'16'                 OFFSET INTO PRINT LINE
002262  01           1232        DC    X'01'           R2    DATA TYPE - HEX
002263  02           1233        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002264  1C           1234        DC    X'1C'                 OFFSET INTO RECORD FOR DATA
002265  1B           1235        DC    X'1B'                 OFFSET INTO PRINT LINE
002266  01           1236        DC    X'01'           R3    DATA TYPE - HEX
002267  02           1237        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002268  1E           1238        DC    X'1E'                 OFFSET INTO RECORD FOR DATA
002269  20           1239        DC    X'20'                 OFFSET INTO PRINT LINE
00226A  01           1240        DC    X'01'           LSR   DATA TYPE - HEX
00226B  02           1241        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
00226C  16           1242        DC    X'16'                 OFFSET INTO RECORD FOR DATA
00226D  25           1243        DC    X'25'                 OFFSET INTO PRINT LINE
00226E  01           1244        DC    X'01'           PSW   DATA TYPE - HEX
00226F  02           1245        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002270  2A           1246        DC    X'2A'                 OFFSET INTO RECORD FOR DATA
002271  2A           1247        DC    X'2A'                 OFFSET INTO PRINT LINE
002272  01           1248        DC    X'01'           TCB   DATA TYPE - HEX
002273  02           1249        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002274  04           1250        DC    X'04'                 OFFSET INTO RECORD FOR DATA
002275  30           1251        DC    X'30'                 OFFSET INTO PRINT LINE
002276  01           1252        DC    X'01'           AAK   DATA TYPE - HEX
002277  01           1253        DC    X'01'                 LENGTH OF DATA FIELD (# BYTES)
002278  2C           1254        DC    X'2C'                 OFFSET INTO RECORD FOR DATA
002279  35           1255        DC    X'35'                 OFFSET INTO PRINT LINE
00227A  01           1256        DC    X'01'           PART  DATA TYPE - HEX
00227B  01           1257        DC    X'01'                 LENGTH OF DATA FIELD (# BYTES)
00227C  01           1258        DC    X'01'                 OFFSET INTO RECORD FOR DATA
00227D  3A           1259        DC    X'3A'                 OFFSET INTO PRINT LINE
00227E  FF           1260        DC    X'FF'                 DATA TYPE - END OF LINE
                     1261 *
00227F  02           1262        DC    X'02'           TIME-SS   DATA TYPE - DECIMAL
002280  02           1263        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002281  0A           1264        DC    X'0A'                 OFFSET INTO RECORD FOR DATA
002282  06           1265        DC    X'06'                 OFFSET INTO PRINT LINE
002283  02           1266        DC    X'02'           TIME-MM   DATA TYPE - DECIMAL
002284  02           1267        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002285  09           1268        DC    X'09'                 OFFSET INTO RECORD FOR DATA
002286  03           1269        DC    X'03'                 OFFSET INTO PRINT LINE
002287  02           1270        DC    X'02'           TIME-HH   DATA TYPE - DECIMAL
002288  02           1271        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002289  08           1272        DC    X'08'                 OFFSET INTO RECORD FOR DATA
00228A  00           1273        DC    X'00'                 OFFSET INTO PRINT LINE
00228B  01           1274        DC    X'01'           IAR   DATA TYPE - HEX
00228C  02           1275        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
00228D  12           1276        DC    X'12'                 OFFSET INTO RECORD FOR DATA
00228E  0C           1277        DC    X'0C'                 OFFSET INTO PRINT LINE
00228F  01           1278        DC    X'01'           R4    DATA TYPE - HEX
002290  02           1279        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002291  20           1280        DC    X'20'                 OFFSET INTO RECORD FOR DATA
002292  11           1281        DC    X'11'                 OFFSET INTO PRINT LINE
002293  01           1282        DC    X'01'           R5    DATA TYPE - HEX
002294  02           1283        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002295  22           1284        DC    X'22'                 OFFSET INTO RECORD FOR DATA
002296  16           1285        DC    X'16'                 OFFSET INTO PRINT LINE
002297  01           1286        DC    X'01'           R6    DATA TYPE - HEX
002298  02           1287        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002299  24           1288        DC    X'24'                 OFFSET INTO RECORD FOR DATA
00229A  1B           1289        DC    X'1B'                 OFFSET INTO PRINT LINE
00229B  01           1290        DC    X'01'           R7    DATA TYPE - HEX
00229C  02           1291        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
00229D  26           1292        DC    X'26'                 OFFSET INTO RECORD FOR DATA
00229E  20           1293        DC    X'20'                 OFFSET INTO PRINT LINE
00229F  01           1294        DC    X'01'           AKR   DATA TYPE - HEX
0022A0  02           1295        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0022A1  14           1296        DC    X'14'                 OFFSET INTO RECORD FOR DATA
0022A2  25           1297        DC    X'25'                 OFFSET INTO PRINT LINE
0022A3  01           1298        DC    X'01'           CC    DATA TYPE - HEX
0022A4  02           1299        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0022A5  28           1300        DC    X'28'                 OFFSET INTO RECORD FOR DATA
0022A6  30           1301        DC    X'30'                 OFFSET INTO PRINT LINE
0022A7  01           1302        DC    X'01'           FADR  DATA TYPE - HEX
0022A8  02           1303        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0022A9  10           1304        DC    X'10'                 OFFSET INTO RECORD FOR DATA
0022AA  35           1305        DC    X'35'                 OFFSET INTO PRINT LINE
0022AB  FF           1306        DC    X'FF'                 DATA TYPE - END OF LINE
                     1307 *
0022AC  FF           1308        DC    X'FF'                 DATA TYPE - END OF LINE
                     1309 *
                     1310
0022AD  0F           1311        DC    X'0F'                 DATA TYPE - END OF RECORD
                     1311 *
0022AE  FF           1312 PRCLA  DC    X'FF'                 DATA TYPE - END OF LINE
                     1313 *
0022AF  02           1314        DC    X'02'           DATE  OFFSET INTO PRINT LINE
0022B0  C4C1E3C561   1315        DC    C'DATE/'              LABEL TO BE PUT IN PRINT LINE
0022B5  5B           1316        DC    C'$'                  END OF LABEL CHARACTER
0022B6  0C           1317        DC    X'0C'           LVL   OFFSET INTO PRINT LINE
0022B7  D3E5D361     1318        DC    C'LVL/'               LABEL TO BE PUT IN PRINT LINE
0022BB  5B           1319        DC    C'$'                  END OF LABEL CHARACTER
0022BC  11           1320        DC    X'11'           R0    OFFSET INTO PRINT LINE
0022BD  D9F061       1321        DC    C'R0/'                LABEL TO BE PUT IN PRINT LINE
0022C0  5B           1322        DC    C'$'                  END OF LABEL CHARACTER
0022C1  16           1323        DC    X'16'           R1    OFFSET INTO PRINT LINE
0022C2  D9F161       1324        DC    C'R1/'                LABEL TO BE PUT IN PRINT LINE
0022C5  5B           1325        DC    C'$'                  END OF LABEL CHARACTER
0022C6  1B           1326        DC    X'1B'           R2    OFFSET INTO PRINT LINE
0022C7  D9F261       1327        DC    C'R2/'                LABEL TO BE PUT IN PRINT LINE
0022CA  5B           1328        DC    C'$'                  END OF LABEL CHARACTER
0022CB  20           1329        DC    X'20'           R3    OFFSET INTO PRINT LINE
0022CC  D9F361       1330        DC    C'R3/'                LABEL TO BE PUT IN PRINT LINE
0022CF  5B           1331        DC    C'$'                  END OF LABEL CHARACTER
0022D0  25           1332        DC    X'25'           LSR   OFFSET INTO PRINT LINE
0022D1  D3E2D961     1333        DC    C'LSR/'               LABEL TO BE PUT IN PRINT LINE
0022D5  5B           1334        DC    C'$'                  END OF LABEL CHARACTER
0022D6  2A           1335        DC    X'2A'           PSW   OFFSET INTO PRINT LINE
0022D7  D7E2E6       1336        DC    C'PSW'                LABEL TO BE PUT IN PRINT LINE
0022DA  5B           1337        DC    C'$'                  END OF LABEL CHARACTER
0022DB  30           1338        DC    X'30'           TCB   OFFSET INTO PRINT LINE
0022DC  E3C3C261     1339        DC    C'TCB/'               LABEL TO BE PUT IN PRINT LINE
0022E0  5B           1340        DC    C'$'                  END OF LABEL CHARACTER
0022E1  35           1341        DC    X'35'           AAK   OFFSFT INTO PRINT LINE
0022E2  C1C1D261     1342        DC    C'AAK/'               LABEL TO BE PUT IN PRINT LINE
0022E6  5B           1343        DC    C'$'                  END OF LABEL CHARACTER
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 LOCTR  OBJECT TEXT   STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
0022E7  3A           1344        DC    X'3A'           PART  OFFSET INTO PRINT LINE
0022E8  D7C1D9E3     1345        DC    C'PART'               LABEL TO BE PUT IN PRINT LINE
0022EC  5B           1346        DC    C'$'                  END OF LABEL CHARACTER
0022ED  FF           1347        DC    X'FF'                 END OF LINE
                     1348 *
0022EE  02           1349        DC    X'02'           TIME  OFFSET INTO PRINT LINE
0022EF  E3C9D4C5     1350        DC    C'TIME'               LABEL TO BE PUT IN PRINT LINE
0022F3  5B           1351        DC    C'$'                  END OF LABEL CHARACTER
0022F4  0C           1352        DC    X'0C'           IAR   OFFSET INTO PRINT LINE
0022F5  C9C1D9       1353        DC    C'IAR'                LABEL TO BE PUT IN PRINT LINE
0022F8  5B           1354        DC    C'$'                  END OF LABEL CHARACTER
0022F9  11           1355        DC    X'11'           R4    OFFSET INTO PRINT LINE
0022FA  D9F4         1356        DC    C'R4'                 LABEL TO BE PUT IN PRINT LINE
0022FC  5B           1357        DC    C'$'                  END OF LABEL CHARACTER
0022FD  16           1358        DC    X'16'           R5    OFFSET INTO PRINT LINE
0022FE  D9F5         1359        DC    C'R5'                 LABEL TO BE PUT IN PRINT LINE
002300  5B           1360        DC    C'$'                  END OF LABEL CHARACTER
002301  1B           1361        DC    X'1B'           R6    OFFSET INTO PRINT LINE
002302  D9F6         1362        DC    C'R6'                 LABEL TO BE PUT IN PRINT LINE
002304  5B           1363        DC    C'$'                  END OF LABEL CHARACTER
002305  20           1364        DC    X'20'           R7    OFFSET INTO PRINT LINE
002306  D9F7         1365        DC    C'R7'                 LABEL TO BE PUT IN PRINT LINE
002308  5B           1366        DC    C'$'                  END OF LABEL CHARACTER
002309  25           1367        DC    X'25'           AKR   OFFSET INTO PRINT LINE
00230A  C1D2D9       1368        DC    C'AKR'                LABEL TO BE PUT IN PRINT LINE
00230D  5B           1369        DC    C'$'                  END OF LABEL CHARACTER
00230E  30           1370        DC    X'30'           CC    OFFSET INTO PRINT LINE
00230F  C3C3         1371        DC    C'CC'                 LABEL TO BE PUT IN PRINT LINE
002311  5B           1372        DC    C'$'                  END OF LABEL CHARACTER
002312  35           1373        DC    X'35'           FADR  OFFSET INTO PRINT LINE
002313  C6C1C4D9     1374        DC    C'FADR'               LABEL TO BE PUT IN PRINT LINE
002317  5B           1375        DC    C'$'                  END OF LABEL CHARACTER
002318  FF           1376        DC    X'FF'                 END OF LINE
                     1377 *
002319  FF           1378        DC    X'FF'                 END OF LINE
                     1379 *
00231A  FF           1380 PRCLB  DC    X'FF'                 END OF LINE
                     1381 *
00231B  04           1382        DC    X'04'           .     OFFSET INTO PRINT LINE
00231C  4B           1383        DC    C'.'                  LABEL TO BE PUT IN PRINT LINE
00231D  5B           1384        DC    C'$'                  END OF LABEL CHARACTER
00231E  07           1385        DC    X'07'           .     OFFSET INTO PRINT LINE
00231F  4B           1386        DC    C'.'                  LABEL TO BE PUT IN PRINT LINE
002320  5B           1387        DC    C'$'                  END OF LABEL CHARACTER
002321  FF           1388        DC    X'FF'                 END OF LINE
                     1389 *
002322  FF           1390        DC    X'FF'                 END OF LINE
                     1391 *
                     1392 ********************************************************************************
                     1393 *
                     1394 *     DEVICE ERROR RECORDS
                     1395 *
002323  FF           1396 DEVRA  DC    X'FF'                 DATA TYPE - END OF LINE
                     1397 *
002324  00           1398        DC    X'00'           DEV TYPE  DATA TYPE - EBCDIC
002325  0A           1399        DC    X'0A'                 LENGTH OF DATA FIELD (# BYTES)
002326  08           1400        DC    X'08'                 OFFSET INTO RECORD FOR DATA
002327  0B           1401        DC    X'0B'                 OFFSET INTO PRINT LINE
002328  01           1402        DC    X'01'           DEV ADDR  DATA TYPE - HEX
002329  01           1403        DC    X'01'                 LENGTH OF DATA FIELD (# BYTES)
00232A  16           1404        DC    X'16'                 OFFSET INTO RECORD FOR DATA
00232B  27           1405        DC    X'27'                 OFFSET INTO PRINT LINE
00232C  01           1406        DC    X'01'           DEV ID    DATA TYPE - HEX
00232D  02           1407        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
00232E  10           1408        DC    X'10'                 OFFSET INTO RECORD FOR DATA
00232F  33           1409        DC    X'33'                 OFFSET INTO PRINT LINE
002330  FF           1410        DC    X'FF'                 DATA TYPE - END OF LINE
                     1411 *
002331  FF           1412        DC    X'FF'                 DATA TYPE - END OF LINE
                     1413 *
002332  02           1414 DEVRB  DC    X'02'           DATE-YY   DATA TYPE - DECIMAL
002333  02           1415        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002334  0B           1416        DC    X'0B'                 OFFSET INTO RECORD FOR DATA
002335  05           1417        DC    X'05'                 OFFSET INTO PRINT LINE
002336  00           1418        DC    X'00'           DATE-DDD  DATA TYPE - EBCDIC
002337  03           1419        DC    X'03'                 LENGTH OF DATA FIELD (# BYTES)
002338  00           1420        DC    X'00'                 OFFSET INTO RECORD FOR DATA
002339  0A           1421        DC    X'0A'                 OFFSET INTO PRINT LINE
00233A  01           1422        DC    X'01'           LVL   DATA TYPE - HEX
00233B  01           1423        DC    X'01'                 LENGTH OF DATA FIELD (# BYTES)
00233C  0E           1424        DC    X'0E'                 OFFSET INTO RECORD FOR DATA
00233D  18           1425        DC    X'18'                 OFFSET INTO PRINT LINE
00233E  01           1426        DC    X'01'           TCB   DATA TYPE - HEX
00233F  02           1427        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002340  04           1428        DC    X'04'                 OFFSET INTO RECORD FOR DATA
002341  22           1429        DC    X'22'                 OFFSET INTO PRINT LINE
002342  01           1430        DC    X'01'           AKR   DATA TYPE - HEX
002343  02           1431        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002344  06           1432        DC    X'06'                 OFFSET INTO RECORD FOR DATA
002345  2D           1433        DC    X'2D'                 OFFSET INTO PRINT LINE
002346  01           1434        DC    X'01'           PART  DATA TYPE - HEX
002347  01           1435        DC    X'01'                 LENGTH OF DATA FIELD (# BYTES)
002348  01           1436        DC    X'01'                 OFFSET INTO RECORD FOR DATA
002349  38           1437        DC    X'38'                 OFFSET INTO PRINT LINE
00234A  FF           1438        DC    X'FF'                 DATA TYPE - END OF LINE
                     1439 *
00234B  02           1440        DC    X'02'           TIME-SS   DATA TYPE - DECIMAL
00234C  02           1441        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
00234D  0A           1442        DC    X'0A'                 OFFSET INTO RECORD FOR DATA
00234F  0B           1443        DC    X'0B'                 OFFSET INTO PRINT LINE
002350  02           1444        DC    X'02'           TIME-MM   DATA TYPE - DECIMAL
002351  09           1445        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002352  08           1446        DC    X'09'                 OFFSET INTO RECORD FOR DATA
002353  02           1447        DC    X'08'                 OFFSET INTO PRINT LINE
002354  02           1448        DC    X'02'           TIME-HH   DATA TYPE - DECIMAL
002355  08           1449        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002356  05           1450        DC    X'08'                 OFFSET INTO RECORD FOR DATA
002357  01           1451        DC    X'05'                 OFFSET INTO PRINT LINE
002358  01           1452        DC    X'01'           OIOCC     DATA TYPE - HEX
002359  18           1453        DC    X'01'                 LENGTH OF DATA FIELD (# BYTFS)
00235A  18           1454        DC    X'18'                 OFFSET INTO RECORD FOR DATA
00235B  02           1455        DC    X'18'                 OFFSET INTO PRINT LINE
00235C  02           1456        DC    X'02'           RETRY     DATA TYPE - HEX
                     1457        DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
00235D  17                1458         DC    X'17'                 OFFSET INTO RECORD FOR DATA
00235E  22                1459         DC    X'22'                 OFFSET INTO PRINT LINE
00235F  01                1460         DC    X'01'       IDCB1     DATA TYPE - HEX
002360  02                1461         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002361  12                1462         DC    X'12'                 OFFSET INTO RECORD FOR DATA
002362  2D                1463         DC    X'2D'                 OFFSET INTO PRINT LINE
002363  01                1464         DC    X'01'       IDCB2     DATA TYPE - HEX
002364  02                1465         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002365  14                1466         DC    X'14'                 OFFSET INTO RECORD FOR DATA
002366  32                1467         DC    X'32'                 OFFSET INTO PRINT LINE
002367  00                1468         DC    X'00'       PERM/TEMP DATA TYPE - EBCDIC
002368  04                1469         DC    X'04'                 LENGTH OF DATA FIELD (# BYTES)
002369  04                1470         DC    X'04'                 OFFSET INTO RECORD FOR DATA
00236A  39                1471         DC    X'39'                 OFFSET INTO PRINT LINE
00236B  FF                1472         DC    X'FF'                 DATA TYPE -END OF LINE
                          1473 *
00236C  00                1474         DC    X'00'       TIMEOUT   DATA TYPE - EBCDIC
00236D  08                1475         DC    X'08'                 LENGTH OF DATA FIELD (# BYTES)
00236E  12                1476         DC    X'12'                 OFFSET INTO RECORD FOR DATA
00236F  07                1477         DC    X'07'                 OFFSET INTO PRINT LINE
002370  01                1478         DC    X'01'       INTCC     DATA TYPE - HEX
002371  01                1479         DC    X'01'                 LENGTH OF DATA FIELD (# BYTES)
002372  19                1480         DC    X'19'                 OFFSET INTO RECORD FOR DATA
002373  18                1481         DC    X'18'                 OFFSET INTO PRINT LINE
002374  01                1482         DC    X'01'       ISB       DATA TYPE - HEX
002375  01                1483         DC    X'01'                 LENGTH OF DATA FIELD (# BYTES)
002376  1A                1484         DC    X'1A'                 OFFSET INTO RECORD FOR DATA
002377  22                1485         DC    X'22'                 OFFSET INTO PRINT LINE
002378  01                1486         DC    X'01'       DEV STAT  DATA TYPE - HEX
002379  06                1487         DC    X'06'                 LENGTH OF DATA FIELD (# BYTES)
00237A  1B                1488         DC    X'1B'                 OFFSET INTO RECORD FOR DATA
00237B  31                1489         DC    X'31'                 OFFSET INTO PRINT LINE
00237C  FF                1490         DC    X'FF'                 DATA TYPE - END OF LINE
                          1491 *
00237D  01                1492 DCB0    DC    X'01'       CSSW1     DATA TYPE - HEX
00237E  02                1493         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
00237F  22                1494         DC    X'22'                 OFFSET INTO RECORD FOR DATA
002380  06                1495         DC    X'06'                 OFFSET INTO PRINT LINE
002381  01                1496         DC    X'01'       CSSW2     DATA TYPE - HEX
002382  02                1497         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002383  24                1498         DC    X'24'                 OFFSET INTO RECORD FOR DATA
002384  0B                1499         DC    X'0B'                 OFFSET INTO PRINT LINE
002385  01                1500         DC    X'01'       CSSW3     DATA TYPE - HEX
002386  02                1501         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002387  26                1502         DC    X'26'                 OFFSET INTO RECORD FOR DATA
002388  10                1503         DC    X'10'                 OFFSET INTO PRINT LINE
002389  01                1504         DC    X'01'       CSSW4     DATA TYPE - HEX
00238A  02                1505         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
00238B  28                1506         DC    X'28'                 OFFSET INTO RECORD FOR DATA
00238C  15                1507         DC    X'15'                 OFFSET INTO PRINT LINE
00238D  01                1508         DC    X'01'       CSSW5     DATA TYPE - HEX
00238E  02                1509         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
00238F  2A                1510         DC    X'2A'                 OFFSET INTO RECORD FOR DATA
002390  1A                1511         DC    X'1A'                 OFFSET INTO PRINT LINE
002391  FF                1512         DC    X'FF'                 DATA TYPE - END OF LINE
                          1513 *
002392  01                1514         DC    X'01'       DCB11     DATA TYPE - HEX
002393  02                1515         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002394  2C                1516         DC    X'2C'                 OFFSET INTO RECORD FOR DATA
002395  06                1517         DC    X'06'                 OFFSET INTO PRINT LINE
002396  01                1518         DC    X'01'       DCB12     DATA TYPE - HEX
002397  02                1519         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002398  2E                1520         DC    X'2E'                 OFFSET INTO RECORD FOR DATA
002399  0B                1521         DC    X'0B'                 OFFSET INTO PRINT LINE
00239A  01                1522         DC    X'01'       DCB13     DATA TYPE - HEX
00239B  02                1523         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
00239C  30                1524         DC    X'30'                 OFFSET INTO RECORD FOR DATA
00239D  10                1525         DC    X'10'                 OFFSET INTO PRINT LINE
00239E  01                1526         DC    X'01'       DCB14     DATA TYPE - HEX
00239F  02                1527         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023A0  32                1528         DC    X'32'                 OFFSET INTO RECORD FOR DATA
0023A1  15                1529         DC    X'15'                 OFFSET INTO PRINT LINE
0023A2  01                1530         DC    X'01'       DCB15     DATA TYPE - HEX
0023A3  02                1531         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023A4  34                1532         DC    X'34'                 OFFSET INTO RECORD FOR DATA
0023A5  1A                1533         DC    X'1A'                 OFFSET INTO PRINT LINE
0023A6  01                1534         DC    X'01'       DCB16     DATA TYPE - HEX
0023A7  02                1535         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023A8  36                1536         DC    X'36'                 OFFSET INTO RECORD FOR DATA
0023A9  1F                1537         DC    X'1F'                 OFFSET INTO PRINT LINE
0023AA  01                1538         DC    X'01'       DCB17     DATA TYPE - HEX
0023AB  02                1539         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023AC  38                1540         DC    X'38'                 OFFSET INTO RECORD FOR DATA
0023AD  24                1541         DC    X'24'                 OFFSET INTO PRINT LINE
0023AE  01                1542         DC    X'01'       DCB18     DATA TYPE - HEX
0023AF  02                1543         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023B0  3A                1544         DC    X'3A'                 OFFSET INTO RECORD FOR DATA
0023B1  29                1545         DC    X'29'                 OFFSET INTO PRINT LINE
0023B2  FF                1546         DC    X'FF'                 DATA TYPE - END OF LINE
                          1547 *
0023B3  01                1548 DCB1    DC    X'01'       DCB21     DATA TYPE - HEX
0023B4  02                1549         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023B5  3C                1550         DC    X'3C'                 OFFSET INTO RECORD FOR DATA
0023B6  06                1551         DC    X'06'                 OFFSET INTO PRINT LINE
0023B7  01                1552         DC    X'01'       DCB22     DATA TYPE - HEX
0023B8  02                1553         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023B9  3E                1554         DC    X'3E'                 OFFSET INTO RECORD FOR DATA
0023BA  0B                1555         DC    X'0B'                 OFFSET INTO PRINT LINE
0023BB  01                1556         DC    X'01'       DCB23     DATA TYPE - HEX
0023BC  02                1557         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023BD  40                1558         DC    X'40'                 OFFSET INTO RECORD FOR DATA
0023BE  10                1559         DC    X'10'                 OFFSET INTO PRINT LINE
0023BF  01                1560         DC    X'01'       DCB24     DATA TYPE - HEX
0023C0  02                1561         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023C1  42                1562         DC    X'42'                 OFFSET INTO RECORD FOR DATA
0023C2  15                1563         DC    X'15'                 OFFSET INTO PRINT LINE
0023C3  01                1564         DC    X'01'       DCB25     DATA TYPE - HEX
0023C4  02                1565         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023C5  44                1566         DC    X'44'                 OFFSET INTO RECORD FOR DATA
0023C6  1A                1567         DC    X'1A'                 OFFSET INTO PRINT LINE
0023C7  01                1568         DC    X'01'       DCB26     DATA TYPE - HEX
0023C8  02                1569         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023C9  46                1570         DC    X'46'                 OFFSET INTO RECORD FOR DATA
0023CA  1F                1571         DC    X'1F'                 OFFSET INTO PRINT LINE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0023CB  01                1572         DC    X'01'       DCB27     DATA TYPE - HEX
0023CC  02                1573         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023CD  48                1574         DC    X'48'                 OFFSET INTO RECORD FOR DATA
0023CE  24                1575         DC    X'24'                 OFFSET INTO PRINT LINE
0023CF  01                1576         DC    X'01'       DCB28     DATA TYPE - HEX
0023D0  02                1577         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023D1  4A                1578         DC    X'4A'                 OFFSET INTO RECORD FOR DATA
0023D2  29                1579         DC    X'29'                 OFFSET INTO PRINT LINE
0023D3  FF                1580         DC    X'FF'                 DATA TYPE - END OF LINE
                          1581 *
0023D4  01                1582 DCB2    DC    X'01'       DCB31     DATA TYPE - HEX
0023D5  02                1583         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023D6  4C                1584         DC    X'4C'                 OFFSET INTO RECORD FOR DATA
0023D7  06                1585         DC    X'06'                 OFFSET INTO PRINT LINE
0023D8  01                1586         DC    X'01'       DCB32     DATA TYPE - HEX
0023D9  02                1587         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023DA  4E                1588         DC    X'4E'                 OFFSET INTO RECORD FOR DATA
0023DB  0B                1589         DC    X'0B'                 OFFSET INTO PRINT LINE
0023DC  01                1590         DC    X'01'       DCB33     DATA TYPE - HEX
0023DD  02                1591         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023DE  50                1592         DC    X'50'                 OFFSET INTO RECORD FOR DATA
0023DF  10                1593         DC    X'10'                 OFFSET INTO PRINT LINE
0023E0  01                1594         DC    X'01'       DCB34     DATA TYPE - HEX
0023E1  02                1595         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023E2  52                1596         DC    X'52'                 OFFSET INTO RECORD FOR DATA
0023E3  15                1597         DC    X'15'                 OFFSET INTO PRINT LINE
0023E4  01                1598         DC    X'01'       DCB35     DATA TYPE - HEX
0023E5  02                1599         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023E6  54                1600         DC    X'54'                 OFFSET INTO RECORD FOR DATA
0023E7  1A                1601         DC    X'1A'                 OFFSET INTO PRINT LINE
0023E8  01                1602         DC    X'01'       DCB36     DATA TYPE - HEX
0023E9  02                1603         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023EA  56                1604         DC    X'56'                 OFFSET INTO RECORD FOR DATA
0023EB  1F                1605         DC    X'1F'                 OFFSET INTO PRINT LINE
0023EC  01                1606         DC    X'01'       DCB37     DATA TYPE - HEX
0023ED  02                1607         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023EE  58                1608         DC    X'58'                 OFFSET INTO RECORD FOR DATA
0023EF  24                1609         DC    X'24'                 OFFSET INTO PRINT LINE
0023F0  01                1610         DC    X'01'       DCB38     DATA TYPE - HEX
0023F1  02                1611         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023F2  5A                1612         DC    X'5A'                 OFFSET INTO RECORD FOR DATA
0023F3  29                1613         DC    X'29'                 OFFSET INTO PRINT LINE
0023F4  FF                1614         DC    X'FF'                 DATA TYPE - END OF LINE
                          1615 *
0023F5  01                1616 DCB3    DC    X'01'       DCB41     DATA TYPE - HEX
0023F6  02                1617         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023F7  5C                1618         DC    X'5C'                 OFFSET INTO RECORD FOR DATA
0023F8  06                1619         DC    X'06'                 OFFSET INTO PRINT LINE
0023F9  01                1620         DC    X'01'       DCB42     DATA TYPE - HEX
0023FA  02                1621         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023FB  5E                1622         DC    X'5E'                 OFFSET INTO RECORD FOR DATA
0023FC  0B                1623         DC    X'0B'                 OFFSET INTO PRINT LINE
0023FD  01                1624         DC    X'01'       DCB43     DATA TYPE - HEX
0023FE  02                1625         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
0023FF  60                1626         DC    X'60'                 OFFSET INTO RECORD FOR DATA
002400  10                1627         DC    X'10'                 OFFSET INTO PRINT LINE
002401  01                1628         DC    X'01'       DCB44     DATA TYPE - HEX
002402  02                1629         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002403  62                1630         DC    X'62'                 OFFSET INTO RECORD FOR DATA
002404  15                1631         DC    X'15'                 OFFSET INTO PRINT LINE
002405  01                1632         DC    X'01'       DCB45     DATA TYPE - HEX
002406  02                1633         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002407  64                1634         DC    X'64'                 OFFSET INTO RECORD FOR DATA
002408  1A                1635         DC    X'1A'                 OFFSET INTO PRINT LINE
002409  01                1636         DC    X'01'       DCB46     DATA TYPE - HEX
00240A  02                1637         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
00240B  66                1638         DC    X'66'                 OFFSET INTO RECORD FOR DATA
00240C  1F                1639         DC    X'1F'                 OFFSET INTO PRINT LINE
00240D  01                1640         DC    X'01'       DCB47     DATA TYPE - HEX
00240E  02                1641         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
00240F  68                1642         DC    X'68'                 OFFSET INTO RECORD FOR DATA
002410  24                1643         DC    X'24'                 OFFSET INTO PRINT LINE
002411  01                1644         DC    X'01'       DCB48     DATA TYPE - HEX
002412  02                1645         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002413  6A                1646         DC    X'6A'                 OFFSET INTO RECORD FOR DATA
002414  29                1647         DC    X'29'                 OFFSET INTO PRINT LINE
002415  FF                1648         DC    X'FF'                 DATA TYPE - END OF LINE
                          1649 *
002416  01                1650 DCB4    DC    X'01'       DCB51     DATA TYPE - HEX
002417  02                1651         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002418  6C                1652         DC    X'6C'                 OFFSET INTO RECORD FOR DATA
002419  06                1653         DC    X'06'                 OFFSET INTO PRINT LINE
00241A  01                1654         DC    X'01'       DCB52     DATA TYPE - HEX
00241B  02                1655         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
00241C  6E                1656         DC    X'6E'                 OFFSET INTO RECORD FOR DATA
00241D  0B                1657         DC    X'0B'                 OFFSET INTO PRINT LINE
00241E  01                1658         DC    X'01'       DCB53     DATA TYPE - HEX
00241F  02                1659         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002420  70                1660         DC    X'70'                 OFFSET INTO RECORD FOR DATA
002421  10                1661         DC    X'10'                 OFFSET INTO PRINT LINE
002422  01                1662         DC    X'01'       DCB54     DATA TYPE - HEX
002423  02                1663         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002424  72                1664         DC    X'72'                 OFFSET INTO RECORD FOR DATA
002425  15                1565         DC    X'15'                 OFFSET INTO PRINT LINE
002426  01                1666         DC    X'01'       DCB55     DATA TYPE - HEX
002427  02                1667         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002428  74                1668         DC    X'74'                 OFFSET INTO RECORD FOR DATA
002429  1A                1669         DC    X'1A'                 OFFSET INTO PRINT LINE
00242A  01                1670         DC    X'01'       DCB56     DATA TYPE - HEX
00242B  02                1671         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
00242C  76                1672         DC    X'76'                 OFFSET INTO RECORD FOR DATA
00242D  1F                1673         DC    X'1F'                 OFFSET INTO PRINT LINE
00242E  01                1674         DC    X'01'       DCB57     DATA TYPE - HEX
00242F  02                1675         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002430  78                1676         DC    X'78'                 OFFSET INTO RECORD FOR DATA
002431  24                1677         DC    X'24'                 OFFSET INTO PRINT LINE
002432  01                1678         DC    X'01'       DCB58     DATA TYPE - HEX
002433  02                1679         DC    X'02'                 LENGTH OF DATA FIELD (# BYTES)
002434  7A                1680         DC    X'7A'                 OFFSET INTO RECORD FOR DATA
002435  29                1691         DC    X'29'                 OFFSET INTO PRINT LINE
002436  FF                1682         DC    X'FF'                 DATA TYPE - END OF LINE
                          1683 *
002437  0F                1684 DCB5    DC    X'0F'                 DATA TYPE - END OF RECORD
                          1685 *
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002438  FF              1686 DEVLA DC    X'FF'                    DATA TYPE - END OF LINE
                        1687 *
002439  01              1688       DC    X'01'       DEV TYPE     OFFSET INTO PRINT LINE
00243A  C4C5E540E3E8D7C5 1689      DC    C'DEV TYPE'              LABEL TO BE PUT IN PRINT LINE
002442  5B              1690       DC    C'$'                     END OF LABEL CHARACTER
002443  1D              1691       DC    X'1D'       DEV ADDR     OFFSET INTO PRINT LINE
002444  C4C5E540C1C4C4D9 1692      DC    C'DEV ADDR'              LABEL TO BE PUT IN PRINT LINE
00244C  5B              1693       DC    C'$'                     END OF LABEL CHARACTER
00244D  2B              1694       DC    X'2B'       DEV ID       OFFSET INTO PRINT LINE
00244E  C4C5E540C9C4    1695       DC    C'DEV ID'                LABEL TO BE PUT IN PRINT LINE
002454  5B              1696       DC    C'$'                     END OF LABEL CHARACTER
002455  FF              1697       DC    X'FF'                    END OF LINE
                        1698 *
002456  FF              1699       DC    X'FF'                    END OF LINE
                        1700 *
002457  01              1701 DEVLB DC    X'01'       DATE         OFFSET INTO PRINT LINE
002458  C4C1E3C5        1702       DC    C'DATE'                  LABEL TO BE PUT IN PRINT LINE
00245C  5B              1703       DC    C'$'                     END OF LABEL CHARACTER
00245D  12              1704       DC    X'12'       LVL          OFFSET INTO PRINT LINE
00245E  D3E5D3          1705       DC    C'LVL'                   LABEL TO BE PUT IN PRINT LINE
002461  5B              1706       DC    C'$'                     END OF LABEL CHARACTER
002462  1C              1707       DC    X'1C'       TCB          OFFSET INTO PRINT LINE
002463  E3C3C2          1708       DC    C'TCB'                   LABEL TO BE PUT IN PRINT LINE
002466  5B              1709       DC    C'$'                     END OF LABEL CHARACTER
002467  28              1710       DC    X'28'       AKR          OFFSET INTO PRINT LINE
002468  C1D2D9          1711       DC    C'AKR'                   LABEL TO BE PUT IN PRINT LINE
00246B  5B              1712       DC    C'$'                     END OF LABEL CHARACTER
00246C  33              1713       DC    X'33'       PART         OFFSET INTO PRINT LINE
00246D  D7C1D9E3        1714       DC    C'PART'                  LABEL TO BE PUT IN PRINT LINE
002471  5B              1715       DC    C'$'                     END OF LABEL CHARACTER
002472  FF              1716       DC    X'FF'                    END OF LINE
                        1717 *
002473  01              1718       DC    X'01'       TIME         OFFSET INTO PRINT LINE
002474  E3C9D4C5        1719       DC    C'TIME'                  LABEL TO BE PUT IN PRINT LINE
002478  5B              1720       DC    C'$'                     END OF LABEL CHARACTER
002479  09              1721       DC    X'09'       .            OFFSET INTO PRINT LINE
00247A  4B              1722       DC    C'.'                     LABEL TO BE PUT IN PRINT LINE
00247B  5B              1723       DC    C'$'                     END OF LABEL CHARACTER
00247C  0C              1724       DC    X'0C'       .            OFFSET INTO PRINT LINE
00247D  4B              1725       DC    C'.'                     LABEL TO BE PUT IN PRINT LINE
00247E  5B              1726       DC    C'$'                     END OF LABEL CHARACTER
00247F  12              1727       DC    X'12'       OIOCC        OFFSET INTO PRINT LINE
002480  D6C9D6C3C3      1728       DC    C'OIOCC'                 LABEL TO BE PUT IN PRINT LINE
002485  5B              1729       DC    C'$'                     END OF LABEL CHARACTER
002486  1C              1730       DC    X'1C'       RETRY        OFFSET INTO PRINT LINE
002487  D9C5E3D9E8      1731       DC    C'RETRY'                 LABEL TO BE PUT IN PRINT LINE
00248C  5B              1732       DC    C'$'                     END OF LABEL CHARACTER
00248D  28              1733       DC    X'28'       IDCB         OFFSET INTO PRINT LINE
00248E  C9C4C3C2        1734       DC    C'IDCB'                  LABEL TO BE PUT IN PRINT LINE
002492  5B              1735       DC    C'$'                     END OF LABEL CHARACTER
002493  FF              1736       DC    X'FF'                    END OF LINE
                        1737 *
002494  12              1738       DC    X'12'       INTCC        OFFSET INTO PRINT LINE
002495  C9D5E3C3C3      1739       DC    C'INTCC'                 LABEL TO BE PUT IN PRINT LINE
00249A  5B              1740       DC    C'$'                     END OF LABEL CHARACTER
00249B  1C              1741       DC    X'1C'       ISB          OFFSET INTO PRINT LINE
00249C  C9E2C2          1742       DC    C'ISB'                   LABEL TO BE PUT IN PRINT LINE
00249F  5B              1743       DC    C'$'                     END OF LABEL CHARACTER
0024A0  28              1744       DC    X'28'       DEV STAT     OFFSET INTO PRINT LINE
0024A1  C4C5E540E2E3C1E3 1745      DC    C'DEV STAT'              LABEL TO BE PUT IN PRINT LINE
0024A9  5B              1746       DC    C'$'                     END OF LABEL CHARACTER
0024AA  FF              1747       DC    X'FF'                    END OF LINE
                        1748 *
0024AB  01              1749       DC    X'01'       CSSW         OFFSET INTO PRINT LINE
0024AC  C3E2E2E6        1750       DC    C'CSSW'                  LABEL TO BE PUT IN PRINT LINE
0024B0  5B              1751       DC    C'$'                     END OF LABEL CHARACTER
0024B1  FF              1752       DC    X'FF'                    END OF LINE
                        1753 *
0024B2  01              1754       DC    X'01'       DCB1         OFFSET INTO PRINT LINE
0024B3  C4C3C2F1        1755       DC    C'DCB1'                  LABEL TO BE PUT IN PRINT LINE
0024B7  5B              1756       DC    C'$'                     END OF LABEL CHARACTER
0024B8  FF              1757       DC    X'FF'                    END OF LINE
                        1758 *
0024B9  01              1759       DC    X'01'       DCB2         OFFSET INTO PRINT LINE
0024BA  C4C3C2F2        1760       DC    C'DCB2'                  LABEL TO BE PUT IN PRINT LINE
0024BE  5B              1761       DC    C'$'                     END OF LABEL CHARACTER
0024BF  FF              1762       DC    X'FF'                    END OF LINE
                        1763 *
0024C0  01              1764       DC    X'01'       DCB3         OFFSET INTO PRINT LINE
0024C1  C4C3C2F3        1765       DC    C'DCB3'                  LABEL TO BE PUT IN PRINT LINE
0024C5  5B              1766       DC    C'$'                     END OF LABEL CHARACTER
0024C6  FF              1767       DC    X'FF'                    END OF LINE
                        1768 *
0024C7  01              1769       DC    X'01'       DCB4         OFFSET INTO PRINT LINE
0024C8  C4C3C2F4        1770       DC    C'DCB4'                  LABEL TO BE PUT IN PRINT LINE
0024CC  5B              1771       DC    C'$'                     END OF LABEL CHARACTER
0024CD  FF              1772       DC    X'FF'                    END OF LINE
                        1773 *
0024CE  01              1774       DC    X'01'       DCB5         OFFSET INTO PRINT LINE
0024CF  C4C3C2F5        1775       DC    C'DCB5'                  LABEL TO BE PUT IN PRINT LINE
0024D3  5B              1776       DC    C'$'                     END OF LABEL CHARACTER
0024D4  FF              1777       DC    X'FF'                    END OF LINE
                        1778 *
                        1779 ************************************************************************
                        1780 *
                        1781 *     DEVICE SUMMARY DATA
                        1782 *
0024D5  FF              1783 DSUMA DC    X'FF'                    DATA TYPE - END OF LINE
                        1784 *
0024D6  FF              1785       DC    X'FF'                    DATA TYPE - END OF LINE
                        1786 *
0024D7  FF              1787       DC    X'FF'                    DATA TYPE - END OF LINE
                        1788 *
0024D8  FF              1789       DC    X'FF'                    DATA TYPE - END OF LINE
                        1790 *
0024D9  01              1791 DSUMB DC    X'01'       DEV ADDR     DATA TYPE - HEX
0024DA  01              1792       DC    X'01'                    LENGTH OF DATA FIELD (# BYTES)
0024DB  00              1793       DC    X'00'                    OFFSET INTO RECORD FOR DATA
0024DC  06              1794       DC    X'06'                    OFFSET INTO PRINT LINE
0024DD  02              1795       DC    X'02'       # RECORDS    DATA TYPE - DECIMAL
0024DE  02              1796       DC    X'02'                    LENGTH OF DATA FIELD (# BYTES)
0024DF  01              1797       DC    X'01'                    OFFSET INTO RECORD FOR DATA
0024E0  10              1798       DC    X'10'                    OFFSET INTO PRINT LINE
0024E1  02              1799       DC    X'02'       # TIME-OUT    DATA TYPE - DECIMAL
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0024E2  02              1800       DC    X'02'                    LENGTH OF DATA FIELD (# BYTES)
0024E3  02              1801       DC    X'02'                    OFFSET INTO RECORD FOR DATA
0024E4  1B              1802       DC    X'1B'                    OFFSET INTO PRINT LINE
0024E5  02              1803       DC    X'02'       # TEMP       DATA TYPE - DECIMAL
0024E6  02              1804       DC    X'02'                    LENGTH OF DATA FIELD (# BYTES)
0024E7  03              1805       DC    X'03'                    OFFSET INTO RECORD FOR DATA
0024E8  26              1806       DC    X'26'                    OFFSET INTO PRINT LINE
0024E9  02              1807       DC    X'02'       # PERM       DATA TYPE - DECIMAL
0024EA  02              1808       DC    X'02'                    LENGTH OF DATA FIELD (# BYTES)
0024EB  04              1809       DC    X'04'                    OFFSET INTO RECORD FOR DATA
0024EC  31              1810       DC    X'31'                    OFFSET INTO PRINT LINE
0024ED  FF              1811       DC    X'FF'                    DATA TYPE - END OF LINE
                        1812 *
0024EE  0F              1813       DC    X'0F'                    DATA TYPE - END OF RECORD
                        1814 *
0024EF  FF              1815 DSUMC DC    X'FF'                    DATA TYPE - END OF LINE
                        1816 *
0024F0  04              1817       DC    X'04'       DEVICE       OFFSET INTO PRINT LINE
0024F1  C4C5E5C9C3C5    1818       DC    C'DEVICE'                LABEL TO BE PUT IN PRINT LINE
0024F7  5B              1819       DC    C'$'                     END OF LABEL CHARACTER
0024F8  0E              1820       DC    X'0E'       COUNT OF     OFFSET INTO PRINT LINE
0024F9  C3D6E4D5E340D6C6 1821      DC    C'COUNT OF'              LABEL TO BE PUT IN PRINT LINE
002501  5B              1822       DC    C'$'                     END OF LABEL CHARACTER
002502  13              1823       DC    X'13'       COUNT OF     OFFSET INTO PRINT LINE
002503  C3D6E4D5E340D6C6 1824      DC    C'COUNT OF'              LABEL TO BE PUT IN PRINT LINE
00250B  5B              1825       DC    C'$'                     END OF LABEL CHARACTER
00250C  24              1826       DC    X'24'       COUNT OF     OFFSET INTO PRINT LINE
00250D  C3D6E4D5E340D6C6 1827      DC    C'COUNT OF'              LABEL TO BE PUT IN PRINT LINE
002515  5B              1828       DC    C'$'                     END OF LABEL CHARACTER
002516  2F              1829       DC    X'2F'       COUNT OF     OFFSET INTO PRINT LINE
002517  C3D6E4D5E340D6C6 1830      DC    C'COUNT OF'              LABEL TO BE PUT IN PRINT LINE
00251F  5B              1831       DC    C'$'                     END OF LABEL CHARACTER
002520  FF              1832       DC    X'FF'                    END OF LINE
                        1833 *
002521  04              1834       DC    X'04'       ADDRESS      OFFSET INTO PRINT LINE
002522  C1C4C4D9C5E2E2  1835       DC    C'ADDRESS'               LABEL TO BE PUT IN PRINT LINE
002529  5B              1836       DC    C'$'                     END OF LABEL CHARACTER
00252A  0B              1837       DC    X'0B'       RECORDS      OFFSET INTO PRINT LINE
00252B  D9C5C3D6D9C4E2  1838       DC    C'RECORDS'               LABEL TO BE PUT IN PRINT LINE
002532  5B              1839       DC    C'$'                     END OF LABEL CHARACTER
002533  19              1840       DC    X'19'       TIME-OUT     OFFSET INTO PRINT LINE
002534  E3C9D4C560D6E4E3 1841      DC    C'TIME-OUT'              LABEL TO BE PUT IN PRINT LINE
00253C  5B              1842       DC    C'$'                     END OF LABEL CHARACTER
00253D  24              1843       DC    X'24'       TEMPORARY    OFFSET INTO PRINT LINE
00253E  E3C5D4D7D6D9C1D9E 1844     DC    C'TEMPORARY'             LABEL TO BE PUT IN PRINT LINE
002547  5B              1845       DC    C'$'                     END OF LABEL CHARACTER
002548  2F              1846       DC    X'2F'       PERMANENT    OFFSET INTO PRINT LINE
002549  D7C5D9D4C1D5C5D5E 1847     DC    C'PERMANENT'             LABEL TO BE PUT IN PRINT LINE
002552  5B              1848       DC    C'$'                     END OF LABEL CHARACTER
002553  FF              1849       DC    X'FF'                    END OF LINE
                        1850 *
002554  FF              1851       DC    X'FF'                    END OF LINE
                        1852 *
002555  FF              1853 DSUMD DC    X'FF'                    END OF LINE
                        1854 ************************************************************************
                        1855 *
                        1856 *     NULL INTERRUPT AND SYSTEM TERMINATION RECORDS
                        1857 *
002556  FF              1858 NSTRA DC    X'FF'                    DATA TYPE - END OF LINE
                        1859 *
002557  FF              1860       DC    X'FF'                    DATA TYPE - END OF LINE
                        1861 *
002558  FF              1862       DC    X'FF'                    DATA TYPE - END OF LINE
                        1863 *
002559  02              1864 NSTRB DC    X'02'       DATE-YY      DATA TYPE - DECIMAL
00255A  02              1865       DC    X'02'                    LENGTH OF DATA FIELD (# BYTES)
00255B  0B              1866       DC    X'0B'                    OFFSET INTO RECORD FOR DATA
00255C  00              1867       DC    X'00'                    OFFSET INTO PRINT LINE
00255D  00              1868       DC    X'00'       DATE-DDD     DATA TYPE - EBCDIC
00255E  03              1869       DC    X'03'                    LENGTH OF DATA FIELD (# BYTES)
00255F  00              1870       DC    X'00'                    OFFSET INTO RECORD FOR DATA
002560  05              1871       DC    X'05'                    OFFSET INTO PRINT LINE
002561  02              1872       DC    X'02'       TIME-SS      DATA TYPE - DECIMAL
002562  02              1873       DC    X'02'                    LENGTH OF DATA FIELD (# BYTES)
002563  0A              1874       DC    X'0A'                    OFFSET INTO RECORD FOR DATA
002564  0E              1875       DC    X'0E'                    OFFSET INTO PRINT LINE
002565  02              1876       DC    X'02'       TIME-MM      DATA TYPE - DECIMAL
002566  02              1877       DC    X'02'                    LENGTH OF DATA FIELD (# BYTES)
002567  09              1878       DC    X'09'                    OFFSET INTO RECORD FOR DATA
002568  0E              1879       DC    X'0B'                    OFFSET INTO PRINT LINE
002569  02              1880       DC    X'02'       TIME-HH      DATA TYPE - DECIMAL
00256A  02              1881       DC    X'02'                    LENGTH OF DATA FIELD (# BYTES)
00256B  08              1882       DC    X'08'                    OFFSET INTO RECORD FOR DATA
00256C  08              1883       DC    X'08'                    OFFSET INTO PRINT LINE
00256D  01              1884       DC    X'01'       LVL          DATA TYPE - HEX
00256E  01              1885       DC    X'01'                    LENGTH OF DATA FIELD (# BYTES)
00256F  0E              1886       DC    X'0E'                    OFFSET INTO RECORD FOR DATA
002570  14              1887       DC    X'14'                    OFFSET INTO PRINT LINE
002571  01              1888       DC    X'01'       TCB          DATA TYPE - HEX
002572  02              1889       DC    X'02'                    LENGTH OF DATA FIELD (# BYTES)
002573  04              1890       DC    X'04'                    OFFSET INTO RECORD FOR DATA
002574  19              1891       DC    X'19'                    OFFSET INTO PRINT LINE
002575  01              1892       DC    X'01'       AKR          DATA TYPE - HEX
002576  02              1893       DC    X'02'                    LENGTH OF DATA FIELD (# BYTES)
002577  06              1894       DC    X'06'                    OFFSET INTO RECORD FOR DATA
002578  1E              1895       DC    X'1E'                    OFFSET INTO PRINT LINE
002579  01              1896       DC    X'01'       PART         DATA TYPE - HEX
00257A  01              1897       DC    X'01'                    LENGTH OF DATA FIELD (# BYTES)
00257B  01              1898       DC    X'01'                    OFFSET INTO RECORD FOR DATA
00257C  23              1899       DC    X'23'                    OFFSET INTO PRINT LINE
00257D  01              1900       DC    X'01'       INT ID/TERM CC   DATA TYPE - HEX
00257E  02              1901       DC    X'02'                    LENGTH OF DATA FIELD (# BYTES)
00257F  10              1902       DC    X'10'                    OFFSET INTO RECORD FOR DATA
002580  28              1903       DC    X'28'                    OFFSET INTO PRINT LINE
002581  FF              1904       DC    X'FF'                    DATA TYPE - END OF LINE
                        1905 *
002582  FF              1906       DC    X'FF'                    DATA TYPE - END OF LINE
                        1907 *
002583  0F              1908       DC    X'0F'                    DATA TYPE - END OF RECORD
                        1909 *
002584  FF              1910 NSTLA DC    X'FF'                    DATA TYPE - END OF LINE
                        1911 *
002585  02              1912       DC    X'02'       DATE         OFFSET INTO PRINT LINE
002586  C4C1E3C5        1913       DC    C'DATE'                  LABEL TO BE PUT IN PRINT LINE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
00258A  5B                1914         DC    C'$'                  END OF LABEL CHARACTER
00258B  0A                1915         DC    X'0A'       TIME      OFFSET INTO PRINT LINE
00258C  E3C9D4C5          1916         DC    C'TIME'               LABEL TO BE PUT IN PRINT LINE
002590  5B                1917         DC    C'$'                  END OF LABEL CHARACTER
002591  14                1918         DC    X'14'       LVL       OFFSET INTO PRINT LINE
002592  D3E5D3            1919         DC    C'LVL'                LABEL TO BE PUT IN PRINT LINE
002595  5B                1920         DC    C'$'                  END OF LABEL CHARACTER
002596  19                1921         DC    X'19'       TCB       OFFSET INTO PRINT LINE
002597  E3C3C2            1922         DC    C'TCB'                LABEL TO BE PUT IN PRINT LINE
00259A  5B                1923         DC    C'$'                  END OF LABEL CHARACTER
00259B  1E                1924         DC    X'1E'       AKR       OFFSET INTO PRINT LINE
00259C  C1D2D9            1925         DC    C'AKR'                LABEL TO BE PUT IN PRINT LINE
00259F  5B                1926         DC    C'$'                  END OF LABEL CHARACTER
0025A0  23                1927         DC    X'23'       PART      OFFSET INTO PRINT LINE
0025A1  D7C1D9E3          1928         DC    C'PART'               LABEL TO BE PUT IN PRINT LINE
0025A5  5B                1929         DC    C'$'                  END OF LABEL CHARACTER
0025A6  28                1930         DC    X'28'       INT ID/TERM CC    OFFSET INTO PRINT LINE
0025A7  C9D5E340C9C44040  1931 CHG1    DC    C'INT ID  '           LABEL TO BE PUT IN PRINT LINE
0025AF  5B                1932         DC    C'$'                  END OF LABEL CHARACTER
0025B0  FF                1933         DC    X'FF'                 END OF LINE
                          1934 *
0025B1  FF                1935         DC    X'FF'                 END OF LINE
                          1936 *
0025B2  0C                1937 NSTLB   DC    X'0C'       .         OFFSET INTO PRINT LINE
0025B3  4B                1938         DC    C'.'                  LABEL TO BE PUT IN PRINT LINE
0025B4  5B                1939         DC    C'$'                  END OF LABEL CHARACTER
0025B5  0F                1940         DC    X'0F'       .         OFFSET INTO PRINT LINE
0025B6  4B                1941         DC    C'.'                  LABEL TO BE PUT IN PRINT LINE
0025B7  5B                1942         DC    C'$'                  END OF LABEL CHARACTER
0025B8  FF                1943         DC    X'FF'                 END OF LINE
                          1944 *
0025B9  FF                1945         DC    X'FF'                 END OF LINE
                          1946 *
0025BA  C9D5E340C9C44040  1948 INTID   DC    C'INT ID  '           LABEL
0025C2  E3C5D9D440C3C340  1949 TRMCC   DC    C'TERM CC '           LABEL
                          1951 ********************************************************************************
                          1952 *                                                                              *
                          1953 *     AREA RESERVED FOR PROGRAM PATCHES IF NECESSARY                           *
                          1954 *                                                                              *
                          1955 ********************************************************************************
0025CA  00000000000000000 1956 PATCH   DC    128A(0)               PROGRAM PATCH AREA
                          1957 *
                          1959 ********************************************************************************
                          1960 *                                                                              *
                          1961 *     NAME    INIT                                                             *
                          1962 *                                                                              *
                          1963 *     PURPOSE TO PROVIDE A ROUTINE TO INITIALIZE                               *
                          1964 *             THE PROGRAM CONSTANTS AND DEVICES ASSIGNED.                      *
                          1965 *                                                                              *
                          1966 *     METHOD  1. VERIFY THE DEVICE ADDRESSES.                                  *
                          1967 *                                                                              *
                          1968 *             2. HOUSEKEEP ALL STORAGE AREAS AND CONSTANTS                     *
                          1969 *                REQUIRED BY THE PROGRAM.                                      *
                          1970 *             3. PREPARE THE DEVICES ASSIGNED AND ISSUE RESET                  *
                          1971 *                TO CLEAR ANY PENDING INTERRUPTS.                              *
                          1972 *                                                                              *
                          1973 ********************************************************************************
                          1974         ALIGN WORD
                          1975 *
                          1976 *     TEST FOR ALTERNATE CONSOLE SUPPORT AND TYPE
                          1977 *
0026CA                    1978 INIT    EQU   *
0026CA  4020 180C 0001    1979         MVWI  ONE,CHKP              SET CHECKPOINT # TO ONE
0026D0  6908 0250         1980         MVW   ECP01,R1              ECP COMMAND 7 ADDRESS
0026D4  8908 21B4         1981         MVW   (R1),CMND7            SAVE ECP ADDRESS
0026D8  4040 2B6A         1982         MVA   TMPRG,(R1)            INSERT ERAP TERM PRGM ROUTINE ADDR
0026DC  0F33              1983         MVBI  LNGTH,R7              BUFFER LENGTH
0026DE  08FF              1984         MVBI  TWO55,R0              PATTERN TO STORE
0026E0  4124 214E         1985         MVA   OLDCN,R1              STARTING ADDRESS OF BUFFER AREA
0026E4  282C              1986         FFN   R0,(R1)               INITIALIZE BUFFER AREA
                          1987 *
0026E6  724A              1988         SW    R2,R2                 INITIALLY ZERO R2
0026E8  6808 0240         1989         MVW   OPADR,R0              SEE IF A DEVICE WAS ASSIGNED
0026EC  680D 2152         1990         MVW   R0,OLDCA              SAVE OLD CONSOLE DEV ADDRESS
0026F0  100F              1991         JZ    INIT3                 B/NO - NO ALT DEV - USING PROG CON
0026F2  4224 21FC         1992         MVA   ACOVL,R2              ADDRESS OF ALT CON OVLY INFO
0026F6                    1993 INIT0   EQU   *
0026F6  C084              1994         CB    (R2),R0               ALT CON A HARDCOPY DEVICE
0026F8  1003              1995         JE    INIT1                 BR/MAYBE - CONTINUE
0026FA  020A              1996         ABI   TEN,R2                NEXT ALT CON ENTRY
0026FC  C180              1997         MVB   (R2),R1               LAST ENTRY
0026FE  18FB              1998         JNZ   INIT0                 BR/NO - TRY NEXT
002700                    1999 INIT1   EQU   *
002700  6A0D 214E         2000         MVW   R2,OLDCN              SAVE OLD CONSOLE TABLE ADDRESS
002704                    2001 INIT2   EQU   *
002704  820B 2184         2002         CB    (R2),DSP2             ALT CON A DISPLAY
002708  1003              2003         JE    INIT3                 BR/YES - LOCATE HARDCOPY
00270A  820B 2183         2004         CB    (R2),DSP1             ALT CON A DISPLAY
00270E  1827              2005         JNE   INIT5                 BR/NO - HARDCOPY
                          2006 *
                          2007 *     ALTERNATE CONSOLE NOT HARDCOPY
                          2008 *
002710                    2009 INIT3   EQU   *
002710  4724 184A         2010         MVA   FSTMA,R7              MESSAGE CONTROL BLOCK
002714  6001              2011         SVC   OUTIN                 OUTPUT MESSAGE
                          2012 *
002716  6808 180E         2013         MVW   OPT1,R0               REQUEST TO TERMINATE
00271A  6A00 2B60         2014         BN    INITU                 BR/YES - EXIT
00271E  802B 2178 2182    2015         CB    HRDBF,YES             HARDCOPY CONSOLE AVAILABLE
002724  6801 275E         2016         BNE   INIT5                 BR/NO-THEN USE DISPLAY
002728  4724 1874         2017         MVA   SECMA,R7              MESSAGE CONTROL BLOCK
00272C  6001              2018         SVC   OUTIN                 OUTPUT MESSAGE
                          2019 *
00272E  6808 180E         2020         MVW   OPT1,R0               REQUEST TO TERMINATE
002732  6A00 2B60         2021         BN    INITU                 BR/YES - EXIT
002736  802B 2154 2139    2022         MVB   OUTAD,PRRI1           PLACE ADR IN READ ID IDCB
00273C  4020 17BE 2138    2023         MVA   PRRID,IDCB            SAVE THE IDCB ADR
002742  680C 2138         2024         IO    PRRID                 READ ID
002746  6F05 29D2         2025         BNCC  SEVEN,INITC           BR/IF ERROR
00274A  4224 21FC         2026         MVA   ACOVL,R2              ADDRESS OF ALT CON OVLY INFO
00274E                    2027 INIT4   EQU   *
00274E  8A2B 0008 213A    2028         CW    (R2,EIGHT),PRRI2      READ ID FOR HARDCOPY CONSOLE
002754  10D7              2029         JE    INIT2                 BR/MAYBE - CONTINUE
002756  020A              2030         ABI   TEN,R2                NEXT ALT CON ENTRY
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002758  C180              2031         MVB   (R2),R1               LAST ENTRY
00275A  10F9              2032         JNZ   INIT4                 BR/NO - TRY NEXT
00275C  50D9              2033         J     INIT3                 NOT A SUPPORTTED ALT CON
                          2034 *
                          2035 *     HARD COPY CONSOLE FOUND
                          2036 *
00275E                    2037 INIT5   EQU   *
00275E  6A0D 2150         2038         MVW   R2,NEWCN              SAVE NEW CONSOLE TABLE ADDRESS
002762  6800 2B60         2039         BZ    INITU                 BR/PROG CONSOLE - TERMINATE PROGRAM
002766  8208 2155         2040         MVB   (R2),NEWCA+ONE        SAVE NEW CONSOLE DEVICE TYPE
00276A  4724 1896         2041         MVA   TRDMA,R7              MESSAGE CONTROL BLOCK
00276E  6001              2042         SVC   OUTIN                 OUTPUT MESSAGE
                          2043 *
002770  6808 180E         2044         MVW   OPT1,R0               REQUEST TO TERMINATE
002774  6A00 2B60         2045         BN    INITU                 BR/YES - EXIT
002778  4724 18F4         2046         MVA   FIVMA,R7              MESSAGE CONTROL BLOCK
00277C  6001              2047         SVC   OUTIN                 OUTPUT MESSAGE
                          2048 *
00277E  6808 180E         2049         MVW   OPT1,R0               REQUEST TO TERMINATE
002782  6A00 2B60         2050         BN    INITU                 BR/YES - EXIT
002786  4020 216A 00FF    2051         MVWI  TWO55,RECTP           SET DEFAULT TO ALL RECORDS
00278C  802B 2176 2182    2052         CB    RSDBP,YES             PRINT ALL RECORDS
002792  1043              2053         JE    INIT8                 BR/YES
002794  4724 191A         2054         MVA   SIXM1,R7              MESSAGE CONTROL BLOCK
002798  6000              2055         SVC   OUT                   OUTPUT MESSAGE
                          2056 *
00279A  4724 1932         2057         MVA   SIXM3,R7              MESSAGE CONTROL BLOCK
00279E  6000              2058         SVC   OUT                   OUTPUT MESSAGE
                          2059 *
0027A0  4724 194A         2060         MVA   SIXM4,R7              MESSAGE CONTROL BLOCK
0027A4  6000              2061         SVC   OUT                   OUTPUT MESSAGE
                          2062 *
0027A6  4724 196A         2063         MVA   SIXM5,R7              MESSAGE CONTROL BLOCK
0027AA  6000              2064         SVC   OUT                   OUTPUT MESSAGE
                          2065 *
0027AC  4724 197C         2066         MVA   SIXM6,R7              MESSAGE CONTROL BLOCK
0027B0  6000              2067         SVC   OUT                   OUTPUT MESSAGE
                          2068 *
0027B2  4724 1996         2069         MVA   SIXM7,R7              MESSAGE CONTROL BLOCK
0027B6  6000              2070         SVC   OUT                   OUTPUT MESSAGE
                          2071 *
0027B8  4724 19B4         2072         MVA   SIXM8,R7              MESSAGE CONTROL BLOCK
0027BC  6000              2073         SVC   OUT                   OUTPUT MESSAGE
                          2074 *
0027BE  4724 19C4         2075         MVA   SIXMA,R7              MESSAGE CONTROL BLOCK
0027C2  6001              2076         SVC   OUTIN                 OUTPUT MESSAGE
                          2077 *
0027C4  6808 180E         2078         MVW   OPT1,R0               REQUEST TO TERMINATE
0027C8  6A00 2B60         2079         BN    INITU                 BR/YES - EXIT
0027CC  4124 216A         2080         MVA   RECTP,R1              ADDRESS OF TABLE
0027D0  71E8              2081         AW    R1,R7                 LAST CHARACTER RECEIVED PLUS ONE
0027D2  7747              2082         IR    R7,R2                 CHANGE REGISTERS
0027D4  80A0 2190         2083         MVB   HEXFF,(R2)            SET IT TO X'FF'
0027D8  C140              2084         MVB   (R1),R0               GET RECORD TYPE REQUESTED
0027DA  101F              2085         JZ    INIT8                 BR/ALL RECORDS SELECTED
0027DC                    2086 INIT6   EQU   *
0027DC  C050              2087         MVB   (R1)+,R0              GET RECORD TYPE REQUESTED
0027DE  122A              2088         JN    INT8A                 BR/END OF ENTRIES
0027E0  F004              2089         CBI   FOUR,R0               DEVICE RECORDS SELECTED
0027E2  1001              2090         JE    INIT7                 BR/YES
0027E4  50FB              2091         J     INIT6                 TRY NEXT
0027E6                    2092 INIT7   EQU   *
0027E6  4724 19F6         2093         MVA   SEVMA,R7              MESSAGE CONTROL BLOCK
0027EA  6001              2094         SVC   OUTIN                 OUTPUT MESSAGE
                          2095 *
0027EC  6808 180E         2096         MVW   OPT1,R0               REQUEST TO TERMINATE
0027F0  6A00 2B60         2097         BN    INITU                 BR/YES - EXIT
0027F4  802B 2177 2182    2098         CB    SDABF,YES             PRINT ALL DEVICE RECORDS
0027FA  101C              2099         JE    INT8A                 BR/YES
0027FC  4724 1A20         2100         MVA   EHTMA,R7              MESSAGE CONTROL BLOCK
002800  6001              2101         SVC   OUTIN                 OUTPUT MESSAGE
                          2102 *
002802  6808 180E         2103         MVW   OPT1,R0               REQUEST TO TERMINATE
002806  6A00 2B60         2104         BN    INITU                 BR/YES - EXIT
00280A  4124 215E         2105         MVA   DEVAD,R1              ADDRESS OF TABLE
00280E  7728              2106         AW    R7,R1                 LAST CHARACTER RECEIVED PLUS ONE
002810  8064 218E         2107         MVB   HEXCC,(R1)+           SET IT TO X'CC'
002814  8060 218E         2108         MVB   HEXCC,(R1)            AND THE NEXT ONE
002818  500D              2109         J     INT8A                 CONTINUE
                          2110 *
00281A                    2111 INIT8   EQU   *
00281A  9028 219E 216A    2112         MVD   ALL,RECTP             SET ALL RECORD
002820  9028 21A2 216E    2113         MVD   ALL+FOUR,PECTP+FOUR     DEFAULT ORDER
002826  4724 18CA         2114         MVA   FORMA,R7              MESSAGE CONTROL BLOCK
00282A  6001              2115         SVC   OUTIN                 OUTPUT MESSAGE
                          2116 *
00282C  6808 180E         2117         MVW   OPT1,R0               REQUEST TO TERMINATE
002830  6A00 2B60         2118         BN    INITU                 BR/YES - EXIT
002834                    2119 INT8A   EQU   *
002834  4724 1A68         2120         MVA   VOLMA,R7              MESSAGE CONTROL BLOCK
002838  6001              2121         SVC   OUTIN                 OUTPUT MESSAGE
                          2122 *
00283A  6808 180E         2123         MVW   OPT1,R0               REQUEST TO TERMINATE
00283E  6A00 2B60         2124         BN    INITU                 BR/YES - EXIT
002842  802B 217A 2182    2125         CB    VLNAM,YES             SYSTEM ERROR VOLUME LABEL 'SYSERLOG'
002848  100E              2126         JE    INT8B                 BR/YES
00284A  4724 1AAC         2127         MVA   NINMA,R7              MESSAGE CONTROL BLOCK
00284E  6001              2128         SVC   OUTIN                 OUTPUT MESSAGE
                          2129 *
002850  6808 180E         2130         MVW   OPT1,R0               REQUEST TO TERMINATE
002854  6A00 2B60         2131         BN    INITU                 BR/YES - EXIT
002858  4724 1AE4         2132         MVA   TENMA,R7              MESSAGE CONTROL BLOCK
00285C  6001              2133         SVC   OUTIN                 OUTPUT MESSAGE
                          2134 *
00285E  6808 180E         2135         MVW   OPT1,R0               REQUEST TO TERMINATE
002862  6A00 2B60         2136         BN    INITU                 BR/YES - EXIT
                          2137 *
                          2138 *     ASSIGN NEW CONSOLE IF NECESSARY
                          2139 *
002866                    2140 INT8B   EQU   *
002866  882B 2150 214E    2141         CW    NEWCN,OLDCN           SHOULD CONSOLES BE SWAPPED
00286C  1054              2142         JE    INITB                 BR/NOT NECESSARY
00286E  4724 1B1A         2143         MVA   ELVMA,R7              MESSAGE CONTROL BLOCK
002872  6000              2144         SVC   OUT                   OUTPUT MESSAGE
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 LOCTR   OBJECT TEXT          STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                              2145 *
002874   4724  0234           2146          MVWI  INDIC,R7             ADR OF ECP INDICATORS
002878   4F87                 2147          TBTR  (R7,ALTDV)          IND ALT DEV UNASSIGNED
00287A   4F46                 2148          TBTS  (R7,STOP)           SET STOP INDICATOR
00287C   8028  2152 2131      2149          MVB   OLDCA,PRRST+ONE     SET OLD DEVICE ADDR FOR RESET
002882   8028  2152 2135      2150          MVB   OLDCA,PRUPR+ONE     SET OLD DEVICE ADDR FOR UNPREPARE
002888   4020  17BE 2134      2151          MVA   PRUPR,IDCB          SAVE THE IDCB ADR
00288E   680C  2134           2152          IO    PRUPR               UNPREPARE THE OLD ALT CONSOLE
002892   4020  17BE 2130      2153          MVA   PRRST,IDCB          SAVE THE IDCB ADR
002898   680C  2130           2154          IO    PRRST               RESET THE OLD ALT CONSOLE
00289C   8828  178E 215A      2155          MVW   ACVTR,OLDVS         SAVE OLD CONSOLE VECTOR ADDRESS
0028A2   882C  178C 215A      2156          MVW   ACSTR,OLDVS*        SET IT TO STRAY INTERRUPT
0028A8   C825  1790           2157          MVWZ  PRBA,R0             RESET ALT CONSOLE CNTL FLD
0028AC   8828  2154 0240      2158          MVW   NEWCA,OPADR         STORE CONSOLE ADDRESS/TYPE
0028B2   C020  2154           2159          MVB   NEWCA,R0            GET NEW CONSOLE DEVICE ADDRESS
0028B6   6F08  2150           2160          MVW   NEWCN,R7            GET NEW OVERLAY TABLE
0028BA   0701                 2161          ABI   ONE,R7              OVERLAY NAME
0028BC   601F                 2162          SVC   READI               READ IN NEW OVERLAY
0028BE   75A7                 2163          IR    R5,R5               WAS OVERLAY FOUND
0028C0   6801  29DC           2164          BNZ   INITD               BR/NOT FOUND
0028C4   0905                 2165          MVBI  FIVE,R1             NUMBER OF IDCB'S
0028C6   4224  14F6           2166          MVWI  WIDCB,R2            ADDRESS FIRST IDCB
0028CA                        2167 INIT9    EQU   *
0028CA   C0A8  0001           2168          MVB   R0,(R2,ONE)         NEW ALTERNATE CONSOLE ADDRESS
0028CE   0204                 2169          ABI   FOUR,R2             UPDATE NEXT IDCB
0028D0   B9FC                 2170          JCT   INIT9,R1            DO NEXT
0028D2   3009                 2171          SLL   ONE,R0              EACH ADDRESS TWO BYTES - VECTOR
0028D4   0030                 2172          ABI   DEVPT,R0            GET VECTOR ADDRESS
0028D6   680D  178E           2173          MVW   R0,ACVTR            SAVE VECTOR ADDRESS
0028DA   4000  14F4           2174          MVWI  ACINT,(R0)          SET INT ADDR FOR ALT
0028DE   4020  17BE 1506      2175          MVWI  ACPRE,IDCB          SAVE THE IDCB ADR
0028E4   680C  1506           2176          IO    ACPRE               PREPARE THE ALT
0028E8   8828  14F4 2156      2177          MVW   ACINT,NEWIS         SAVE INTERRUPT ADDRESS
0028EE   4020  14F4 2904      2178          MVA   INITA,ACINT         NEW INTERRUPT ADDRESS
0028F4   4020  17BE 14FA      2179          MVWI  CIDCB,IDCB          SAVE IDCB ADDRESS
0028FA   680C  14FA           2180          IO    CIDCB               PERFORM ONE OF THE FOLLOWING
                              2181 *                                   TTY       - CARRIGE RETURN
                              2182 *                                   DISP STAT - CLEAR SCREEN
                              2183 *                                   PRINTER   - SKIP
0028FE   6F05  29DC           2184          BNCC  SEVEN,INITD         BR/BAD CC - NO ALT CON
002902   6100                 2185          LEX   ZERO                WAIT FOR INTERRUPT
002904                        2186 INITA    EQU   *
002904   6B05  29DC           2187          BNCC  THREE,INITD         BR/BAD CC - NO ALT CONSOLE
002908   8828  2156 14F4      2188          MVW   NEWIS,ACINT         RESTORE INTERRUPT ADDRESS
00290E   4724  0234           2189          MVWI  INDIC,R7            ADR OF ECP INDICATORS
002912   4F47                 2190          TBTS  (R7,ALTDV)          IND ALT DEV ASSIGNED
002914   4F86                 2191          TBTR  (R7,STOP)           RESET STOP INDICATOR
                              2192 *
                              2193 *     SET UP THE RPS DISK TO BE USED
                              2194 *
002916                        2195 INITB    EQU   *
002916   C020  2174           2196          MVB   INAD,R0             SET UP DISK ADDRESS
                              2197 *
00291A   C028  20AF           2198          MVB   R0,DKPRE+ONE        SET IN PREPARE
00291E   C028  20B3           2199          MVB   R0,DKSTR+ONE        SET IN SEEK
002922   C028  20B7           2200          MVB   R0,DKRST+ONE        SET IN RESET
002926   C028  20BB           2201          MVB   R0,DKRCL+ONE        SET IN RECALIBRATE
00292A   C028  20BF           2202          MVB   R0,DKUPR+ONE        SET IN UNPREPARE
00292E   C028  20C3           2203          MVB   R0,DKRID+ONE        SET IN READ ID
002932   C028  20C7           2204          MVB   R0,DKCSS+ONE        SET IN READ CYCLE STEAL STATUS
002936   C028  20CB           2205          MVB   R0,DKRSI+ONE        SET IN READ SECTOR ID
00293A   3009                 2206          SLL   ONE,R0              DOUBLE TO PUT INTO FIELD
00293C   0030                 2207          ABI   DEVPT,R0            GET VECTOR ADDRESS
00293E   680D  215C           2208          MVW   R0,DSKVS            SAVE DISK VECTOR ADDPESS
002942   8838  215C 2158      2209          MVW   DSKVS*,DSKIS        SAVE OLD DISK INTERRUPT ADDRESS
002948   4000  21B8           2210          MVA   DKINT,(R0)          DISK INTERRUPT ADDRESS
                              2211 *
00294C   4020  17BE 20B6      2212          MVA   DKRST,IDCB          SAVE THE IDCB ADDRESS
002952   680C  20B6           2213          IO    DKRST               RESET DISK
002956   4020  17BE 20AE      2214          MVA   DKPRE,IDCB          SAVE THE IDCB ADDRESS
00295C   680C  20AE           2215          IO    DKPRE               PREPARE IT
002960   6F05  29F6           2216          BNCC  7,INITF             BR/ERROR - CAN'T PREPARE DISK
002964   4020  17BE 20C2      2217          MVA   DKRID,IDCB          SAVE THE IDCB ADDRESS
00296A   680C  20C2           2218          IO    DKRID               READ ID
                              2219 *
00296E   4020  21BC 0078      2220          MVWI  SPTD2,SPTD          INITIALIZE SECTORS/CYLINDER
002974   4020  21C0 00F0      2221          MVWI  STOC2,STOC          INITIALIZE STOC SECTOR #
00297A   402F  20C4 00CA      2222          CWI   DSKID,DKRID+TWO     COMPARE FOR CORRECT READ ID
002980   1806                 2223          JNE   INTBA               BR/OK AS IS
002982   4020  21BC 00B4      2224          MVWI  SPTD3,SPTD          USE CORRECT SECTORS/CYLINDER
002988   4020  21C0 0168      2225          MVWI  STOC3,STOC          USE CORRECT STOC SECTOR #
                              2226 *
00298E                        2227 INTBA    EQU   *
00298E   4020  21B8 29A4      2228          MVA   INTBB,DKINT         SET INTERRUPT ADDRESS
002994   4020  17BE 20BA      2229          MVA   DKRCL,IDCB          SAVE THE IDCB ADDRESS
00299A   680C  20BA           2230          IO    DKRCL               RECALIBRATE IT
00299E   6F05  29F6           2231          BNCC  7,INITF             BR/ERROR - CAN'T RECALIBRATE DISK
0029A2   6100                 2232          LEX   ZERO                WAIT FOR INTERRUPT
0029A4                        2233 INTBB    EQU   *
0029A4   6B05  29F6           2234          BNCC  3,INITF             BR/ERROR - CAN'T RECALIBRATE DISK
0029A8   4020  21B8 32CA      2235          MVA   DSKIT,DKINT         RESET INTERRUPT ADDRESS
                              2236 *
0029AE   6F03  3162           2237          BAL   SYSLG,R7            GO FIND SYSTEM ERROR LOG DATA SET
                              2238 *
0029B2   902B  1F1E 1F22      2239          CD    OLDAD,NXTAD         IS SYSTEM ERROR LOG EMPTY
0029B8   1808                 2240          JNE   INTBC               BR/NO - CONTINUE
0029BA   802B  218F 1F1C      2241          CB    HEXFE,CNTLV         HAS SYSTEM ERROR LOG BEEN WRAPPED
0029C0   1004                 2242          JE    INTBC               BR/YES - CONTINUE
0029C2   4724  1DB6           2243          MVA   THOMA,R7            MESSAGE CONTROL BLOCK
0029C6   6000                 2244          SVC   OUT                 OUTPUT MESSAGE
0029C8   5022                 2245          J     INITJ               ALL DONE
                              2246 *
0029CA                        2247 INTBC    EQU   *
0029CA   C025  2179           2248          MVBZ  REPRC,R0            INITIALIZE TO ZERO
0029CE   6802  2B8C           2249          B     RECSL               CONTINUE
                              2250 *
                              2251 *     ERROR MESSAGE SET UP
                              2252 *
0029D2                        2253 INITC    EQU   *
0029D2   8028  2188 217B      2254          MVB   HEX01,ERRM1         SET ERROR MESSAGE 1 SWITCH
0029D8   6802  2AEC           2255          B     INITN               CONTINUE
0029DC                        2256 INITD    EQU   *
0029DC   8028  2188 217B      2257          MVB   HEX01,ERRM1         SET ERROR MESSAGE 1 SWITCH
0029E2   5015                 2258          J     INITJ               CONTINUE
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 LOCTR   OBJECT TEXT          STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0029E4                        2259 INITE    EQU   *
0029F4   8028  2188 217C      2260          MVB   HEX01,ERRM2         SET ERROR MESSAGE 2 SWITCH
0029EA   9608  1B60           2261          MVD   (R6),DSNME          PUT DSNAME
0029EE   9628  0004 1B64      2262          MVD   (R6,FOUR),DSNME+FOUR  IN MESSAGE
0029F4   500C                 2263          J     INITJ               CONTINUE
0029F6                        2264 INITF    EQU   *
0029F6   8028  2188 217D      2265          MVB   HEX01,ERRM3         SET ERROR MESSAGE 3 SWITCH
0029FC   5008                 2266          J     INITJ               CONTINUE
0029FE                        2267 INITG    EQU   *
0029FE   8028  2188 217E      2268          MVB   HEX01,ERRM4         SET ERROR MESSAGE 4 SWITCH
002A04   9608  1BC0           2269          MVD   (R6),DSNAM          PUT DSNAME
002A08   9628  0004 1BC4      2270          MVD   (R6,FOUR),DSNAM+FOUR  IN MESSAGE
                              2271 *
                              2272 *     RESTORE ORIGINAL CONSOLE IF NECESSARY
                              2273 *
002A0E                        2274 INITJ    EQU   *
002A0E   882B  2150 214E      2275          CW    NEWCN,OLDCN         SHOULD CONSOLES BE SWAPPED
002A14   106B                 2276          JE    INITN               BR/NOT NECESSARY
002A16   6002                 2277          SVC   IDLE                DELAY 200 USEC-STABLE
002A18   6002                 2278          SVC   IDLE                DELAY 200 USEC-STABLE
002A1A   4701  0234           2279          MVWI  INDIC,R7            ADR OF ECP INDICATORS
002A1E   4F87                 2280          TBTR  (R7,ALTDV)          IND ALT DEV UNASSIGNED
002A20   4F46                 2281          TBTS  (R7,STOP)           SET STOP INDICATOR
002A22   8028  2154 2131      2282          MVB   NEWCA,PRRST+ONE     SET OLD DEVICE ADDR FOR RESET
002A28   8028  2154 2135      2283          MVB   NEWCA,PRUPR+ONE     SET OLD DEVICE ADDR FOR UNPREPARE
002A2E   4020  17BE 2130      2284          MVA   PRRST,IDCB          SAVE THE IDCB ADR
002A34   680C  2130           2285          IO    PRRST               RESET THE OLD ALT CONSOLE
002A38   4020  17BE 2134      2286          MVA   PRUPR,IDCB          SAVE THE IDCB ADR
002A3E   680C  2134           2287          IO    PRUPR               UNPREPARE THE OLD ALT CONSOLE
002A42   882C  178C 178E      2289          MVW   ACSTR,ACVTR*        RESTORE STRAY INTRPT VECTOR ADDR
002A48   8828  2152 0240      2289          MVW   OLDCA,OPADR         RESTORE CONSOLE ADDRESS/TYPE
002A4E   104E                 2290          JZ    INITN               BR/NO ALTERNATE CONSOLE ASSIGNED
002A50   C825  1790           2291          MVWZ  PRBA,R0             RESET ALT CONSOLE CNTL FLD
002A54   C020  2152           2292          MVB   OLDCA,R0            GET NEW CONSOLE DEVICE ADDRESS
002A58   6F08  214E           2293          MVW   OLDCN,R7            GET NEW OVERLAY TABLE
002A5C   0701                 2294          ABI   ONE,R7              OVERLAY NAME
002A5E   601F                 2295          SVC   READI               READ IN NEW OVERLAY
002A60   75A7                 2296          IR    R5,R5               WAS OVERLAY FOUND
002A62   182E                 2297          JNZ   INITM               BR/NOT FOUND
002A64   0905                 2298          MVBI  FIVE,R1             NUMBER OF IDCB'S
002A66   4224  14F6           2299          MVWI  WIDCB,R2            ADDRESS FIRST IDCB
002A6A                        2300 INITK    EQU   *
002A6A   C0A8  0001           2301          MVB   R0,(R2,ONE)         NEW ALTERNATE CONSOLE ADDRESS
002A6E   0204                 2302          ABI   FOUR,R2             UPDATE NEXT IDCB
002A70   B9FC                 2303          JCT   INITK,R1            DO NEXT
002A72   3009                 2304          SLL   ONE,R0              EACH ADDRESS TWO BYTES - VECTOR
002A74   7801  0030           2305          AWI   DEVPT,R0            GET VECTOR ADDRESS
002A78   680D  178E           2306          MVW   R0,ACVTR            SAVE VECTOR ADDRESS
002A7C   4000  14F4           2307          MVWI  ACINT,(R0)          SET INT ADDR FOR ALT
002A80   4020  17BE 1506      2308          MVWI  ACPRE,IDCB          SAVE THE IDCB ADR
002A86   680C  1506           2309          IO    ACPRE               PREPARE THE ALT
002A8A   8828  14F4 2156      2310          MVW   ACINT,NEWIS         SAVE INTERRUPT ADDRESS
002A90   4020  14F4 2AA6      2311          MVA   INITL,ACINT         NEW INTERRUPT ADDRESS
002A96   4020  17BE 14FA      2312          MVWI  CIDCB,IDCB          SAVE IDCB ADDRESS
002A9C   680C  14FA           2313          IO    CIDCB               PERFORM ONE OF THE FOLLOWING
                              2314 *                                   TTY       - CARRIGE RETURN
                              2315 *                                   DISP STAT - CLEAR SCREEN
                              2316 *                                   PRINTER   - SKIP
002AA0   6F05  2AC0           2317          BNCC  SEVEN,INITM         BR/BAD CC - NO ALT CON
002AA4   6100                 2318          LEX   ZERO                WAIT FOR INTERRUPT
002AA6                        2319 INITL    EQU   *
002AA6   6B05  2AC0           2320          BNCC  THREE,INITM         BR/BAD CC - NO ALT CONSOLE
002AAA   8828  2156 14F4      2321          MVW   NEWIS,ACINT         RESTORE INTERRUPT ADDRESS
002AB0   4724  0234           2322          MVWI  INDIC,R7            ADR OF ECP INDICATORS
002AB4   4F47                 2323          TBTS  (R7,ALTDV)          IND ALT DEV ASSIGNED
002AB6   4F86                 2324          TBTR  (R7,STOP)           RESET STOP INDICATOR
002AB8   4724  1B30           2325          MVA   TWLMA,R7            MESSAGE CONTROL BLOCK
002ABC   6000                 2326          SVC   OUT                 OUTPUT MESSAGE
002ABE   5016                 2327          J     INITN
002AC0                        2328 INITM    EQU   *
002AC0   8028  2152 2131      2329          MVB   OLDCA,PRRST+ONE     SET OLD DEVICE ADDR FOR RESET
002AC6   8028  2152 2135      2330          MVB   OLDCA,PRUPR+ONE     SET OLD DEVICE ADDR FOR UNPREPARE
002ACC   4020  17BE 2130      2331          MVA   PRRST,IDCB          SAVE THE IDCB ADR
002AD2   680C  2130           2332          IO    PRRST               RESET THE OLD ALT CONSOLE
002AD6   4020  17BE 2134      2333          MVA   PRUPR,IDCB          SAVE THE IDCB ADR
002ADC   680C  2134           2334          IO    PRUPR               UNPREPARE THE OLD ALT CONSOLE
002AE0   882C  178C 215A      2335          MVW   ACSTR,OLDVS*        SET IT TO STRAY INTERRUPT
                              2336 *
                              2337 *     OUTPUT APPROPRIATE ERROR MESSAGE
                              2338 *
002AE6   4724  1C24           2339          MVA   NNTMA,R7            MESSAGE CONTROL BLOCK
002AEA   6000                 2340          SVC   OUT                 OUTPUT MESSAGE
002AEC                        2341 *
002AEC   C020  217B           2342 INITN    EQU   *
002AF0   1203                 2343          MVB   ERRM1,R0            ERROR MESSAGE 1 NEEDED
002AF2   4724  1B52           2344          JN    INITO               BR/NO - SKIP IT
002AF6   6000                 2345          MVA   THNMA,R7            MESSAGE CONTROL BLOCK
002AF8                        2346          SVC   OUT                 OUTPUT MESSAGE
002AF8   C020  217C           2347 *
002AFC   1203                 2348 INITO    EQU   *
002AFE   4724  1B7C           2349          MVB   ERRM2,R0            ERROR MESSAGE 1 NEEDED
002B02   6000                 2350          JN    INITP               BR/NO - SKIP IT
002B04                        2351          MVA   FRNMA,R7            MESSAGE CONTROL BLOCK
002B04   C020  217D           2352          SVC   OUT                 OUTPUT MESSAGE
002B08   1203                 2353 *
002B0A   4724  1B94           2354 INITP    EQU   *
002B0E   6000                 2355          MVB   ERRM3,R0            ERROR MESSAGE 1 NEEDED
002B10                        2356          JN    INITQ               BR/NO - SKIP IT
002B10   C020  217E           2357          MVA   FFNMA,R7            MESSAGE CONTROL BLOCK
002B14   1203                 2358          SVC   OUT                 OUTPUT MESSAGE
002B16   4724  1BCA           2359 *
002B1A   6000                 2360 INITQ    EQU   *
002B1C                        2361          MVB   ERRM4,R0            ERROR MESSAGE 1 NEEDED
002B1C   C020  217F           2362          JN    INITR               BR/NO - SKIP IT
002B20   1203                 2363          MVA   SXNMA,R7            MESSAGE CONTROL BLOCK
002B22   4724  1BF4           2364          SVC   OUT                 OUTPUT MESSAGE
002B26   6000                 2365 *
002B28                        2366 INITR    EQU   *
                              2367          MVB   ERRM5,R0            ERROR MESSAGE 1 NEEDED
                              2368          JN    INITS               BR/NO - SKIP IT
                              2369          MVA   SVNMA,R7            MESSAGE CONTROL BLOCK
                              2370          SVC   OUT                 OUTPUT MESSAGE
                              2371 *
                              2372 INITS    EQU   *
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002B28   C020 2180          2373         MVB   ERRM6,R0              ERROR MESSAGE 1 NEEDED
002B2C   1203              2374         JN    INITT                 BR/NO - SKIP IT
002B2E   4724 1C1E          2375         MVA   EGTMA,R7              MESSAGE CONTROL BLOCK
002B32   6000              2376         SVC   OUT                   OUTPUT MESSAGE
                            2377 *
                            2378 *     UNPREPARE DISK AND TERMINATE
                            2379 *
002B34                      2380 INITT EQU   *
002B34   6808 215C          2381         MVW   DSKVS,R0              DISK BEEN PREPARED
002B38   1213              2382         JN    INITU                 BR/NO - BYPASS RESTORE
002B3A   C020 2174          2383         MVB   INAD,R0               SET UP DISK ADDRESS
002B3E   C028 20B7          2384         MVB   R0,DKRST+ONE          SET IN RESET
002B42   C028 20BF          2385         MVB   R0,DKUPR+ONE          SET IN UNPREPARE
002B46   4020 17BE 20B6     2386         MVA   DKRST,IDCB            SAVE THE IDCB ADDRESS
002B4C   680C 20B6          2387         IO    DKRST                 RESET DISK
002B50   4020 17BE 20BE     2388         MVA   DKUPR,IDCB            SAVE THE IDCB ADDRESS
002B56   680C 20BE          2389         IO    DKUPR                 UNPREPARE IT
002B5A   882C 2158 215C     2390         MVW   DSKIS,DSKVS*          RESTORE OLD DISK INTERRUPT ADDRESS
002B60                      2391 INITU EQU   *
002B60   6908 0250          2392         MVW   ECP01,R1              ECP COMMAND 7 ADDRESS
002B64   8860 21B4          2393         MVW   CMND7,(R1)            RESTORE ECP ADDRESS
002B68   6007              2394         SVC   TERM                  TERMINATE PROGRAM
                            2396 ***********************************************************************
                            2397 *                                                                     *
                            2398 *     NAME    TMPRG                                                   *
                            2399 *                                                                     *
                            2400 *     PURPOSE TO PROVIDE A ROUTINE TO HANDLE THE ECP TERMINATE        *
                            2401 *             PROGRAM COMMAND (7).                                    *
                            2402 *                                                                     *
                            2403 *     METHOD  SET THE TERMINATE PROGRAM BIT IN OPTION WORD 1.         *
                            2404 *             (OPT1 BIT 0).                                           *
                            2405 *                                                                     *
                            2406 ***********************************************************************
002B6A                      2407 TMPRG EQU   *
002B6A   402C 180E 8000     2408         OWI   THR2K,OPT1            SET TERMINATE PROGRAM BIT
002B70   6908 14F0          2409         MVW   ACMSG,R1              ENTER MESSAGE ADDRESS
002B74   4724 0234          2410         MVWI  INDIC,R7              ECP INDICATORS
002B78   4F07               2411         TBT   (R7,ALTDV)            IS AN ALTERNATE CONSOLE ASSIGNED
002B7A   6821 0000          2412         BNZ   (R1)                  BR/YES - ISSUE MESSAGE
002B7E   4424 3400          2413         MVWI  RECD1,R4              ECP READY/ENTER CODE
002B82   7890               2414         SECON R4                    WRITE TO THE LEDS
002B84   6908 025C          2415         MVW   ECP07,R1              ECP SCHEDULAR ADDRESS
002B88   6822 0000          2416         B     (R1)                  BR/GO TO SCHEDULAR
                            2418 ***********************************************************************
                            2419 *                                                                     *
                            2420 *     NAME    RECSL                                                   *
                            2421 *                                                                     *
                            2422 *     PURPOSE TO PROVIDE A ROUTINE TO CONTROL THE ORDER               *
                            2423 *             IN WHICH THE RECORDS ARE PROCESSED.                     *
                            2424 *                                                                     *
                            2425 *     METHOD  SCAN THE SELECT RECORD TYPE LIST AND PASS CONTROL       *
                            2426 *             TO THE APPROPRIATE ROUTINE TO PROCESS THE               *
                            2427 *             SELECTED RECORDS.                                       *
                            2428 *             THE RECORDS WILL BE OUTPUTTED IN THE ORDER THEY         *
                            2429 *             WERE SELECTED.                                          *
                            2430 *                                                                     *
                            2431 ***********************************************************************
002B8C                      2432 RECSL EQU   *
002B8C   4020 180C 0002     2433         MVWI  TWO,CHKP              SET CHECKPOINT # TO TWO
002B92   6808 180E          2434         MVW   OPT1,R0               REQUEST TO TERMINATE
002B96   6A00 2A0E          2435         BN    INITJ                 BR/YES - HOUSEKEEP AND EXIT
002B9A   C025 2179          2436         MVBZ  REPRC,R0              ANY RECORDS PROCESSED
002B9E   1005               2437         JZ    RECS                  BR/YES
002BA0   6F03 3062          2438         BAL   BLANK,R7              PRINT A BLANK LINE
002BA4   4724 1D94          2439         MVA   TW9MA,R7              NO RECORD PROCESSED MESSAGE
002BA8   6000               2440         SVC   OUT                   PRINT IT
002BAA                      2441 RECS  EQU   *
002BAA   8028 21B8 21BF     2442         MVB   HEX01,PASS            TURN ON FIRST PASS
002BB0   9028 1F1E 1F26     2443         MVD   OLDAD,CURAD            RESET RECORD #
002BB6   4124 216A          2444         MVA   RECTP,R1              RECORD TYPE TABLE
002BBA                      2445 RECS0 EQU   *
002BBA   C240               2446         MVB   (R1),R2               GET RECORD TYPE REQUESTED
002BBC   1004               2447         JZ    RECS1                 BR/SKIP - THIS RECORD TYPE DONE
002BBE   6A00 3110          2448         BN    RESET                 BR/EXIT - RESET SYSTEM ERROR LOG?
002BC2   F208               2449         CBI   EIGHT,R2             MAXIMUM RECORD TYPE + ONE
002BC4   1702               2450         JLLT  RECS2                 BR/GOOD ENTRY - PROCESS RECORDS
002BC6                      2451 RECS1 EQU   *
002BC6   0101               2452         ABI   ONE,R1                INCREMENT TO NEXT RECORD TYPE ENTRY
002BC8   50F8               2453         J     RECS0                 BR/TRY NEXT ENTRY
002BCA                      2454 RECS2 EQU   *
002BCA   8028 2188 2179     2455         MVB   HEX01,REPRC           RESET RECORD PROCESSED SWITCH
002BD0   8060 2187          2456         MVB   HEX00,(R1)            SET INDICATOR RECORD TYPE PROCESSED
002BD4   3209               2457         SLL   ONE,R2                MULTIPLY BY TWO
002BD6   6852 222E          2458         B     (R2,RTNTB-TWO)*       BR/GO TO PROPER ROUTINE
                            2460 ***********************************************************************
                            2461 *                                                                     *
                            2462 *     NAME    MCK                                                     *
                            2463 *                                                                     *
                            2464 *     PURPOSE TO PROVIDE A ROUTINE TO SEARCH FOR THE                  *
                            2465 *             MACHINE CHECK RECORDS AS THEY ARE READ FROM             *
                            2466 *             THE THE SYSTEM ERROR LOG AND EDIT THEM.                 *
                            2467 *                                                                     *
                            2468 *     METHOD  READ THE SYSTEM ERROR LOG TO LOCATE THE MACHINE CHECK   *
                            2469 *             RECORDS AND PASS THOSE FOUND TO THE EDIT ROUTINE        *
                            2470 *             WITH THE PROPER POINTERS FOR PROCESSING.                *
                            2471 *                                                                     *
                            2472 ***********************************************************************
002BDA                      2473 MCK   EQU   *
002BDA   4020 180C 0003     2474         MVWI  THREE,CHKP            SET CHECKPOINT # TO THREE
002BE0   4724 1C54          2475         MVA   TW0MA,R7              HEADER MESSAGE CNTL BLOCK
002BE4   6000               2476         SVC   OUT                   PRINT IT
002BE6   4020 2198 224A     2477         MVA   PRCRA,WORK1           ADDRESS OF RECORD DESCRIPTION TABLE
002BEC   4020 219A 1DFE     2478         MVA   EREC1,WORK2           ADDRESS OF DATA RECORD
002BF2   4020 219C 22AE     2479         MVA   PRCLA,WORK3           ADDRESS OF RECORD LABEL TABLE
002BF8                      2480 MCK1  EQU   *
002BF8   6F03 307C          2481         BAL   NEXT,R7               GO GET NEXT RECORD
002BFC   75A7               2482         IR    R5,R5                 WAS A RECORD FOUND
002BFE   1B0F               2483         JNZ   MCK2                  BR/NO MORE RECORDS
002C00   4724 1DFE          2484         MVA   EREC1,R7              ADDRESS OF DATA RECORD
002C04   4F10               2485         TBT   (R7,MCKSW)            MACHINE CHECK RECORD
002C06   10F8               2486         JOFF  MCK1                  BR/NO-GET NEXT RECORD
002C08   6F03 2F98          2487         BAL   EDIT,R7               EDIT RECORD
002C0C   C025 2179          2488         MVBZ  REPRC,R0              ZERO RECORD PROCESSED SWITCH
002C10   4020 2198 224E     2489         MVA   PRCRB,WORK1           ADDRESS OF RECORD DESCRIPTION TABLE
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002C16   4020 219C 231A     2490         MVA   PRCLB,WORK3           ADDRESS OF RECORD LABEL TABLE
002C1C   50ED               2491         J     MCK1                  GET NEXT RECORD
002C1E                      2492 MCK2  EQU   *
002C1E   6802 2B8C          2493         B     RECSL                 NEXT RECORD TYPE
                            2495 ***********************************************************************
                            2496 *                                                                     *
                            2497 *     NAME    PCK                                                     *
                            2498 *                                                                     *
                            2499 *     PURPOSE TO PROVIDE A ROUTINE TO SEARCH FOR THE                  *
                            2500 *             PROGRAM CHECK RECORDS AS THEY ARE READ FROM             *
                            2501 *             THE THE SYSTEM ERROR LOG AND EDIT THEM.                 *
                            2502 *                                                                     *
                            2503 *     METHOD  READ THE SYSTEM ERROR LOG TO LOCATE THE PROGRAM CHECK   *
                            2504 *             RECORDS AND PASS THOSE FOUND TO THE EDIT ROUTINE        *
                            2505 *             WITH THE PROPER POINTERS FOR PROCESSING.                *
                            2506 *                                                                     *
                            2507 ***********************************************************************
002C22                      2508 PCK   EQU   *
002C22   4020 180C 0004     2509         MVWI  FOUR,CHKP             SET CHECKPOINT # TO FOUR
002C28   4724 1C84          2510         MVA   TW1MA,R7              HEADER MESSAGE CNTL BLOCK
002C2C   6000               2511         SVC   OUT                   PRINT IT
002C2E   4020 2198 224A     2512         MVA   PRCRA,WORK1           ADDRESS OF RECORD DESCRIPTION TABLE
002C34   4020 219A 1DFE     2513         MVA   EREC1,WORK2           ADDRESS OF DATA RECORD
002C3A   4020 219C 22AE     2514         MVA   PRCLA,WORK3           ADDRESS OF RECORD LABEL TABLE
002C40                      2515 PCK1  EQU   *
002C40   6F03 307C          2516         BAL   NEXT,R7               GO GET NEXT RECORD
002C44   75A7               2517         IR    R5,R5                 WAS A RECORD FOUND
002C46   180F               2518         JNZ   PCK2                  BR/NO MORE RECORDS
002C48   4724 1DFE          2519         MVA   EREC1,R7              ADDRESS OF DATA RECORD
002C4C   4F11               2520         TBT   (R7,PCKSW)            PROGRAM CHECK RECORD
002C4E   10F8               2521         JOFF  PCK1                  BR/NO-GET NEXT RECORD
002C50   6F03 2F98          2522         BAL   EDIT,R7               EDIT RECORD
002C54   C025 2179          2523         MVBZ  REPRC,R0              ZERO RECORD PROCESSED SWITCH
002C58   4020 2198 224E     2524         MVA   PRCRB,WORK1           ADDRESS OF RECORD DESCRIPTION TABLE
002C5E   4020 219C 231A     2525         MVA   PRCLB,WORK3           ADDRESS OF RECORD LABEL TABLE
002C64   50ED               2526         J     PCK1                  GET NEXT RECORD
002C66                      2527 PCK2  EQU   *
002C66   6802 2B8C          2528         B     RECSL                 NEXT RECORD TYPE
                            2530 ***********************************************************************
                            2531 *                                                                     *
                            2532 *     NAME    SOFT                                                    *
                            2533 *                                                                     *
                            2534 *     PURPOSE TO PROVIDE A ROUTINE TO SEARCH FOR THE                  *
                            2535 *             SOFT EXCEPTION CHECK RECORDS AS THEY ARE                *
                            2536 *             READ FROM THE THE SYSTEM ERROR LOG AND EDIT THEM.       *
                            2537 *                                                                     *
                            2538 *     METHOD  READ THE SYSTEM ERROR LOG TO LOCATE THE SOFT EXCEPTION  *
                            2539 *             CHECK RECORDS AND PASS THOSE FOUND TO THE EDIT          *
                            2540 *             ROUTINE WITH THE PROPER POINTERS FOR PROCESSING.        *
                            2541 *                                                                     *
                            2542 ***********************************************************************
002C6A                      2543 SOFT  EQU   *
002C6A   4020 180C 0005     2544         MVWI  FIVE,CHKP             SET CHECKPOINT # TO FIVE
002C70   4724 1CBA          2545         MVA   TW2MA,R7              HEADER MESSAGE CNTL BLOCK
002C74   6000               2546         SVC   OUT                   PRINT IT
002C76   4020 2198 224A     2547         MVA   PRCRA,WORK1           ADDRESS OF RECORD DESCRIPTION TABLE
002C7C   4020 219A 1DFE     2548         MVA   EREC1,WORK2           ADDRESS OF DATA RECORD
002C82   4020 219C 22AE     2549         MVA   PRCLA,WORK3           ADDRESS OF RECORD LABEL TABLE
002C88                      2550 SOFT1 EQU   *
002C88   6F03 307C          2551         BAL   NEXT,R7               GO GET NEXT RECORD
002C8C   75A7               2552         IR    R5,R5                 WAS A RECORD FOUND
002C8E   180F               2553         JNZ   SOFT2                 BR/NO MORE RECORDS
002C90   4724 1DFE          2554         MVA   EREC1,R7              ADDRESS OF DATA RECORD
002C94   4F12               2555         TBT   (R7,SFTSW)            SOFT EXCEPTION CHECK RECORD
002C96   10F8               2556         JOFF  SOFT1                 BR/NO-GET NEXT RECORD
002C98   6F03 2F98          2557         BAL   EDIT,R7               EDIT RECORD
002C9C   C025 2179          2558         MVBZ  REPRC,R0              ZERO RECORD PROCESSED SWITCH
002CA0   4020 2198 224E     2559         MVA   PRCRB,WORK1           ADDRESS OF RECORD DESCRIPTION TABLE
002CA6   4020 219C 231A     2560         MVA   PRCLB,WORK3           ADDRESS OF RECORD LABEL TABLE
002CAC   50ED               2561         J     SOFT1                 GET NEXT RECORD
002CAE                      2562 SOFT2 EQU   *
002CAE   6802 2B8C          2563         B     RECSL                 NEXT RECORD TYPE
                            2565 ***********************************************************************
                            2566 *                                                                     *
                            2567 *     NAME    DEV                                                     *
                            2568 *                                                                     *
                            2569 *     PURPOSE TO PROVIDE A ROUTINE TO SEARCH FOR THE                  *
                            2570 *             DEVICE RECORDS AS THEY ARE READ FROM THE                *
                            2571 *             SYSTEM ERROR LOG AND EDIT THEM.                         *
                            2572 *                                                                     *
                            2573 *     METHOD  READ THE SYSTEM ERROR LOG TO LOCATE THE DEVICE          *
                            2574 *             RECORDS AND PASS THOSE FOUND TO THE EDIT ROUTINE WITH   *
                            2575 *             THE PROPER POINTERS FOR PROCESSING. ALL DEVICE RECORDS  *
                            2576 *             WILL BE GROUPPED BY DEVICE ADDRESS.                     *
                            2577 *                                                                     *
                            2578 ***********************************************************************
002CB2                      2579 DEV   EQU   *
002CB2   4020 180C 0006     2580         MVWI  SIX,CHKP              SET CHECKPOINT # TO SIX
002CB8   4524 3402          2581         MVA   DYSUM,R5              SET UP SUMMARY
002CBC   6D0D 2196          2582         MVW   R5,CURDA                POINTER
002CC0   4724 01F4          2583         MVWI  FIVHD,R7              LENGTH OF BUFFER
002CC4   0B00               2584         MVBI  ZERO,R3               CHARACTER TO INSERT
002CC6   2BAC               2585         FFN   R3,(R5)               BLANK OUT PRINT LINE
002CC8   4724               2586         MVA   TW3MA,R7              HEADER MESSAGE CNTL BLOCK
002CCC   6000               2587         SVC   OUT                   PRINT IT
                            2588 *
002CCE                      2589 DEV0  EQU   *
002CCE   6F03 307C          2590         BAL   NEXT,R7               GO GET NEXT RECORD
002CD2   75A7               2591         IR    R5,R5                 WAS A RECORD FOUND
002CD4   1834               2592         JNZ   DEV10                 BR/NO MORE RECORDS
                            2593 *
002CD6   4724 1DFE          2594         MVA   EREC1,R7              ADDRESS OF DATA RECORD
002CDA   4F13               2595         TBT   (R7,DEVSW)            DEVICE ERROR RECORD
002CDC   1202               2596         JON   DEV1                  BR/YES-CHECK THIS RECORD
002CDE   4F15               2597         TBT   (R7,TMOSW)            DEVICE TIME OUT RECORD
002CE0   10F6               2598         JOFF  DEV0                  BR/NO-GET NEXT RECORD
                            2599 *
002CE2                      2600 DEV1  EQU   *
002CE2   802B 2182 2176     2601         CB    YES,RSDBF             PROCESS ALL RECORDS
002CE8   1015               2602         JE    DEV4                  BR/YES - HANDLE ALL
002CEA   802B 2182 2177     2603         CB    YES,SDABF             SPECIFIC DEVICE ADDRESSES REQUESTED
002CF0   1811               2604         JNE   DEV4                  BR/NO - HANDLE ALL
002CF2   4224 215E          2605         MVA   DEVAD,R2              ADDRESS OF REQUESTED DEVICE ADDESSES
                            2606 *
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002CF6                   2607 DEV2  EQU   *
002CF6  80A3 218E        2608       CB    HEXCC,(R2)          POSSIBLE END OF REQUESTED
002CFA  1808             2609       JNE   DEV3                BR/NO - COMPARE
002CFC  80AB 218E 0001   2610       CB    HEXCC,(R2,ONE)      PROBABLE END OF REQUESTED
002D02  1804             2611       JNE   DEV3                BR/NO - COMPARE
002D04  80AB 218E 0002   2612       CB    HEXCC,(R2,TWO)      END OF REQUESTED ENTRIES
002D0A  18E1             2613       JNE   DEV0                BR/NO - NEXT RECORD
002D0C                   2614 DEV3  EQU   *
002D0C  80A7 1E14        2615       CB    DA,(R2)+            RECORD DEVICE ADDRESS = REQUESTED
002D10  1001             2616       JE    DEV4                BR/YES - PUT IN SUMMARY TABLE
002D12  50F1             2617       J     DEV2                CHECK NEXT REQUESTED ENTRY
                         2618 *
002D14                   2619 DEV4  EQU   *
002D14  4124 3402        2620       MVA   DVSUM,R1            ADDRESS OF DEVICE SUMMARY AREA
002D18                   2621 DEV5  EQU   *
002D18  806B 2187 0001   2622       CB    HEX00,(R1,ONE)      THIS ENTRY EMPTY
002D1E  1005             2623       JZ    DEV6                BR/YES
002D20  8063 1E14        2624       CB    DA,(R1)             DEVICE ADDRESS ALREADY IN TABLE
002D24  1006             2625       JE    DEV7                BR/YES
002D26  0105             2626       ABI   FIVE,R1            INCREMENT SUMMARY AREA POINTER
002D28  50F7             2627       J     DEV5                BR/CHECK NEXT ENTRY
002D2A                   2628 DEV6  EQU   *
002D2A  C025 2179        2629       MVBZ  REPRC,R0            ZERO RECORD PROCESSED SWITCH
002D2E  8060 1E14        2630       MVB   DA,(R1)             SAVE THIS DEVICE ADDRESS
002D32                   2631 DEV7  EQU   *
002D32  C060 0001        2632       MVB   (R1,ONE),R0         RECORD COUNT
002D36  0001             2633       ABI   ONE,R0              ADD ONE TO RECORD COUNT
002D38  C068 0001        2634       MVB   R0,(R1,ONE)         SAVE RECORD COUNT
002D3C  50C8             2635       J     DEV0                BR/GO GET NEXT RECORD
                         2636 *
002D3E                   2637 DEV10 EQU   *
002D3E  C020 2179        2638       MVB   REPRC,R0            ANY RECORDS TO PROCESS
002D42  6801 2B8C        2639       BNZ   RECSL               BR/NO - NEXT TYPE RECORD
                         2640 *
002D46                   2641 DEV11 EQU   *
002D46  8028 2188 21BF   2642       MVB   HEX01,PASS          TURN ON FIRST PASS
002D4C  9028 1F1E 1F26   2643       MVD   OLDAD,CURAD         RESET RECORD #
002D52  4020 2198 2323   2644       MVA   DEVRA,WORK1         ADDRESS OF RECORD DESCRIPTION TABLE
002D58  4020 219A 1DFE   2645       MVA   EREC1,WORK2         ADDRESS OF DATA RECORD
002D5E  4020 219C 2438   2646       MVA   DEVLA,WORK3         ADDRESS OF RECORD LABEL TABLE
                         2647 *
002D64                   2648 DEV12 EQU   *
002D64  6F03 307C        2649       BAL   NEXT,R7             GO GET NEXT RECORD
002D68  75A7             2650       IR    R5,R5               WAS A RECORD FOUND
002D6A  1856             2651       JNZ   DEV20               BR/NO MORE RECORDS
                         2652 *
002D6C  4724 1DFE        2653       MVA   EREC1,R7            ADDRESS OF DATA RECORD
002D70  0A00             2654       MVBI  ZERO,R2             COUNT IF NOT TIMEOUT
002D72  4124 1F56        2655       MVA   NTMOT,R1            ADDRESS OF NOT TIMEOUT LABEL
002D76  4F13             2656       TBT   (R7,DEVSW)          DEVICE ERROR RECORD
002D78  1205             2657       JON   DEV13               BR/YES-EDIT THIS RECORD
002D7A  0A01             2658       MVBI  ONE,R2              COUNT IF TIMEOUT
002D7C  4124 1F4E        2659       MVA   TMOUT,R1            ADDRESS OF TIMEOUT LABEL
002D80  4F15             2660       TBT   (R7,TMOSW)          DEVICE TIME OUT RECORD
002D82  10F0             2661       JOFF  DEV12               BR/NO-GET NEXT RECORD
                         2662 *
002D84                   2663 DEV13 EQU   *
002D84  6B08 2196        2664       MVW   CURDA,R3            ADDRESS SUMMARY AREA FOR THIS DEVICE
002D88  80E3 1E14        2665       CB    DA,(R3)             DEVICE ADDRESS TO PROCESS
002D8C  18EB             2666       JNE   DEV12               BR/NO - NOT THIS TIME
002D8E  C2EE 0002        2667       AB    R2,(R3,TWO)         ADD COUNT TIMEOUT
002D92  42E4 0004        2668       MVA   (R3,FOUR),R2        ADDRESS OF UNRECOVERABLE COUNTER
002D96  9028 1F46 1F30   2669       MVD   PERM,TPF            SET UP FOR PERMANENT ERROR
002D9C  4F19             2670       TBT   (R7,PRMSW)          PERMANENT DEVICE ERROR
002D9E  1205             2671       JON   DEV14               BR/YES-LEAVE LABEL
002DA0  42E4 0003        2672       MVA   (R3,THREE),R2       ADDRESS OF RECOVERABLE COUNTER
002DA4  9028 1F4A 1F30   2673       MVD   TEMP,TPF            SET UP FOR TEMPORARY ERROR
                         2674 *
002DAA                   2675 DEV14 EQU   *
002DAA  0B01             2676       MVBI  ONE,R3              ADD ONE
002DAC  C38E             2677       AB    R3,(R2)             ADD COUNT RECOVERABLE/UNRECOVERABLE
002DAE  0F08             2678       MVBI  EIGHT,R7            LENGTH OF TIMEOUT LABEL
002DB0  4224 1F3E        2679       MVA   TMOUT,R2            ADDRESS OF TIMEOUT INDICATOR AREA
002DB4  2944             2680       MVFN  (R1),(F2)           MOVE APPROPRIATE LABEL
                         2681 *
002DB6  4324 1F50        2682       MVA   DVTYP-FORTN,R3      ADDRESS OF DEVICE TYPE TABLE
002DBA                   2683 DEV15 EQU   *
002DBA  030E             2684       ABI   FORTN,R3            INCREMENT TO NEXT ENTRY
002DBC  40CF 0000        2685       CWI   ZERO,(R3)           END OF TABLE
002DC0  1007             2686       JE    DEV16               BR/YES
002DC2  6908 1E0E        2687       MVW   DVRID,R1            GET THE DEVICE READ ID
002DC6  696A 0002        2688       RBTW  (R3,TWO),R1         MASK OUT UNUSED BITS
002DCA  C9E4 0000        2689       CW    (R3,ZERO),R1        DOES ID MATCH
002DCE  18F5             2690       JNE   DEV15               BR/TRY NEXT ENTRY
002DD0                   2691 DEV16 EQU   *
002DD0  0F0A             2692       MVBI  TEN,R7              LENGTH OF DEVICE NAME FIELD
002DD2  41E4 0004        2693       MVA   (R3,FOUR),R1        START ADDRESS OF LABEL
002DD6  4224 1F34        2694       MVA   DVTP,R2             WHERE TO PUT IT
002DDA  2944             2695       MVFN  (R1),(R2)           MOVE THE LABEL
                         2696 *
002DDC  C320 1E1F        2697       MVB   DCBCT,R3            DCB COUNT FROM RECORD
002DE0  F305             2698       CBI   FIVE,R3             COUNT UNDER FIVE
002DE2  1701             2699       JLLT  DEV17               BR/LESS THAN FIVE
002DE4  5008             2700       J     DEV18               BR/EQ OR GR LEAVE AS IS
002DE6                   2701 DEV17 EQU   *
002DE6  3309             2702       SLL   ONE,R3              DOUBLE COUNT
002DE8  43E4 223E        2703       MVA   (R3,DCBPT),R3       GET ADDRESS IN TABLE
002DEC  80EC 2437 0000   2704       MVB   DCB5,(R3)*          MODIFY END OF RECORD INDICATOR
002DF2  6B0D 2248        2705       MVW   R3,DCBSV            ADDRESS OF MODIFIED LOCATION
                         2706 *
002DF6                   2707 DEV18 EQU   *
002DF6  6F03 2F98        2708       BAL   EDIT,R7             EDIT RECORD
002DFA  CB25 2248        2709       MVWZ  DCBSV,R3            WAS DCB TABLE MODIFIED
002DFE  1003             2710       JZ    DEV19               BR/NO-LEAVE AS IS
002E00  80EC 2188 0000   2711       MVB   HEX01,(R3)*         RESTORE HEX INDICATION
                         2712 *
002E06                   2713 DEV19 EQU   *
002E06  6F03 3062        2714       BAL   BLANK,R7            PRINT A BLANK LINE
002E0A  4020 2198 2332   2715       MVA   DEVRB,WORK1         ADDRESS OF RECORD DESCRIPTION TABLE
002E10  4020 219C 2457   2716       MVA   DEVLB,WORK3         ADDRESS OF RECORD LABEL TABLE
002E16  50A6             2717       J     DEV12               GET NEXT RECORD
                         2718 *
002E18                   2719 DEV20 EQU   *
002E18  6B08 2196        2720       MVW   CURDA,R3            SUMMARY AREA POINTER
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002E1C  0305             2721       ABI   FIVE,R3             INCREMENT TO NEXT ENTRY
002E1E  6B0D 2196        2722       MVW   R3,CURDA            SAVE THE POINTER
002E22  80EB 2187 0001   2723       CB    HEX00,(R3,ONE)      ALL ENTRIES BEEN HANDLED
002E28  188E             2724       JNZ   DEV11               EDIT NEXT DEVICE ADDRESS
                         2725 *
002E2A  6F03 3062        2726       BAL   BLANK,R7            PRINT A BLANK LINE
002E2E  4724 1CF4        2727       MVA   TW4MA,R7            HEADER MESSAGE CNTL BLOCK
002E32  6000             2728       SVC   OUT                 PRINT IT
002E34  4020 2198 24D5   2729       MVA   DSUMA,WORK1         ADDRESS OF RECORD DESCRIPTION TABLE
002E3A  4020 219A 3402   2730       MVA   DVSUM,WORK2         ADDRESS OF SUMMARY DATA AREA
002E40  4020 219C 24EF   2731       MVA   DSUMC,WOPK3         ADDRESS OF RECORD LABEL TABLE
                         2732 *
002E46                   2733 DEV21 EQU   *
002E46  6F03 2F98        2734       BAL   EDIT,R7             EDIT SUMMARY ENTRY
002E4A  4020 2198 24D9   2735       MVA   DSUMB,WORK1         ADDRESS OF RECORD DESCRIPTION TABLE
002E50  4020 219C 2555   2736       MVA   DSUMD,WORK3         ADDRESS OF RECORD LABEL TABLE
002E56  6B08 219A        2737       MVW   WORK2,R3            SUMMARY AREA POINTER
002E5A  0305             2738       ABI   FIVE,R3            INCREMENT TO NEXT ENTRY
002E5C  6B0D 219A        2739       MVW   R3,WORK2            SAVE THE POINTER
002E60  80EB 2187 0001   2740       CB    HEX00,(R3,ONE)      ALL ENTRIES BEEN HANDLED
002E66  18EF             2741       JNZ   DEV21               EDIT NEXT DEVICE ADDRESS
                         2742 *
002E68                   2743 DEV30 EQU   *
002E68  6F03 3062        2744       BAL   BLANK,R7            PPINT A BLANK LINE
002E6C  6802 2B8C        2745       B     RECSL               NEXT RECORD TYPE
                         2747 ********************************************************************
                         2748 *                                                                  *
                         2749 *     NAME    NULL                                                 *
                         2750 *                                                                  *
                         2751 *     PURPOSE TO PROVIDE A ROUTINE TO SEARCH FOR THE               *
                         2752 *             NULL INTERRUPT RECORDS AS THEY ARE READ              *
                         2753 *             FROM THE SYSTEM ERROR LOG AND EDIT THEM.             *
                         2754 *                                                                  *
                         2755 *     METHOD  READ THE SYSTEM ERROR LOG TO LOCATE THE NULL INTERRUPT *
                         2756 *             RECORDS AND PASS THOSE FOUND TO THE EDIT ROUTINE     *
                         2757 *             WITH THE PROPER POINTERS FOR PROCESSING. ALL NULL    *
                         2758 *             INTERRUPT RECORDS WILL BE GROUPPED BY DEVICE         *
                         2759 *             ADDRESS.                                             *
                         2760 *                                                                  *
                         2761 ********************************************************************
002E70                   2762 NULL  EQU   *
002E70  4020 180C 0007   2763       MVWI  SEVEN,CHKP          SET CHECKPOINT # TO SEVEN
002E76  4724 1D1A        2764       MVA   TW5MA,R7            HEADER MESSAGE CNTL BLOCK
002E7A  6000             2765       SVC   OUT                 PRINT IT
002E7C  0F08             2766       MVBI  EIGHT,R7            SET
002E7E  4124 25BA        2767       MVA   INTID,R1             UP
002E82  4224 25A7        2768       MVA   CHG1,R2               PROPER
002E86  2944             2769       MVFN  (R1),(R2)               LABEL
002E88  4020 2198 2556   2770       MVA   NSTRA,WORK1         ADDRESS OF RECORD DESCRIPTION TABLE
002E8E  4020 219A 1DFE   2771       MVA   EREC1,WORK2         ADDRESS OF DATA RECORD
002E94  4020 219C 2584   2772       MVA   NSTLA,WORK3         ADDRESS OF RECORD LABEL TABLE
002E9A                   2773 NULL1 EQU   *
002E9A  6F03 307C        2774       BAL   NEXT,R7             GO GET NEXT RECORD
002E9E  75A7             2775       IR    R5,R5               WAS A RECORD FOUND
002EA0  180F             2776       JNZ   NULL2               BR/NO MORE RECORDS
002EA2  4724 1DFE        2777       MVA   EREC1,R7            ADDRESS OF DATA RECORD
002EA6  4F14             2778       TBT   (R7,NULSW)          NULL INTERRUPT RECORD
002EA8  6F03 2F98        2779       BAL   EDIT,R7             BR/NO-GET NEXT RECORD
002EAE  C025 2179        2780       MVBZ  REPRC,R0            EDIT RECORD
002EB2  4020 2198 2559   2781       MVA   NSTRB,WORK1         ZERO RECORD PROCESSED SWITCH
002EB8  4020 219C 25B2   2782       MVA   NSTLB,WORK3         ADDRESS OF RECORD DESCRIPTION TABLE
002EBE  50ED             2783       J     NULL1               ADDRESS OF RECORD LABEL TABLE
002EC0                   2784 NULL2 EQU   *                   GET NEXT RECORD
002EC0  6802 2B8C        2785       B     RECSL               NEXT RECORD TYPE
                         2786 ********************************************************************
                         2788 *                                                                  *
                         2789 *     NAME    STERM                                                *
                         2790 *                                                                  *
                         2791 *     PURPOSE TO PROVIDE A ROUTINE TO SEARCH FOR THE               *
                         2792 *             SYSTEM TERMINATION RECORDS AS THEY ARE READ          *
                         2793 *             FROM THE SYSTEM ERROR LOG AND EDIT THEM.             *
                         2794 *                                                                  *
                         2795 *     METHOD  READ THE SYSTEM ERROR LOG TO LOCATE THE SYSTEM       *
                         2796 *             TERMINATION RECORDS AND PASS THOSE FOUND TO THE EDIT *
                         2797 *             ROUTINE WITH THE PROPER POINTERS FOR PROCESSING.     *
                         2798 *                                                                  *
                         2799 *                                                                  *
                         2800 ********************************************************************
002EC4                   2801 STERM EQU   *
002EC4  4020 180C 0008   2802       MVWI  EIGHT,CHKP          SET CHECKPOINT # TO EIGHT
002ECA  4724 1D44        2803       MVA   TW6MA,R7            HEADER MESSAGE CNTL BLOCK
002ECE  6000             2804       SVC   OUT                 PRINT IT
002ED0  0F08             2805       MVBI  EIGHT,R7            SET
002ED2  4124 25C2        2806       MVA   TRMCC,R1             UP
002ED6  4224 25A7        2807       MVA   CHG1,R2               PROPER
002EDA  2944             2808       MVFN  (R1),(R2)               LABEL
002EDC  4020 2198 2556   2809       MVA   NSTRA,WORK1         ADDRESS OF RECORD DESCRIPTION TABLE
002EE2  4020 219A 1DFE   2810       MVA   EREC1,WORK2         ADDRESS OF DATA RECORD
002EE8  4020 219C 2584   2811       MVA   NSTLA,WORK3         ADDRESS OF RECORD LABEL TABLE
002EEE                   2812 STRM1 EQU   *
002EEE  6F03 307C        2813       BAL   NEXT,R7             GO GET NEXT RECORD
002EF2  75A7             2814       IP    R5,R5               WAS A RECORD FOUND
002EF4  180F             2815       JNZ   STRM2               BR/NO MORE RECORDS
002EF6  4724 1DFE        2816       MVA   EREC1,R7            ADDRESS OF DATA RECORD
002EFA  4F16             2817       TBT   (R7,STMSW)          SYSTEM TERMINATION RECORD
002EFC  10F8             2818       JOFF  STRM1               BR/NO-GET NEXT RECORD
002EFE  6F03 2F98        2819       BAL   EDIT,R7             EDIT RECORD
002F02  C025 2179        2820       MVBZ  REPRC,R0            ZERO RECORD PROCESSED SWITCH
002F06  4020 2198 2559   2821       MVA   NSTRB,WORK1         ADDRESS OF RECORD DESCRIPTION TABLE
002F0C  4020 219C 25B2   2822       MVA   NSTLB,WORK3         ADDRESS OF RECORD LABEL TABLE
002F12  50ED             2823       J     STRM1               GET NEXT RECORD
002F14                   2824 STRM2 EQU   *
002F14  6802 2B8C        2825       B     RECSL               NEXT RECORD TYPE
                         2827 ********************************************************************
                         2828 *                                                                  *
                         2829 *     NAME    USER                                                 *
                         2830 *                                                                  *
                         2831 *     PURPOSE TO PROVIDE A ROUTINE TO SEARCH FOR THE               *
                         2832 *             USER RECORDS AS THEY ARE READ FROM THE               *
                         2833 *             SYSTEM ERROR LOG AND EDIT THEM.                      *
                         2834 *                                                                  *
                         2835 *     METHOD  READ THE SYSTEM ERROR LOG TO LOCATE THE USER RECORDS *
                         2836 *             AND PASS THOSE FOUND TO THE EDIT ROUTINE WITH        *
                         2837 *             THE PROPER POINTERS FOR PROCESSING.                  *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
                           2838 *             USER RECORDS WILL BE EDITTED AS HEX DUMPS ONLY.          *
                           2839 *                                                                      *
                           2840 ************************************************************************
002F18                     2841 USER   EQU   *
002F18 4020 180C 0009      2842        MVWI  NINE,CHKP               SET CHECKPOINT # TO NINE
002F1E 4724 1D78           2843        MVA   TW8MA,R7                HEADER MESSAGE CNTL BLOCK
002F22 6000                2844        SVC   OUT                     PRINT IT
002F24 6F03 3062           2845        BAL   BLANK,R7                PRINT A BLANK LINE
002F28                     2846 USER1  EQU   *
002F28 6F03 307C           2847        BAL   NEXT,R7                 GO GET NEXT RECORD
002F2C 75A7                2848        IR    R5,R5                   WAS A RECORD FOUND
002F2E 1832                2849        JNZ   USER4                   BR/NO MORE RECORDS
002F30 4724 1DFE           2850        MVA   EREC1,R7                ADDRESS OF DATA RECORD
002F34 4F17                2851        TBT   (R7,USESW)              USER RECORD
002F36 10F8                2852        JOFF  USER1                   BR/NO-GET NEXT RECORD
002F38 C025 2179           2853        MVBZ  REPRC,R0                ZERO RECORD PROCESSED SWITCH
002F3C 4020 21A6 0002      2854        MVWI  TWO,CNVT0               SET LENGTH FOR CONVERT
002F42 0900                2855        MVBI  ZERO,R1                 START DUMP ADDRESS
002F44                     2856 USER2  EQU   *
002F44 4020 21A8 21AC      2857        MVA   CNVDA,CNVT1             SET DATA ADDRESS
002F4A 4224 1DBB           2858        MVA   PRTLN+ONE,R2            OUTPUT BUFFER ADDRESS
002F4E 0C09                2859        MVBI  NINE,R4                 COUNT
002F50 690D 21AC           2860        MVW   R1,CNVDA                STORAGE ADDRESS AS DATA
002F54 6A0D 21AA           2861        MVW   R2,CNVT2                OUTPUT ADDRESS
002F58 4724 21A6           2862        MVA   CNVT0,R7                CONTROL BLOCK ADDRESS
002F5C                     2863 USER3  EQU   *
002F5C 601A                2864        SVC   HTOE                    CONVERT
002F5E 0205                2865        ABI   FIVE,R2                 INCREMENT BUFFER ADDRESS
002F60 4364 1DFE           2866        MVA   (R1,EREC1),R3           STORAGE DATA ADDRESS
002F64 6B0D 21A8           2867        MVW   R3,CNVT1                STORAGE DATA ADDRESS
002F68 6A0D 21AA           2868        MVW   R2,CNVT2                OUTPUT BUFFER ADDRESS
002F6C 0102                2869        ABI   TWO,R1                  INCREMENT STORAGE ADDRESS
002F6E BCF6                2870        JCT   USER3,R4                REST OF LINE
002F70 01FE                2871        ABI   M2,R1                   CORRECT STORAGE ADDRESS
002F72 4724 1DFC           2872        MVA   PRTBK,R7                PRINT LINE CONTROL BLOCK
002F76 6000                2873        SVC   OUT                     PRINT LINE
002F78 0F40                2874        MVBI  SIXT4,R7                LENGTH OF PRINT LINE
002F7A 4524 1DBA           2875        MVA   PRTLN,R5                ADDRESS OF PRINT LINE
002F7E 0B40                2876        MVBI  EBBK,R3                 CHARACTER TO INSERT (BLANK)
002F80 2BAC                2877        FFN   R3,(R5)                 BLANK OUT PRINT LINE
002F82 C020 1DFE           2878        MVB   RECSZ,R0                RECORD
002F86 7804 FF00           2879        RBTWI HFF00,R0                 SIZE
002F8A 7025                2880        CW    R0,R1                   DUMP COMPLETE
002F8C 17DB                2881        JLLT  USER2                   BR/NO CONTINUE
002F8E 6F03 3062           2882        BAL   BLANK,R7                PRINT A BLANK LINE
002F92 50CA                2883        J     USER1                   GET NEXT RECORD
002F94                     2884 USER4  EQU   *
002F94 6802 2B8C           2885        B     RECSL                   NEXT RECORD TYPE
                           2887 ************************************************************************
                           2888 *                                                                      *
                           2889 *     NAME    EDIT                                                     *
                           2890 *                                                                      *
                           2891 *     PURPOSE TO PROVIDE A ROUTINE TO FORMAT THE ERAP OUTPUT           *
                           2892 *             FROM A RECORD DESCRIPTION TABLE.                         *
                           2893 *                                                                      *
                           2894 *     METHOD  THIS ROUTINE WILL FORMAT THE ERAP OUTPUT ONE LINE        *
                           2895 *             AT A TIME FROM THE INFORMATION IN THE RECORD             *
                           2896 *             DESCRIPTION TABLE.                                       *
                           2897 *             THE ADDRESS OF THIS TABLE IS PLACED IN AN AREA           *
                           2898 *             CALLED 'WORK1'.                                          *
                           2899 *             THE ADDRESS OF THE RECORD TO BE PROCESSED IS             *
                           2900 *             PLACED IN AN AREA CALLED 'WORK2'.                        *
                           2901 *             THE ADDRESS OF THE RECORD LABELS PLACED IN AN            *
                           2902 *             AREA CALLED 'WORK3'.                                     *
                           2903 *                                                                      *
                           2904 *             LINKAGE TO THIS ROUTINE IS VIA REGISTER 7.               *
                           2905 *                                                                      *
                           2906 ************************************************************************
002F98                     2907 EDIT   EQU   *
002F98 6F0D 2FBC           2908        MVW   R7,EDEND                SAVE RETURN ADDRESS
002F9C 6808 2198           2909        MVW   WORK1,R0                RECORD DESCRIPTION TABLE ADDRESS
002FA0 6908 219A           2910        MVW   WORK2,R1                DATA RECORD ADDRESS
002FA4 6A08 219C           2911        MVW   WORK3,R2                RECORD LABEL ADDRESS
002FA8 4424 1DBA           2912        MVA   PRTLN,R4                ADDRESS OF PRINT LINE BUFFER
002FAC                     2913 EDIT1  EQU   *
002FAC C310                2914        MVB   (R0)+,R3                DATA IN EBCDIC OR END OF LINE
002FAE 1C07                2915        JZ    EBCD                    BR/EBCDIC
002FB0 1247                2916        JN    LABEL                   BR/END OF LINE
002FB2 F301                2917        CBI   ONE,R3                  DATA IN HEX
002FB4 100D                2918        JE    HEX                     BR/HEX
002FB6 F302                2919        CBI   TWO,R3                  DATA CONVERT TO DECIMAL
002FB8 1019                2920        JE    DEC                     BR/HEX
002FBA 6802 0000           2921        B     ZERO                    BR/END OF RECORD
002FBC                     2922 EDEND  EQU   *-TWO
                           2923 *
                           2924 *     PROCESS THE EBCDIC PORTION
                           2925 *
002FBE                     2926 EBCD   EQU   *
002FBE 4624 1F2C           2927        MVA   DAY,R6                  ADDRESS OF EBCDIC DATA AREA
002FC2 C710                2928        MVB   (R0)+,R7                LENGTH OF DATA FEILD
002FC4 C310                2929        MVB   (R0)+,R3                OFFSET IN RECORD FOR DATA
002FC6 7668                2930        AW    R6,R3                   DATA ADDRESS
002FC8 C510                2931        MVB   (R0)+,R5                OFFSET INTO PRINT LINE
002FCA 74A8                2932        AW    R4,R5                   PRINT LINE ADDRESS
002FCC 2BA4                2933        MVFN  (R3),(R5)               MOVE DATA INTO PRINT LINE
002FCE 50EE                2934        J     EDIT1                   NEXT DATA FIELD
                           2935 *
                           2936 *     PROCESS THE HEX DATA
                           2937 *
002FD0                     2938 HEX    EQU   *
002FD0 8018 21A7           2939        MVB   (R0)+,CNVT0+ONE         LENGTH OF DATA FEILD
002FD4 C310                2940        MVB   (R0)+,R3                OFFSET IN RECORD FOR DATA
002FD6 7168                2941        AW    R1,R3                   PLACE DATA ADDRESS
002FD8 6B0D 21A8           2942        MVW   R3,CNVT1                 IN CNTL BLK
002FDC C310                2943        MVB   (R0)+,R3                OFFSET INTO PRINT LINE
002FDE 7468                2944        AW    R4,R3                   PLACE PRINT ADDRESS
002FE0 6B0D 21AA           2945        MVW   R3,CNVT2                 IN CNTL BLK
002FE4 4724 21A6           2946        MVA   CNVT0,R7                ADDRESS OF CONVERT CNTL BLOCK
002FE8 601A                2947        SVC   HTOE                    CONVERT DATA
002FEA 50E0                2948        J     EDIT1                   NEXT DATA FIELD
                           2949 *
                           2950 *     PROCESS THE CONVERTION TO DECIMAL DATA
                           2951 *
002FEC                     2952 DEC    EQU   *
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
002FEC 8018 21A7           2953        MVB   (R0)+,CNVT0+ONE         LENGTH OF DATA FEILD
002FF0 C310                2954        MVB   (R0)+,R3                OFFSET IN RECORD FOR DATA
002FF2 7168                2955        AW    R1,R3                   PLACE DATA
002FF4 C6C0                2956        MVB   (R3),R6                  IN R6
002FF6 7EC4 FF00           2957        RBTWI HFF00,R6                RESET HIGH BITS
002FFA 6F03 3022           2958        BAL   DECCV,R7                CONVERT THE DATA
002FFE 4020 21A8 21AC      2959        MVA   CNVDA,CNVT1             ADDRESS OF DATA
003004 C310                2960        MVB   (R0)+,R3                OFFSET INTO PRINT LINE
003006 7468                2961        AW    R4,R3                   PLACE PRINT ADDRESS
003008 6B0D 21AA           2962        MVW   R3,CNVT2                 IN CNTL BLK
00300C 4724 21A6           2963        MVA   CNVT0,R7                ADDRESS OF CONVERT CNTL BLOCK
003010 601A                2964        SVC   HTOE                    CONVERT DATA
003012 0E02                2965        MVBI  TWO,R6                  COUNT OF CHARACTERS TO ZERO
003014                     2966 DEC1   EQU   *
003014 80E3 2185           2967        CB    EBC0,(R3)               IS CHARACTER ZERO
003018 1803                2968        JNE   DEC2                    BR/NO - ALL DONE
00301A 80E4 2186           2969        MVB   BLKMG,(R3)+             BLANK OUT LEADING ZEROS
00301E BEFA                2970        JCT   DEC1,R6                 NEXT
003020                     2971 DEC2   EQU   *
003020 50C5                2972        J     EDIT1                   NEXT DATA FIELD
                           2973 *      COMMON CONVERSION SUB-ROUTINE
003022                     2974 DECCV  EQU   *
003022 6F0D 303E           2975        MVW   R7,DECRT                SAVE RETURN ADDRESS
003026 EE22 218D           2976        DB    HEX64,R6                GET HUNDREDS AND
00302A C628 21AC           2977        MVB   R6,CNVDA                 PLACE IN BUFFER
00302E 77C4                2978        MVW   R7,R6                   PUT TENS AND UNITS IN R6
003030 EE22 218B           2979        DB    HEX0A,R6                GET TENS AND
003034 3761                2980        SLL   TWELV,R7                 POSITION UNITS
003036 3625                2981        SLLD  FOUR,R6                   AND PLACE
003038 C628 21AD           2982        MVB   R6,CNVDA+ONE             IN BUFFER
00303C 6802 0000           2983        B     ZERO                    BR/RETURN TO CALLER
00303E                     2984 DECRT  EQU   *-TWO
                           2985 *
                           2986 *     PROCESS THE LABEL PORTION
                           2987 *
003040                     2988 LABEL  EQU   *
003040 C390                2989        MVB   (R2)+,R3                OFFSET INTO PRINT LINE
003042 1206                2990        JN    PRINT                   BR/END OF LINE
003044 7468                2991        AW    R4,R3                   ADDRESS IN PRINT LINE
003046                     2992 LAB1   EQU   *
003046 C590                2993        MVB   (R2)+,R5                LABEL CHARACTER
003048 F55B                2994        CBI   C'[',R5                 END OF LABEL
00304A 10FA                2995        JE    LABEL                   BR/YES - PROCESS NEXT LABEL
00304C C5D8                2996        MVB   R5,(R3)+                PLACE CHARACTER IN PRINT LINE
00304E 50FB                2997        J     LAB1                    BR/NEXT CHARACTER
                           2998 *
                           2999 *     PRINT LINE JUST SET UP
                           3000 *
003050                     3001 PRINT  EQU   *
003050 4724 1DFC           3002        MVA   PRTBK,R7                PRINT LINE CONTROL BLOCK
003054 6000                3003        SVC   OUT                     PRINT LINE
003056 0F40                3004        MVBI  SIXT4,R7                LENGTH OF PRINT LINE
003058 4524 1DBA           3005        MVA   PRTLN,R5                ADDRESS OF PRINT LINE
00305C 0B40                3006        MVBI  EBBK,R3                 CHARACTER TO INSERT (BLANK)
00305E 2BAC                3007        FFN   R3,(R5)                 BLANK OUT PRINT LINE
003060 50A5                3008        J     EDIT1                   NEXT LINE
                           3010 ************************************************************************
                           3011 *                                                                      *
                           3012 *     NAME    BLANK                                                    *
                           3013 *                                                                      *
                           3014 *     PURPOSE PRINT A BLANK LINE                                       *
                           3015 *                                                                      *
                           3016 *     METHOD  PLACE A ZERO IN THE SECOND BYTE OF 'PRTLN' AND           *
                           3017 *             ISSUE AN ' SVC OUT' USING 'PRTBK'. UPON RETURN           *
                           3018 *             RESTORE LOCATION TO A BLANK.                             *
                           3019 *                                                                      *
                           3020 ************************************************************************
003062                     3021 BLANK  EQU   *
003062 6F0D 307A           3022        MVW   R7,BLKEN                SAVE RETURN ADDRESS
003066 8028 2187 1DBB      3023        MVB   HEX00,PRTLN+ONE         SET TERMINATION PRINT CHARACTER
00306C 4724 1DFC           3024        MVA   PRTBK,R7                PRINT LINE CONTROL BLOCK
003070 6000                3025        SVC   OUT                     PRINT BLANK LINE
003072 8028 2186 1DBB      3026        MVB   BLKMG,PRTLN+ONE         RESTORE BLANK
003078 6802 0000           3027        B     ZERO                    RETURN TO CALLER
00307A                     3028 BLKEN  EQU   *-TWO
                           3030 ************************************************************************
                           3031 *                                                                      *
                           3032 *     NAME    NEXT                                                     *
                           3033 *                                                                      *
                           3034 *     PURPOSE LOCATE THE NEXT ERROR RECORD AND PLACE IT IN             *
                           3035 *             (EREC1).                                                 *
                           3036 *                                                                      *
                           3037 *     METHOD  DETERMINE IF BOTH ERROR RECORDS IN THE CURRENT           *
                           3038 *             SECTOR HAVE BEEN PROCESSED. IF NOT MOVE THE              *
                           3039 *             SECOND RECORD INTO THE FIRST RECOPD LOCATION (EREC1).    *
                           3040 *             IF BOTH PROCESSED THEN READ NEXT RECORD FROM             *
                           3041 *             SYSTEM ERROR LOG AND PROCESS BOTH ERROR RECORDS.         *
                           3042 *                                                                      *
                           3043 ************************************************************************
00307C                     3044 NEXT   EQU   *
00307C 6F0D 310E           3045        MVW   R7,NEXEN                SAVE RETURN ADDRESS
003080                     3046 NEXT0  EQU   *
003080 4020 21B6 1DFE      3047        MVA   EREC1,ADSAV             FIRST RECORD OF SECTOR ADDRESS
003086 D320 1F26           3048        MVD   CURAD,R3                RECORD #
00308A C025 21BF           3049        MVBZ  PASS,R0                 FIRST ENTRY THIS PASS
00308E 1805                3050        JNZ   NEXT1                   BR/YES - BYPASS TEST
003090 D324 1F22           3051        CD    NITAD,R3                ALL RECORDS PROCESSED THIS PASS
003094 1802                3052        JNE   NEXT1                   BR/NO - CONTINUE
003096 0D01                3053        MVBI  ONE,R5                  INDICATE NO MORE RECORDS
003098 5039                3054        J     NEXT6                   CONTINUE
00309A                     3055 NEXT1  EQU   *
00309A 7C07 0001           3056        TWI   ONE,R4                  SECOND RECORD OF SECTOR
00309E 1003                3057        JOFF  NEXT2                   BR/NO - FIRST RECORD
0030A0 4020 21B6 1E7E      3058        MVA   EREC2,ADSAV             SECOND RECORD OF SECTOR ADDRESS
0030A6                     3059 NEXT2  EQU   *
0030A6 330E                3060        SRLD  ONE,R3                  SECTOR #
0030A8 D326 21C2           3061        AD    START,R3                ADD STARTING SECTOR #
0030AC D324 21C6           3062        CD    EOEND,R3                LAST SECTOR OF DATA SET
0030B0 1804                3063        JNE   NEXT3                   BR/NO - CONTINUE
0030B2 9028 2192 1F26      3064        MVD   DW1,CURAD               SET RECORD # TO ONE
0030B8 50E3                3065        J     NEXT0                   GO GET FIRST RECORD
0030BA                     3066 NEXT3  EQU   *
0030BA 6F03 3262           3067        BAL   DSKRD,R7                GO READ A SECTOR
0030BE A82A 2192 1F26      3068        AD    DW1,CURAD               INCREMENT RECORD #
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

0030C4  75A7            3069         IR    R5,R5                 READ GOOD
0030C6  1004            3070         JZ    NEXT4                 BR/YES - CONTINUE
0030C8  8028 2188 217F  3071         MVB   HEX01,ERRM5           SET ERROR MESSAGE FLAG
0030CE  50D8            3072         J     NEXTO                 SKIP THAT RECORD
0030D0                  3073 NEXT4   EQU   *
0030D0  4124 1DFE       3074         MVA   EREC1,R1              FIRST RECORD OF SECTOR ADDRESS
0030D4  C924 21B6       3075         CW    ADSAV,R1              RECORD MOVEMENT REQUIRED
0030D8  1005            3076         JE    NEXT5                 BR/NO - BYPASS RECORD MOVE
0030DA  4224 1E7E       3077         MVA   EREC2,R2              SECOND RECORD OF SECTOR ADDRESS
0030DE  4724 0080       3078         MVWI  ONE28,R7              LENGTH OF RECORD AREA
0030E2  2A24            3079         MVFN  (R2),(R1)             MOVE RECORD
0030E4                  3080 NEXT5   EQU   *
0030E4  D620 1E08       3081         MVD   EREC1+TEN,R6          GET DATE FROM RECORD
0030E8  3625            3082         SLLD  FOUR,R6               POSITION YEAR
0030EA  C628 1E09       3083         MVB   R6,EREC1+ELEVN        PUT YEAR BACK IN RECORD
0030EE  6E08 1E0A       3084         MVW   EREC1+TWELV,R6        GET DAY FROM RECORD
0030F2  7EC4 F000       3085         RBTWI HF000,R6              SAVE DAY IN R6
0030F6  6F03 3022       3086         BAL   DECCV,R7              CONVERT IT TO DECIMAL
0030FA  6E08 21AC       3087         MVW   CNVDA,R6              GET DECIMAL DAY
0030FE  3621            3088         SLL   FOUR,R6               POSITION IT
003100  6E0D 21AC       3089         MVW   R6,CNVDA                AND PUT IT BACK
003104  4724 21AE       3090         MVA   CNVTD,R7              ADDRESS OF CONVERT DAY
003108  601A            3091         SVC   MTOE                  CONVERT IT
00310A  75AA            3092         SW    R5,R5                 RETURN RECORD FOUND INDICATION
00310C                  3093 NEXT6   EQU   *
00310C  6802 0000       3094         B     ZERO                  RETURN TO CALLER
00310E                  3095 NEXEN   EQU   *-TWO
                        3097 ********************************************************************************
                        3098 *                                                                              *
                        3099 *      NAME    RESET                                                           *
                        3100 *                                                                              *
                        3101 *      PURPOSE REINITIALIZE THE SYSTEM ERROR LOG                               *
                        3102 *                                                                              *
                        3103 *      METHOD  RESET ALL OF THE POINTERS IN THE SYSTEM ERROR LOG               *
                        3104 *              CONTROL RECORD AND REWRITE AS THE FIRST RECORD                  *
                        3105 *              IN THE SYSTEM ERROR LOG DATA SET.                               *
                        3106 *                                                                              *
                        3107 ********************************************************************************
003110                  3108 RESET   EQU   *
003110  802B 2175 2182  3109         CB    ERIBF,YES             INITIALIZE SYSTEM ERROR LOG
003116  1823            3110         JNE   RESND                 BR/NO - TERMINATE WITHOUT
003118  9028 2192 1F22  3111         MVD   DW1,NXTAD             RESET NEXT ADDRESS POINTER
00311E  9028 2192 1F26  3112         MVD   DW1,CURAD             RESET CURRENT ADDRESS POINTER
003124  9028 2192 1F1E  3113         MVD   DW1,OLDAD             RESET OLD ADDRESS POINTER
00312A  8028 2187 1F1C  3114         MVB   HEX00,CNTLV           RESET SYSTEM ERROR LOG WRAPPED INDIC
003130  D320 21C2       3115         MVD   START,R3              STARTING SECTOR # OF SYSTEM ERROR LOG
003134  6F03 3262       3116         BAL   DSKRD,R7              READ THE CONTROL RECORD
003138  75A7            3117         IR    R5,R5                 DISK READ ERROR
00313A  1004            3118         JZ    RES1                  BR/NO - CONTINUE
00313C  8028 2188 217F  3119         MVB   HEX01,ERRM5           SET ERROF MESSAGE FLAG
003142  500D            3120         J     RESND                 TERMINATE PROGRAM
003144                  3121 RES1    EQU   *
003144  0F1E            3122         MVBI  THRTY,R7              CONTROL RECORD LENGTH
003146  4124 1F0E       3123         MVA   CNTLR,R1              ADDRESS OF CONTROL RECORD AREA
00314A  4224 1DFE       3124         MVA   EREC1,R2              ADDRESS OF RECORD
00314E  2944            3125         MVFN  (R1),(R2)             MOVE CONTROL RECORD
003150  6F03 3268       3126         BAL   DSKWR,R7              WRITE THE RESET CONTROL RECORD
003154  75A7            3127         IR    R5,R5                 DISK WRITE ERROR
003156  1003            3128         JZ    RESND                 BR/NO - CONTINUE
003158  8028 2188 2180  3129         MVB   HEX01,ERRM6           SET ERROR MESSAGE FLAG
00315E                  3130 RESND   EQU   *
00315E  6802 2A0E       3131         B     INITJ                 TERMINATE PROGRAM
                        3133 ********************************************************************************
                        3134 *                                                                              *
                        3135 *      NAME    SYSLG                                                           *
                        3136 *                                                                              *
                        3137 *      PURPOSE FIND THE SYSTEM ERROR LOG ON THE RPS DISK                       *
                        3138 *                                                                              *
                        3139 *      METHOD  SEARCH THE SYSTEM TABLE OF CONTENTS (STOC) TO                   *
                        3140 *              FIND THE SYSTEM ERROR VOLUME.                                   *
                        3141 *              SEARCH THE SYSTEM ERROR VOLUME TABLE OF CONTENTS                 *
                        3142 *              (VTOC) TO FIND THE SYSTEM ERROR LOG.                            *
                        3143 *              READ THE SYSTEM ERROR LOG CONTROL RECORD AND SAVE IT IN         *
                        3144 *              BUFFER (CNTLR).                                                 *
                        3145 *                                                                              *
                        3146 ********************************************************************************
003162                  3147 SYSLG   EQU   *
003162  6F0D 31C2       3148         MVW   R7,SYSND              SAVE RETURN ADDRESS
003166  8828 21C0 21C4  3149         MVW   STOC,START+TWO        STARTING SECTOR # FOR TOC SEARCH
00316C  4624 213C       3150         MVA   RESVL,R6              NAME OF DATA SET
003170  6F03 31C4       3151         BAL   SYSFN,R7              FIND SYSTEM ERROR VOLUME
003174  D360 0002       3152         MVD   (R1,TCLB),R3          STARTING SECTOR #
003178  D32E 21C2       3153         AD    R3,START                FOR TOC SEARCH
00317C  4624 2144       3154         MVA   ERLOG,R6              NAME OF DATSEET
003180  6F03 31C4       3155         BAL   SYSFN,R7              FIND SYSTEM ERROR LOG DATA SET
003184  D360 0006       3156         MVD   (R1,TCLE),R3          ENDING SECTOR #
003188  D326 21C2       3157         AD    START,R3              ADD STARTING SECTOR #
00318C  D326 2192       3158         AD    DW1,R3                 PLUS ONE AND
003190  D328 21C6       3159         MVD   R3,EOEND                 SAVE THE ENDING SECTOR #
003194  D360 0002       3160         MVD   (R1,TCLB),R3          STARTING SECTOR #
003198  D32E 21C2       3161         AD    R3,START              ADD STARING SECTOR # AND SAVE
00319C  D320 21C2       3162         MVD   START,R3              STARTING SECTOR # OF SYSTEM ERROR LOG
0031A0  6F03 3262       3163         BAL   DSKRD,R7              READ FIRST SECTOR
0031A4  75A7            3164         IR    R5,R5                 DISK READ ERROR
0031A6  6801 29FE       3165         BNZ   INITG                 BR/YES - INDICATE IT
0031AA  4724 1DFE       3166         MVA   EREC1,R7              ADDRESS OF RECORD
0031AE  4F1A            3167         TBT   (R1,CFLSW)            IS IT THE CONTROL RECORD
0031B0  6800 29E4       3168         BOFF  INITE                 INDICATE ERROR DATA SET NOT FOUND
0031B4  0F1E            3169         MVBI  THRTY,R7              CONTROL RECORD LENGTH
0031B6  4124 1DFE       3170         MVA   EREC1,R1              ADDRESS OF RECORD
0031BA  4224 1F0E       3171         MVA   CNTLR,R2              ADDRESS OF CONTROL RECORD AREA
0031BE  2944            3172         MVFN  (R1),(R2)             MOVE CONTROL RECORD
0031C0  6802 0000       3173         B     ZERO                  RETURN TO CALLER
0031C2                  3174 SYSND   EQU   *-TWO
                        3176 *
                        3177 *      FIND THE DESIRED DATA SET
                        3178 *
0031C4                  3179 SYSFN   EQU   *
0031C4  6F0D 3260       3180         MVW   R7,SYS5               SAVE RETURN ADDRESS
0031C8  D025 21CA       3181         MVDZ  COUNT,R0              ZERO SECTOR COUNT FIELD
0031CC                  3182 SYS0    EQU   *
0031CC  D320 21C2       3183         MVD   START,R3              GET STARTING SECTOR #
0031D0  D326 21CA       3184         AD    COUNT,R3              ADD IN SECTOR COUNT
0031D4  6F03 3262       3185         BAL   DSKRD,R7              READ SECTOR
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

0031D8  75A7            3186         IR    R5,R5                 DISK READ ERROR
0031DA  6801 29FE       3187         BNZ   INITG                 BR/YES - INDICATE IT
0031DE  724A            3188         SW    R2,R2                 ZERO ENTRY COUNTER
0031E0  4124 1DFE       3189         MVA   EREC1,R1              ADDRESS OF SECTOP BUFFER
0031E4                  3190 SYS1    EQU   *
0031E4  C060 0000       3191         MVB   (R1,TCIT),R0          GET TOC INDEX TYPE
0031E8  F010            3192         CBI   TC1,R0                IS IT THE TOC INDEX ENTRY
0031EA  1807            3193         JNE   SYS2                  BR/NO - CHECK THE ENTRY
0031EC  E341            3194         MVWS  (R1,TCIE),R3          GET THE # OF ENTFIES
0031EE  EB22 218C       3195         DB    HEX20,R3              CONVERT TO THE # OF SECTORS
0031F2  F400            3196         CBI   ZERO,R4               ANY REMAINDER
0031F4  1008            3197         JE    SYS3                  BR/NO - CONTINUE
0031F6  0301            3198         ABI   ONE,R3                STEP TO NEXT FULL SECTOR
0031F8  5006            3199         J     SYS3                  CONTINUE
0031FA                  3200 SYS2    EQU   *
0031FA  9643            3201         CD    (R6),(R1)             IS THIS THE DATA SET ENTRY DESIRED
0031FC  1804            3202         JNE   SYS3                  BR/NO - CONTINUE SEARCH
0031FE  966B 0004 0004  3203         CD    (R6,FOUR),(R1,FOUR)   STILL THE DATA SET DESIRED
003204  100C            3204         JE    SYS4                  BR/YES - USF IT
003206                  3205 SYS3    EQU   *
003206  0108            3206         ABI   EIGHT,R1              INCREMENT TO NEXT ENTRY
003208  0201            3207         ABI   ONE,R2                INCREMENT ENTRY COUNT
00320A  F220            3208         CBI   THRT2,R2              LAST ENTRY THIS SECTOR
00320C  18EB            3209         JNE   SYS1                  BR/NO - CHECK NEXT ENTRY
00320E  A82A 2192 21CA  3210         AD    DW1,COUNT             INCREMENT SECTOR COUNT
003214  CB24 21CC       3211         CW    COUNT+TWO,R3          LAST SECTOR IN TOC INDEX SPACE
003218  18D9            3212         JNE   SYS0                  BR/NO - GO READ NEXT SECTOR
00321A  6802 29E4       3213         B     INITE                 BR/INDICATE DATA SET NOT FOUND
00321E                  3214 SYS4    EQU   *
00321E  7324            3215         MVW   R3,R1                 # SECTORS OF INDEX
003220  700A            3216         SW    R0,R0                 ZERO REG
003222  D028 21CE       3217         MVD   R0,TMPST              # SECTORS OF INDEX
003226  D320 21C2       3218         MVD   START,R3              STARTING TOC ENTRY #
00322A  D326 21CE       3219         AD    TMPST,R3              INCREMENT BY # SECTORS OF INDEX
00322E  D020 21CA       3220         MVD   COUNT,R0              # SECTORS INTO INDEX SPACE
003232  3615            3221         SLLD  TWO,R0                MULTIPLY BY FOUR
003234  D028 21CE       3222         MVD   R0,TMPST              # SECTORS OF LABEL
003238  D326 21CE       3223         AD    TMPST,R3              INCREMENT BY # SECTORS OF LABEL
00323C  7224            3224         MVW   R2,R1                 # ENTRIES INDEX
00323E  E922 218A       3225         DB    HEX08,R1              # ENTRIES INDEX TO # SECTORS LABEL
003242  700A            3226         SW    R0,R0                 ZERO REG
003244  D028 21CE       3227         MVD   R0,TMPST              # SECTORS OF LABEL
003248  D326 21CE       3228         AD    TMPST,R3              INCREMENT BY # SECTORS OF LABEL
00324C  6F03 3262       3229         BAL   DSKRD,R7              READ THAT SECTOR
003250  75A7            3230         IR    R5,R5                 DISK READ EFFOR
003252  6801 29FE       3231         BNZ   INITG                 BR/YES - INDICATE IT
003256  EA21 218C       3232         MB    HEX20,R2              GO TO DATA SET ENTRY
00325A  41A4 1DFE       3233         MVA   (R2,EREC1),R1         ADDRESS OF DESIRED DATA SET ENTRY
00325E  6802 0000       3234         B     ZERO                  RETURN TO CALLER
003260                  3235 SYS5    EQU   *-TWO
                        3237 ********************************************************************************
                        3238 *                                                                              *
                        3239 *      NAME    DSKRD OF DSKWR                                                  *
                        3240 *                                                                              *
                        3241 *      PURPOSE READ OR WRITE A SECTOR ON THE DISK.                             *
                        3242 *                                                                              *
                        3243 *      METHOD  READ OR WRITE THE SECTOR # IN REGISTERS 3/4.                    *
                        3244 *              CONDITION CODES ARE CHECKED ERROR RECOVERY ATTEMPTED.           *
                        3245 *                                                                              *
                        3246 *                                                                              *
                        3247 ********************************************************************************
                        3248 *      DISK READ
                        3249 *
003262                  3250 DSKRD   EQU   *
003262  4524 20DE       3251         MVA   RDCB,R5               ADDR READ DCB
003266  5002            3252         J     DSK                   GO ISSUE READ
                        3253 *
                        3254 *      DISK WRITE
                        3255 *
003268                  3256 DSKWR   EQU   *
003268  4524 20EE       3257         MVA   WRDCB,R5              ADDR WRITE DCB
00326C                  3258 DSK     EQU   *
00326C  402D 211E 0001  3259         RBTWI ONE,RSDCB             TURN OFF READ SKEWED
003272  4020 21BA 0010  3260         MVWI  SIXTN,DKRTY           SET RETRY COUNT
003278  6D0D 20D8       3261         MVW   R5,SEDCB+SKW6         SET CHAIN ADDR IN SEEK DCB
00327C  4028 21D2 C000  3262         STM   R6,DKSV               SAVE REGS
003282                  3263 DSK00   EQU   *
003282  6F03 33BC       3264         BAL   DSKSK,R7              GO SET UP DCBS
003286                  3265 DSK01   EQU   *
003286  4624 20B2       3266         MVA   DKSTR,R6              IDCB TO START SEEK
00328A  4029 21BA FFFF  3267         AWI   M1,DKRTY              DECREMENT RETRY COUNT
003290  1215            3268         JN    DSK05                 RETURN IF UNRECOVERABLE ERROR
003292  6E0D 17BE       3269         MVW   R6,IDCB               SAVE IDCB ADDRESS
003296  68CC 0000       3270         IO    (R6)                  ISSUE I/O TO DISK
00329A                  3271 DSK02   EQU   *
00329A  6F05 32A0       3272         BNCC  SEVEN,DSK03           RETRY IF BAD
00329E  6100            3273         LEX   ZERO                  WAIT FOR INTERRUPT
0032A0                  3274 DSK03   EQU   *
0032A0  4020 17BE 20B6  3275         MVA   DKRST,IDCB            SAVE IDCB ADDRESS
0032A6  680C 20B6       3276         IO    DKRST                 ISSUE RESET
0032AA  77EA            3277         SW    R7,R7                 INITIALIZE R7 TO 0
0032AC                  3278 DSK04   EQU   *
0032AC  6E0D 17BE       3279         MVW   R6,IDCB               SAVE IDCB ADDRESS
0032B0  68CC 0000       3280         IO    (R6)                  RE-ISSUE THE IO
0032B4  6A05 329A       3281         BNCC  TWO,DSK02             IF NOT CC = BUSY AFTEP RESET THEN
                        3282 *                                   GO TEST FOR CC = 7
0032B8  0701            3283         ABI   ONE,R7                ELSE ADD TO RETRY/DFLAY COUNTER
0032BA  11F8            3284         JP    DSK04                 LOOP UNTIL OVERFLOW OR CC NOT = 2
0032BC                  3285 DSK05   EQU   *
0032BC  4020 21F8 0002  3286         MVWI  TWO,DKR5              SET DISK ERROR CODE
0032C2  4020 21B8 32CA  3287         MVA   DSKIT,DKINT           RESTORE ORIGINAL INTERRUPT ADDRESS
0032C8  5005            3288         J     DSK10                 RETURN TO CALLER
0032CA                  3290 ********************************************************************************
                        3291 *                                                                              *
                        3292 *      NAME    DSKIT                                                           *
                        3293 *                                                                              *
                        3294 *      PURPOSE HANDLE THE INTERRUPTS FROM THE DISK.                            *
                        3295 *                                                                              *
                        3296 *      METHOD  RECEIVES CONTROL ON AN INTERRUPT FROM THE DISK                  *
                        3297 *              AND CHECKS THE CONDITION CODES AND ATTEMPTS                      *
                        3298 *              ERROR RECOVERY IF NEEDED.                                       *
                        3299 *                                                                              *
                        3300 ********************************************************************************
0032CA                  3301 DSKIT   EQU   *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

0032CA  6B05 32D8          3302         BNCC  THREE,DSK11           BR/NOT DEVICE END INTERRUPT
0032CE  4020 21F8 0000     3303         MVWI  ZERO,DKR5              SET DISK I/O OK
0032D4                     3304 DSK10   EQU   *
0032D4  402A 21D2          3305         LMB   DKSV                  RET TO RTN REQUESTING I/O
0032D8                     3306 DSK11   EQU   *
0032D8  6C05 32DE          3307         BNCC  FOUR,DSK12            DISK JUST BECAME READY
0032DC  6100               3308         LEX   ZERO
0032DE                     3309 DSK12   EQU   *
0032DE  802B 2188 20E3     3310         CB    HEX01,RDCB+FIVE       SEARCH FOR ALTERNATE SECTOR
0032E4  1053               3311         JE    DSK19                 BR/YES - RECALIBRATE/RETRY
0032E6  6F0D 1F0C          3312         MVW   R7,ISB                SAVE ISB - ADDITIONAL STATUS
0032EA  1A50               3313         JNN   DSK19                 BR/NO - RECALIBRATE/RETRY
0032EC  4020 21B8 3302     3314         MVA   DSK13,DKINT           SET NEW INTERRUPT ADDRESS
0032F2  4020 17BE 20C6     3315         MVA   DKCSS,IDCB            SAVE IDCB ADDRESS
0032F8  680C 20C6          3316         IO    DKCSS                 START CYCLE STEAL STATUS
0032FC  6F05 338C          3317         BNCC  SEVEN,DSK19           BR/BAD - RECALIBRATE/RETRY
003300  6100               3318         LEX   ZERO                  WAIT FOR INTERRUPT
003302                     3319 DSK13   EQU   *
003302  6B05 338C          3320         BNCC  THREE,DSK19           BR/BAD - RECALIBRATE/RETRY
003306  402B 1F00 1000     3321         TWI   FOUR,CSSBP+TWO        NO RECORD FOUND INDICATED
00330C  103F               3322         JOFF  DSK19                 BR/NO - RECALIBRATE/RETRY
00330E  C520 20D7          3323         MVB   SEDCB+NINE,R5         GET SECTOR #
                           3324 ********************************************************************
                           3325 *                                                                  *
                           3326 *     LOGICAL SECTOR NUMBER TO PHYSICAL SECTOR NUMBER CONVERSION   *
                           3327 *                                                                  *
                           3328 * LOGICAL--> 00, 1E, 01, 1F, 02, 20, 03, 21, 04, 22, 05, 23, 06, 24,  *
                           3329 * PHYSICAL-> 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B, 0C, 0D,  *
                           3330 *                                                                  *
                           3331 * LOGICAL--> 07, 25, 08, 26, 09, 27, 0A, 28, 0B, 29, 0C, 2A, 0D, 2B,  *
                           3332 * PHYSICAL-> 0E, 0F, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 1A, 1B,  *
                           3333 *                                                                  *
                           3334 * LOGICAL--> 0E, 2C, 0F, 2D, 10, 2E, 11, 2F, 12, 30, 13, 31, 14, 32,  *
                           3335 * PHYSICAL-> 1C, 1D, 1E, 1F, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29,  *
                           3336 *                                                                  *
                           3337 * LOGICAL--> 15, 33, 16, 34, 17, 35, 18, 36, 19, 37, 1A, 38, 1B, 39,  *
                           3338 * PHYSICAL-> 2A, 2B, 2C, 2D, 2E, 2F, 30, 31, 32, 33, 34, 35, 36, 37,  *
                           3339 *                                                                  *
                           3340 * LOGICAL--> 1C, 3A, 1D, 3B                                        *
                           3341 * PHYSICAL-> 38, 39, 3A, 3B                                        *
                           3342 *                                                                  *
                           3343 *     ENTER - LOGICAL SECTOR # IN REGISTER FIVE.                    *
                           3344 *     EXIT  - PHYSICAL SECTOR # IN REGISTER FIVE.                   *
                           3345 *                                                                  *
                           3346 ********************************************************************
                           3347 ********************************************************************
003312  F500               3348         CBI   ZERO,R5               IS LOGOIAL SECTOR # ZERO
003314  1007               3349         JE    DSK14                 BR/YES - HANDLE SPECIALLY
                           3350 *
003316  F51D               3351         CBI   TWNT9,R5              IS LOGICAL SECTOR # TWENTY-NINE
003318  1507               3352         JLE   DSK15                 BR/EQ OR LESS
                           3353 *                                   HANDLE GREATER THAN TWENTY-NINE
00331A  ED21 2189          3354         MB    HEX02,R5              LOGICAL SECTOR # TIMES TWO
00331E  7DA2 003C          3355         SWI   SIXTY,R5               MINUS SIXTY IS PHYSICAL SECTOR #
003322  5006              3356         J     DSK16                 RETURN
                           3357 *                                   HANDLE ZERO
003324                     3358 DSK14   EQU   *
003324  0D3B               3359         MVBI  FIFT9,R5              SET PHYSICAL SECTOR # TO FIFTY-NINE
003326  5004               3360         J     DSK16                 RETURN
                           3361 *                                   HANDLE EQ OR LESS THAN TWENTY-NINE
003328                     3362 DSK15   EQU   *
003328  ED21 2189          3363         MB    HEX02,R5              LOGICAL SECTOR # TIMES TWO
00332C  7DA2 0001          3364         SWI   ONE,R5                 SUBTRACT ONE IS PHYSICAL SECTOR #
                           3365 *                                   PHYSICAL SECTOR # IN REGISTER FIVE
003330                     3366 DSK16   EQU   *
003330  C528 2122          3367         MVB   R5,RSDCB+FOUR         PHYSICAL SECTOR # IN READ SECTOR ID
003334  4020 21B8 334A     3368         MVA   DSK17,DKINT           SET NEW INTERRUPT ADDRESS
00333A  4020 17BE 20CA     3369         MVA   DKRSI,IDCB            SAVE IDCB ADDRESS
003340  680C 20CA          3370         IO    DKRSI                 READ SECTOR ID
003344  6F05 338C          3371         BNCC  SEVEN,DSK19           BR/BAD - RECALIBRATE/RETRY
003348  6100               3372         LEX   ZERO                  WAIT FOR INTERRUPT
00334A                     3373 DSK17   EQU   *
00334A  6B04 335E          3374         BCC   THREE,DSK18           BR/OK INTERRUPT CC
00334E  402B 211E 0001     3375         TWI   ONE,RSDCB             READ SKEWED BIT ON
003354  121B               3376         JON   DSK19                 BR/YES - RECALIBRATE/RETRY
003356  402C 211E 0001     3377         OWI   ONE,RSDCB             TRY READ SKEWED
00335C  50C0               3378         J     DSK12                 BR/READ CYCLE STEAL STATUS
00335E                     3379 DSK18   EQU   *
00335E  802B 2189 1F07     3380         CB    HEX02,SECID+ONE       SECTOR FLAGGED DEFECTIVE
003364  1813               3381         JNE   DSK19                 BR/NO - RECALIBRATE/RETRY
003366  8828 1F08 214C     3382         MVW   SECID+TWO,PCYLA       CYLINDER PRESENTLY AT
00336C  8828 1F08 20D0     3383         MVW   SECID+TWO,SEDCB+TWO   SEEK CONTROL WORD
003372  9028 1F08 20D4     3384         MVD   SECID+TWO,SEDCB+SIX   SEEK - CYL, HEAD, SECTOR
003378  8028 2188 20E3     3385         MVB   HEX01,RDCB+FIVE       READ - FLAGS ALTERNATE
00337E  8028 2188 20F3     3386         MVB   HEX01,WRDCB+FIVE      WRITE
003384  8028 2188 2103     3387         MVB   HEX01,VDCB+FIVE       VERIFY
00338A  5002               3388         J     DSK1A                 CONTINUE
00338C                     3389 DSK19   EQU   *
00338C  CB25 214C          3390         MVWZ  PCYLA,R3              CYLINDER PRESENTLY AT
003390                     3391 DSK1A   EQU   *
003390  4020 21B8 33A6     3392         MVA   DSK1B,DKINT           SET INTERRUPT ADDRESS
003396  4020 17BE 20BA     3393         MVA   DKRCL,IDCB            SAVE THE IDCB ADDRESS
00339C  680C 20BA          3394         IO    DKRCL                 RECALIBRATE IT
0033A0  6F05 32BC          3395         BNCC  SEVEN,DSK05           BR/ERROR - CAN'T RECALIBRATE DISK
0033A4  6100               3396         LEX   ZERO                  WAIT FOR INTERRUPT
0033A6                     3397 DSK1B   EQU   *
0033A6  6B05 32BC          3398         BNCC  THREE,DSK05           BR/ERROR - CAN'T RECALIBRATE DISK
0033AA  4020 21B8 32CA     3399         MVA   DSKIT,DKINT           RESET INTERRUPT ADDRESS
0033B0  6B08 214C          3400         MVW   PCYLA,R3              CYLINDER PRESENTLY AT
0033B4  6B00 32B2          3401         BZ    DSK00                 SET UP SEEK/RETRY COMMAND
0033B8  6B02 32B6          3402         B     DSK01                 RETRY COMMAND
                           3404 ********************************************************************
                           3405 *                                                                  *
                           3406 *     NAME    DSKSK                                                *
                           3407 *                                                                  *
                           3408 *     PURPOSE HANDLE THE SEEK TO THE DISK.                         *
                           3409 *                                                                  *
                           3410 *     METHOD  THE SECTOR # IS PASSED TO THIS ROUTINE IN            *
                           3411 *             REGISTER 4 AND IT COMPUTES THE SEEK INFORMATION      *
                           3412 *             FROM WHERE THE HEAD PRESENTLY IS.                    *
                           3413 *                                                                  *
                           3414 *             THE ROUTINE THEN BUILDS THE SEEK CONTROL WORD        *
                           3415 *             IN THE SEEK DCB AND INSERTS THE CYLINDER-HEAD-RECORD  *
                           3416 *             WORDS IN READ, WRITE AND VERIFY DCBS.                *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

                           3417 *                                                                  *
                           3418 ********************************************************************
0033BC                     3419 DSKSK   EQU   *
0033BC  4224 20CE          3420         MVA   SEDCB,R2              ADDR DISK DCBS
0033C0  D320 21F4          3421         MVD   DKR3,R3               INITIALIZE TO SECTOR COUNT #
0033C4  EB2A 21BC          3422         DD    SPTD,R3               FIND CYLINDER # (R4)
0033C8  ED22 21BE          3423         DB    SPTD1,R5              FIND HEAD # (R5)
                           3424 *                                   SECTOR # (R6)
0033CC  3541               3425         SLL   EIGHT,R5              POSITION HEAD #
0033CE  76A1               3426         OW    R6,R5                 SET IN SECTOR #
0033D0  6B08 214C          3427         MVW   PCYLA,R6              GET WHERE HEAD PRESENTLY AT
0033D4  6C0D 214C          3428         MVW   R4,PCYLA              SET WHERE GOING
0033D8  D4A8 0006          3429         MVD   R4,(R2,SKW4)          SEEK - CYL, HEAD, SECTOR
0033DC  D4A8 0016          3430         MVD   R4,(R2,RDW4)          READ
0033E0  D4A8 0026          3431         MVD   R4,(R2,WRW4)          WRITE
0033E4  D4A8 0036          3432         MVD   R4,(R2,VFW4)          VERIFY
0033E8  768A               3433         SW    R6,R4                 GET NUMBER CYLINDERS TO MOVE
0033EA  1103               3434         JP    DSK20                 BR/POSITIVE DIRECTION
0033EC  7486               3435         CMR   R4                    GET POS MOVEMENT
0033EE  7C83 0800          3436         OWI   TWOK,R4               REVERSE SEEK BIT
0033F2                     3437 DSK20   EQU   *
0033F2  A481               3438         MVWS  R4,(R2,SKW2)          SET SEEK CONTROL WORD
0033F4  CBA5 0014          3439         MVWZ  (R2,RDW3),R3          READ - FLAGS GOOD
0033F8  CBA5 0024          3440         MVWZ  (R2,WRW3),R3          WRITE
0033FC  CBA5 0034          3441         MVWZ  (R2,VFW3),R3          VERIFY
003400  5700               3442         BXS   (R7)                  RETURN TO CALLING RTN
                           3444 ********************************************************************
                           3445 *                                                                  *
                           3446 *     THIS AREA IS RESERVED FOR THE DEVICE SUMMARY COUNTER          *
                           3447 *     AREA. THE COUNTERS ARE FORMATED AS FOLLOWS:                  *
                           3448 *                                                                  *
                           3449 *     DVSUM DC   X'00'          DEVICE ADDRESS                     *
                           3450 *           DC   X'00'          # OF RECORDS                       *
                           3451 *           DC   X'00'          # OF TIMEOUT RECORDS                *
                           3452 *           DC   X'00'          # OF RECOVERABLE ERRORS             *
                           3453 *           DC   X'00'          # OF UNRECOVERABLE ERRORS           *
                           3454 *                                                                  *
                           3455 *     THIS FORMAT IS THEN REPEATED FOR EACH DEVICE ADDRESS          *
                           3456 *     REQUESTED OR FOUND ON THE SYSTEM ERROR LOG.                  *
                           3457 *                                                                  *
                           3458 ********************************************************************
003402                     3459 DVSUM   DS    500C                  DEVICE SUMMARY AREA
0035F6                     3461 FINIS   EQU   *                     LAST ADDRESS USED
000000                     3462         END
```

CROSS-REFERENCE LISTING

DECLARED NAME ATTRIBUTES AND REFERENCES

0 .R0. ABSOLUTE. HEX VALUE(00000000)
1984 1986 1989 1990 1994 2013 2020 2044 2049
2078 2084 2087 2089 2096 2103 2117 2123 2130
2135 2157 2159 2168 2171 2172 2173 2174 2196
2198 2199 2200 2201 2204 2203 2204 2205 2206
2207 2208 2210 2248 2291 2292 2301 2304 2305
2306 2307 2343 2349 2355 2361 2367 2373 2381
2383 2384 2385 2434 2436 2488 2523 2558 2629
2632 2633 2634 2638 2781 2820 2853 2878 2879
2880 2909 2914 2928 2929 2931 2939 2940 2943
2953 2954 2960 3049 3181 3191 3192 3216 3216
3217 3220 3221 3222 3226 3226 3227

0 .R1. ABSOLUTE. HEX VALUE(00000001)
1980 1981 1982 1985 1986 1997 2031 2080 2081
2084 2087 2105 2106 2107 2108 2165 2170 2298
2303 2392 2393 2393 2409 2412 2415 2416 2444
2446 2452 2456 2620 2622 2624 2626 2630 2632
2634 2655 2659 2680 2687 2688 2689 2693 2695
2767 2769 2806 2808 2855 2860 2866 2869 2871
2880 2910 2941 2955 3074 3075 3079 3123 3125
3152 3156 3160 3170 3172 3189 3191 3194 3201
3203 3206 3215 3224 3225 3233

0 .R2. ABSOLUTE. HEX VALUE(00000002)
1988 1988 1992 1994 1996 1997 2000 2002 2004
2026 2028 2030 2031 2038 2040 2082 2083 2166
2168 2169 2299 2301 2302 2446 2449 2457 2458
2605 2608 2610 2612 2615 2654 2658 2667 2668
2672 2677 2679 2680 2794 2695 2768 2769 2807
2808 2858 2861 2865 2868 2911 2989 2993 3077
3079 3124 3125 3171 3172 3188 3188 3207 3208
3224 3232 3233 3420 3429 3430 3431 3432 3438
3439 3440 3441

0 .R3. ABSOLUTE. HEX VALUE(00000003)
2584 2585 2664 2665 2667 2668 2672 2676 2677
2682 2684 2685 2688 2689 2693 2698 2698 2702
2703 2703 2704 2705 2709 2711 2720 2721 2722
2723 2737 2738 2739 2740 2866 2867 2876 2877
2914 2917 2919 2929 2930 2933 2940 2941 2942
2943 2944 2945 2954 2955 2956 2960 2961 2962
2967 2969 2989 2991 2996 3006 3007 3048 3051
3060 3061 3062 3115 3152 3153 3156 3157 3158
3159 3160 3161 3162 3183 3184 3194 3195 3198
3211 3215 3218 3219 3223 3228 3390 3400 3421
3422 3439 3440 3441

0 .R4. ABSOLUTE. HEX VALUE(00000004)
2413 2414 2859 2870 2912 2932 2944 2961 2991
3056 3196 3428 3429 3430 3431 3432 3433 3435
3436 3438

0 .R5. ABSOLUTE. HEX VALUE(00000005)
2163 2163 2296 2296 2482 2482 2517 2517 2552
2552 2581 2582 2585 2591 2591 2650 2650 2775
2775 2814 2814 2848 2848 2875 2877 2931 2932
2933 2993 2994 2996 3005 3007 3053 3069 3069
3092 3092 3117 3117 3127 3127 3164 3164 3186
3186 3230 3230 3251 3257 3261 3323 3348 3351
3354 3355 3359 3363 3364 3367 3423 3425 3426

0 .R6. ABSOLUTE. HEX VALUE(00000006)
2261 2262 2269 2270 2927 2930 2956 2957 2965
2970 2976 2977 2978 2979 2981 2982 3081 3082
3083 3084 3085 3087 3088 3089 3150 3154 3201
3203 3262 3266 3269 3270 3279 3280 3426 3427
3433

0 .R7. ABSOLUTE. HEX VALUE(00000007)
1983 2010 2017 2041 2046 2054 2057 2060 2063
2066 2069 2072 2075 2081 2082 2093 2100 2106
2114 2120 2127 2132 2143 2146 2147 2148 2160
2161 2189 2190 2191 2237 2243 2279 2280 2281
2293 2294 2322 2323 2324 2325 2339 2345 2351
2357 2363 2369 2375 2410 2411 2438 2439 2475
2481 2484 2485 2487 2510 2516 2519 2520 2522
2545 2551 2554 2555 2567 2583 2586 2590 2594
2595 2597 2649 2653 2656 2660 2670 2678 2692
2708 2714 2726 2727 2734 2744 2764 2766 2774
2777 2778 2780 2803 2805 2813 2816 2817 2819
2843 2845 2847 2850 2851 2862 2872 2874 2882
2908 2928 2946 2958 2963 2975 2978 2980 3002
3004 3022 3024 3045 3067 3078 3086 3090 3116
3122 3126 3148 3151 3155 3163 3166 3167 3169
3180 3185 3229 3264 3277 3277 3283 3312 3442

413 ACINT ABSOLUTE. HEX VALUE(000014F4)
2174 2177 2178 2188 2307 2310 2311 2321

412 ACMSG ABSOLUTE. HEX VALUE(000014F0)
2409

1124 ACOVL ADDRESS. HEX LOCATION(000021FC) IN CSECT(U34E0) LENGTH(1)
1992 2026

418 ACPRE ABSOLUTE. HEX VALUE(00001506)
2175 2176 2308 2309

419 ACSTR ABSOLUTE. HEX VALUE(0000178C)
2156 2288 2335

420 ACVTR ABSOLUTE. HEX VALUE(0000178E)
2155 2173 2288 2306

1091 ADSAV ADDRESS. HEX LOCATION(000021B6) IN CSECT(U34E0) LENGTH(2)
3047 3058 3075

1079 ALL ADDRESS. HEX LOCATION(0000219E) IN CSECT(U34E0) LENGTH(8)
2112 2113

341 ALTCD ABSOLUTE. HEX VALUE(00003401)
668

425 ALTDV ABSOLUTE. HEX VALUE(00000007)
2147 2190 2280 2323 2411

1047 BFND ADDRESS. HEX LOCATION(00002181) IN CSECT(U34E0) LENGTH(1)
1048

3021 BLANK ADDRESS. HEX LOCATION(00003062) IN CSECT(U34E0) LENGTH(1)
2438 2714 2726 2744 2845 2882

3028 BLKEN ADDRESS. HEX LOCATION(0000307A) IN CSECT(U34E0) LENGTH(1)
3022

1060 BLKMG ADDRESS. HEX LOCATION(00002186) IN CSECT(U34E0) LENGTH(1)
2969 3026

1931 CHG1 ADDRESS. HEX LOCATION(000025A7) IN CSECT(U34E0) LENGTH(8)
2768 2807

482 CHKP ADDRESS. HEX LOCATION(0000180C) IN CSECT(U34E0) LENGTH(2)
1979 2433 2474 2509 2544 2580 2763 2802 2842

CROSS-REFERENCE LISTING

DECLARED NAME ATTRIBUTES AND REFERENCES

415 CIDCB ABSOLUTE. HEX VALUE(000014FA)
2179 2180 2312 2313

1090 CMND7 ADDRESS. HEX LOCATION(000021B4) IN CSECT(U34E0) LENGTH(2)
1981 2393

342 CNOFF ABSOLUTE. HEX VALUE(00003407)
622

343 CNRES ABSOLUTE. HEX VALUE(00003408)
627

757 CNTLR ADDRESS. HEX LOCATION(00001F0E) IN CSECT(U34E0) LENGTH(1)
759 760 761 762 3123 3171

759 CNTLV ADDRESS. HEX LOCATION(00001F1C) IN CSECT(U34E0) LENGTH(1)
2241 3114

1084 CNVDA ADDRESS. HEX LOCATION(000021AC) IN CSECT(U34E0) LENGTH(2)
1087 2857 2860 2959 2977 2982 3087 3089

1086 CNVTD ADDRESS. HEX LOCATION(000021AE) IN CSECT(U34E0) LENGTH(2)
3090

1081 CNVTO ADDRESS. HEX LOCATION(000021A6) IN CSECT(U34E0) LENGTH(2)
2854 2862 2939 2946 2953 2963

1082 CNVT1 ADDRESS. HEX LOCATION(000021A8) IN CSECT(U34E0) LENGTH(2)
2855 2867 2942 2949 2959

1083 CNVT2 ADDRESS. HEX LOCATION(000021AA) IN CSECT(U34E0) LENGTH(2)
2861 2868 2945 2962

323 CODE0 ABSOLUTE. HEX VALUE(000034E0)
498

324 CODE1 ABSOLUTE. HEX VALUE(000034E1)
506

325 CODE2 ABSOLUTE. HEX VALUE(000034E2)
514

326 CODE3 ABSOLUTE. HEX VALUE(000034E3)
522

327 CODE4 ABSOLUTE. HEX VALUE(000034E4)
530

328 CODE5 ABSOLUTE. HEX VALUE(000034E5)
538 543 548 553 558 563 568 573

329 CODE6 ABSOLUTE. HEX VALUE(000034E6)
581

330 CODE7 ABSOLUTE. HEX VALUE(000034E7)
589

331 CODE8 ABSOLUTE. HEX VALUE(000034E8)
597 606 614

332 CODE9 ABSOLUTE. HEX VALUE(000034E9)
675 680 685 690 699 704 709 714 719
732

333 COD10 ABSOLUTE. HEX VALUE(000034EA)
636

334 COD11 ABSOLUTE. HEX VALUE(000034EB)
641

335 COD12 ABSOLUTE. HEX VALUE(000034EC)
647

336 COD13 ABSOLUTE. HEX VALUE(000034ED)
652

337 COD14 ABSOLUTE. HEX VALUE(000034EE)
658

338 COD15 ABSOLUTE. HEX VALUE(000034EF)
663

1100 COUNT ADDRESS. HEX LOCATION(000021CA) IN CSECT(U34E0) LENGTH(4)
3181 3184 3210 3211 3220

971 CSDCB ADDRESS. HEX LOCATION(0000210E) IN CSECT(U34E0) LENGTH(2)
924

750 CSSBF ADDRESS. HEX LOCATION(00001EFE) IN CSECT(U34E0) LENGTH(2)
978 3321

442 CTLSW ABSOLUTE. HEX VALUE(0000001A)
3167

762 CURAD ADDRESS. HEX LOCATION(00001F26) IN CSECT(U34E0) LENGTH(1)
2443 2643 3048 3064 3068 3112

1073 CURDA ADDRESS. HEX LOCATION(00002196) IN CSECT(U34E0) LENGTH(2)
2582 2664 2720 2722

745 DA ADDRESS. HEX LOCATION(00001E14) IN CSECT(U34E0) LENGTH(1)
2615 2624 2630 2665

767 DAY ADDRESS. HEX LOCATION(00001F2C) IN CSECT(U34E0) LENGTH(4)
1088 2927

746 DCBCT ADDRESS. HEX LOCATION(00001E1F) IN CSECT(U34E0) LENGTH(1)
2697

1169 DCBPT ADDRESS. HEX LOCATION(0000223E) IN CSECT(U34E0) LENGTH(2)
2703

1174 DCBSV ADDRESS. HEX LOCATION(00002248) IN CSECT(U34E0) LENGTH(2)
2705 2709

1492 DCB0 ADDRESS. HEX LOCATION(0000237D) IN CSECT(U34E0) LENGTH(1)
1169

1548 DCB1 ADDRESS. HEX LOCATION(000023B3) IN CSECT(U34E0) LENGTH(1)
1170

1582 DCB2 ADDRESS. HEX LOCATION(000023D4) IN CSECT(U34F0) LENGTH(1)
1171

1616 DCB3 ADDRESS. HEX LOCATION(000023F5) IN CSECT(U34E0) LENGTH(1)
1172

1650 DCB4 ADDRESS. HEX LOCATION(00002416) IN CSECT(U34E0) LENGTH(1)
1173

1684 DCB5 ADDRESS. HEX LOCATION(00002437) IN CSECT(U34E0) LENGTH(1)
2704

2952 DEC ADDRESS. HEX LOCATION(00002FEC) IN CSECT(U34E0) LENGTH(1)
2920

2974 DECCV ADDRESS. HEX LOCATION(00003022) IN CSECT(U34E0) LENGTH(1)
2958 3086

2984 DECRT ADDRESS. HEX LOCATION(0000303E) IN CSECT(U34E0) LFNGTH(1)
2975

2966 DEC1 ADDRESS. HEX LOCATION(00003014) IN CSECT(U34E0) LENGTH(1)
2970

2971 DEC2 ADDRESS. HEX LOCATION(00003020) IN CSECT(U34E0) LENGTH(1)
2968

2579 DEV ADDRESS. HEX LOCATION(00002CB2) IN CSECT(U34F0) LENGTH(1)
1159

1031 DEVAD ADDRESS. HEX LOCATION(0000215E) IN CSECT(U34E0) LENGTH(2)
593 2105 2605

1686 DEVLA ADDRESS. HEX LOCATION(00002438) IN CSECT(U34E0) LENGTH(1)
2646

1701 DEVLB ADDRESS. HEX LOCATION(00002457) IN CSECT(U34E0) LENGTH(1)
2716

406 DEVPT ABSOLUTE. HEX VALUE(00000030)
2172 2207 2305

1396 DEVPA ADDRESS. HEX LOCATION(00002323) IN CSECT(U34E0) LENGTH(1)
2644

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
1414	DEVRB	ADDRESS. HEX LOCATION(00002332) IN CSECT(U34E0) LENGTH(1)
		2715
435	DEVSW	ABSOLUTE. HEX VALUE(00000013)
		2595 2656
486	DEVTB	ADDRESS. HEX LOCATION(00001812) IN CSECT(U34E0) LENGTH(2)
		480
2589	DEV0	ADDRESS. HEX LOCATION(00002CCE) IN CSECT(U34E0) LENGTH(1)
		2598 2613 2635
2600	DEV1	ADDRESS. HEX LOCATION(00002CE2) IN CSECT(U34E0) LENGTH(1)
		2596
2637	DEV10	ADDRESS. HEX LOCATION(00002D3E) IN CSECT(U34E0) LENGTH(1)
		2592
2641	DEV11	ADDRESS. HEX LOCATION(00002D46) IN CSECT(U34E0) LENGTH(1)
		2724
2648	DEV12	ADDRESS. HEX LOCATION(00002D64) IN CSECT(U34E0) LENGTH(1)
		2661 2666 2717
2663	DEV13	ADDRESS. HEX LOCATION(00002D84) IN CSECT(U34E0) LENGTH(1)
		2657
2675	DEV14	ADDRESS. HEX LOCATION(00002DAA) IN CSECT(U34E0) LENGTH(1)
		2671
2683	DEV15	ADDRESS. HEX LOCATION(00002DBA) IN CSECT(U34E0) LENGTH(1)
		2690
2691	DEV16	ADDRESS. HEX LOCATION(00002DD0) IN CSECT(U34E0) LENGTH(1)
		2686
2701	DEV17	ADDRESS. HEX LOCATION(00002DE6) IN CSECT(U34E0) LENGTH(1)
		2699
2707	DEV18	ADDRESS. HEX LOCATION(00002DF6) IN CSECT(U34E0) LENGTH(1)
		2700
2713	DEV19	ADDRESS. HEX LOCATION(00002E06) IN CSECT(U34E0) LENGTH(1)
		2710
2607	DEV2	ADDRESS. HEX LOCATION(00002CF6) IN CSECT(U34E0) LENGTH(1)
		2617
2719	DEV20	ADDRESS. HEX LOCATION(00002E18) IN CSECT(U34E0) LENGTH(1)
		2651
2733	DEV21	ADDRESS. HEX LOCATION(00002E46) IN CSECT(U34E0) LENGTH(1)
		2741
2614	DEV3	ADDRESS. HEX LOCATION(00002D0C) IN CSECT(U34E0) LENGTH(1)
		2609 2611
2619	DEV4	ADDRESS. HEX LOCATION(00002D14) IN CSECT(U34E0) LENGTH(1)
		2602 2604 2616
2621	DEV5	ADDRESS. HEX LOCATION(00002D18) IN CSECT(U34E0) LENGTH(1)
		2627
2628	DEV6	ADDRESS. HEX LOCATION(00002D2A) IN CSECT(U34E0) LENGTH(1)
		2623
2631	DEV7	ADDRESS. HEX LOCATION(00002D32) IN CSECT(U34E0) LENGTH(1)
		2625
923	DKCSS	ADDRESS. HEX LOCATION(000020C6) IN CSECT(U34E0) LENGTH(2)
		2204 3315 3316
1115	DKHEA	ADDRESS. HEX LOCATION(000021FC) IN CSECT(U34E0) LENGTH(1)
		1103 1104
1092	DKINT	ADDRESS. HEX LOCATION(000021B8) IN CSECT(U34E0) LENGTH(2)
		2210 2228 2235 3287 3314 3368 3392 3399
1106	DKLEA	ADDRESS. HEX LOCATION(000021D8) IN CSECT(U34E0) LENGTH(2)
		1105
905	DKPRE	ADDRESS. HEX LOCATION(000020AE) IN CSECT(U34E0) LENGTH(2)
		2198 2214 2215
914	DKRCL	ADDRESS. HEX LOCATION(000020BA) IN CSECT(U34E0) LENGTH(2)
		2201 2229 2230 3393 3394
920	DKRID	ADDRESS. HEX LOCATION(000020C2) IN CSECT(U34E0) LENGTH(2)
		2203 2217 2218 2222
926	DKRSI	ADDRESS. HEX LOCATION(000020CA) IN CSECT(U34E0) LENGTH(2)
		2205 3369 3370
911	DKRST	ADDRESS. HEX LOCATION(000020B6) IN CSECT(U34E0) LENGTH(2)
		2200 2212 2213 2384 2386 2387 3275 3276
1093	DKRTY	ADDRESS. HEX LOCATION(000021BA) IN CSECT(U34E0) LENGTH(2)
		3260 3267
1111	DKR3	ADDRESS. HEX LOCATION(000021F4) IN CSECT(U34E0) LENGTH(2)
		3421
1113	DKR5	ADDRESS. HEX LOCATION(000021F8) IN CSECT(U34E0) LENGTH(2)
		3286 3303
908	DKSTR	ADDRESS. HEX LOCATION(000020B2) IN CSECT(U34E0) LENGTH(2)
		2199 3266
1103	DKSV	ADDRESS. HEX LOCATION(000021D2) IN CSECT(U34E0) LENGTH(2)
		3262 3305
917	DKUPR	ADDRESS. HEX LOCATION(000020BE) IN CSECT(U34E0) LENGTH(2)
		2202 2385 2388 2389
3258	DSK	ADDRESS. HEX LOCATION(0000326C) IN CSECT(U34E0) LENGTH(1)
		3252
469	DSKID	ABSOLUTE. HEX VALUE(000000CA)
		2222
1028	DSKIS	ADDRESS. HEX LOCATION(00002158) IN CSECT(U34E0) LENGTH(2)
		2209 2390
3301	DSKIT	ADDRESS. HEX LOCATION(000032CA) IN CSECT(U34E0) LENGTH(1)
		1092 2235 3287 3399
3250	DSKRD	ADDRESS. HEX LOCATION(00003262) IN CSECT(U34E0) LENGTH(1)
		3067 3116 3163 3185 3229
3419	DSKSK	ADDRESS. HEX LOCATION(000033BC) IN CSECT(U34E0) LENGTH(1)
		3264
1030	DSKVS	ADDRESS. HEX LOCATION(0000215C) IN CSECT(U34E0) LENGTH(2)
		2208 2209 2381 2390
3256	DSKWR	ADDRESS. HEX LOCATION(00003268) IN CSECT(U34E0) LENGTH(1)
		3126
3263	DSK00	ADDRESS. HEX LOCATION(00003282) IN CSECT(U34E0) LENGTH(1)
		3401
3265	DSK01	ADDRESS. HEX LOCATION(00003286) IN CSECT(U34E0) LENGTH(1)
		3402
3271	DSK02	ADDRESS. HEX LOCATION(0000329A) IN CSECT(U34E0) LENGTH(1)
		3281
3274	DSK03	ADDRESS. HEX LOCATION(000032A0) IN CSECT(U34E0) LENGTH(1)
		3272
3278	DSK04	ADDRESS. HEX LOCATION(000032AC) IN CSECT(U34E0) LENGTH(1)
		3284
3285	DSK05	ADDRESS. HEX LOCATION(000032BC) IN CSECT(U34E0) LENGTH(1)
		3268 3395 3398
3391	DSK1A	ADDRESS. HEX LOCATION(00003390) IN CSECT(U34E0) LENGTH(1)
		3388
3397	DSK1B	ADDRESS. HEX LOCATION(000033A6) IN CSECT(U34E0) LENGTH(1)
		3392
3304	DSK10	ADDRESS. HEX LOCATION(000032D4) IN CSECT(U34E0) LENGTH(1)
		3288
3306	DSK11	ADDRESS. HEX LOCATION(000032D8) IN CSECT(U34E0) LENGTH(1)

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		3302
3309	DSK12	ADDRESS. HEX LOCATION(000032DE) IN CSECT(U34E0) LENGTH(1)
		3307 3378
3319	DSK13	ADDRESS. HEX LOCATION(00003302) IN CSECT(U34E0) LENGTH(1)
		3314
3358	DSK14	ADDRESS. HEX LOCATION(00003324) IN CSECT(U34E0) LENGTH(1)
		3349
3362	DSK15	ADDRESS. HEX LOCATION(00003328) IN CSECT(U34E0) LENGTH(1)
		3352
3366	DSK16	ADDRESS. HEX LOCATION(00003330) IN CSECT(U34E0) LENGTH(1)
		3356 3360
3373	DSK17	ADDRESS. HEX LOCATION(0000334A) IN CSECT(U34E0) LENGTH(1)
		3368
3379	DSK18	ADDRESS. HEX LOCATION(0000335E) IN CSECT(U34E0) LENGTH(1)
		3374
3389	DSK19	ADDRESS. HEX LOCATION(0000338C) IN CSECT(U34E0) LENGTH(1)
		3311 3313 3317 3320 3322 3371 3376 3381
3437	DSK20	ADDRESS. HEX LOCATION(000033F2) IN CSECT(U34E0) LENGTH(1)
		3434
654	DSNAM	ADDRESS. HEX LOCATION(00001BC0) IN CSECT(U34E0) LENGTH(8)
643	DSNME	2269 2270 ADDRESS. HEX LOCATION(00001B60) IN CSECT(U34E0) LENGTH(26)
		2261 2262
1057	DSP1	ADDRESS. HEX LOCATION(00002183) IN CSECT(U34E0) LENGTH(1)
		2004
1058	DSP2	ADDRESS. HEX LOCATION(00002184) IN CSECT(U34E0) LENGTH(1)
		2002
1783	DSUMA	ADDRESS. HEX LOCATION(000024D5) IN CSECT(U34E0) LENGTH(1)
		2729
1791	DSUMB	ADDRESS. HEX LOCATION(000024D9) IN CSECT(U34E0) LENGTH(1)
		2735
1815	DSUMC	ADDRESS. HEX LOCATION(000024EF) IN CSECT(U34E0) LENGTH(1)
		2731
1853	DSUMD	ADDRESS. HEX LOCATION(00002555) IN CSECT(U34E0) LENGTH(1)
		2736
744	DVRID	ADDRESS. HEX LOCATION(00001E0E) IN CSECT(U34E0) LENGTH(1)
		2687
3459	DVSUM	ADDRESS. HEX LOCATION(00003402) IN CSECT(U34E0) LENGTH(1)
		1073 2581 2620 2730
769	DVTP	ADDRESS. HEX LOCATION(00001F34) IN CSECT(U34E0) LENGTH(10)
		2694
781	DVTYP	ADDRESS. HEX LOCATION(00001F5E) IN CSECT(U34E0) LENGTH(2)
		2682
1071	DW1	ADDRESS. HEX LOCATION(00002192) IN CSECT(U34E0) LENGTH(4)
		3064 3068 3111 3112 3113 3158 3210
399	EBBK	ABSOLUTE. HEX VALUE(00000040)
		2876 3006
2926	EBCD	ADDRESS. HEX LOCATION(00002FBE) IN CSECT(U34E0) LENGTH(1)
		2915
1059	EBC0	ADDRESS. HEX LOCATION(00002185) IN CSECT(U34E0) LENGTH(1)
		2967
408	ECP01	ABSOLUTE. HEX VALUE(00000250)
		1980 2392
409	ECP07	ABSOLUTE. HEX VALUE(0000025C)
		2415
2922	EDEND	ADDRESS. HEX LOCATION(00002FBC) IN CSECT(U34E0) LENGTH(1)
		2908
2907	EDIT	ADDRESS. HEX LOCATION(00002F98) IN CSECT(U34E0) LENGTH(1)
		2487 2522 2557 2708 2734 2780 2819
2913	EDIT1	ADDRESS. HEX LOCATION(00002FAC) IN CSECT(U34E0) LENGTH(1)
		2934 2948 2972 3008
666	EGTMA	ADDRESS. HEX LOCATION(00001C1E) IN CSECT(U34E0) LENGTH(2)
		2375
664	EGTMG	ADDRESS. HEX LOCATION(00001BF8) IN CSECT(U34E0) LENGTH(36)
		666
592	EHTMA	ADDRESS. HEX LOCATION(00001A20) IN CSECT(U34E0) LENGTH(2)
		2100
590	EHTMG	ADDRESS. HEX LOCATION(00001A00) IN CSECT(U34E0) LENGTH(30)
		592
370	EIGHT	ABSOLUTE. HEX VALUE(00000008)
		743 2028 2449 2678 2766 2802 2805 3206 3425
373	ELEVN	ABSOLUTE. HEX VALUE(0000000B)
		3083
625	ELVMA	ADDRESS. HEX LOCATION(00001B1A) IN CSECT(U34E0) LENGTH(2)
		2143
623	ELV G	ADDRESS. HEX LOCATION(00001AEE) IN CSECT(U34E0) LENGTH(42)
		625
1099	EOEND	ADDRESS. HEX LOCATION(000021C6) IN CSECT(U34E0) LENGTH(4)
		3062 3159
739	EREC1	ADDRESS. HEX LOCATION(00001DFE) IN CSECT(U34E0) LENGTH(1)
		742 743 744 745 746 951 960 2478 2484
		2513 2519 2548 2554 2594 2645 2653 2771 2777
		2810 2816 2850 2866 3047 3074 3081 3083 3084
		3124 3166 3170 3189 3233
740	EREC2	ADDRESS. HEX LOCATION(00001E7E) IN CSECT(U34E0) LENGTH(1)
		3058 3077
1034	ERIBF	ADDRESS. HEX LOCATION(00002175) IN CSECT(U34E0) LENGTH(1)
		526 3109
1013	ERLOG	ADDRESS. HEX LOCATION(00002144) IN CSECT(U34E0) LENGTH(8)
		618 3154
1040	ERRM1	ADDRESS. HEX LOCATION(0000217B) IN CSECT(U34E0) LENGTH(1)
		2254 2257 2343
1041	ERRM2	ADDRESS. HEX LOCATION(0000217C) IN CSECT(U34E0) LENGTH(1)
		2260 2349
1042	ERRM3	ADDRESS. HEX LOCATION(0000217D) IN CSECT(U34E0) LENGTH(1)
		2265 2355
1043	ERRM4	ADDRESS. HEX LOCATION(0000217E) IN CSECT(U34E0) LENGTH(1)
		2268 2361
1044	ERRM5	ADDRESS. HEX LOCATION(0000217F) IN CSECT(U34E0) LENGTH(1)
		2367 3071 3119
1045	ERRM6	ADDRESS. HEX LOCATION(00002180) IN CSECT(U34E0) LENGTH(1)
		2373 3129
650	FFNMA	ADDRESS. HEX LOCATION(00001B94) IN CSECT(U34E0) LENGTH(2)
		2357
648	FFNMG	ADDRESS. HEX LOCATION(00001B80) IN CSECT(U34E0) LENGTH(18)
		650
384	FIFT9	ABSOLUTE. HEX VALUE(0000003B)
		3359
367	FIVE	ABSOLUTE. HEX VALUE(00000005)
		2165 2298 2544 2626 2698 2721 2738 2865 3310
		3385 3386 3387

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
389	FIVHD	ABSOLUTE. HEX VALUE(000001F4) 2583
533	FIVMA	ADDRESS. HEX LOCATION(000018F4) IN CSECT(U34E0) LENGTH(2) 2046
531	FIVMG	ADDRESS. HEX LOCATION(000018D4) IN CSECT(U34E0) LENGTH(30) 533
525	FORMA	ADDRESS. HEX LOCATION(000018CA) IN CSECT(U34E0) LENGTH(2) 2114
523	FORMG	ADDRESS. HEX LOCATION(000018A0) IN CSECT(U34E0) LENGTH(40) 525
375	FORTN	ABSOLUTE. HEX VALUE(0000000E) 759 2682 2684
366	FOUR	ABSOLUTE. HEX VALUE(00000004) 2089 2113 2113 2169 2262 2262 2270 2270 2302 2509 2668 2693 2981 3082 3088 3203 3203 3307 3367
391	FOURK	ABSOLUTE. HEX VALUE(00001000) 3321
645	FRNMA	ADDRESS. HEX LOCATION(00001B7C) IN CSECT(U34E0) LENGTH(2) 2351
642	FRNMG	ADDRESS. HEX LOCATION(00001B56) IN CSECT(U34E0) LENGTH(10) 645
501	FSTMA	ADDRESS. HEX LOCATION(0000184A) IN CSECT(U34E0) LENGTH(2) 2010
499	FSTMG	ADDRESS. HEX LOCATION(0000181A) IN CSECT(U34E0) LENGTH(46) 501
2938	HEX	ADDRESS. HEX LOCATION(00002FD0) IN CSECT(U34E0) LENGTH(1) 2918
1068	HEXCC	ADDRESS. HEX LOCATION(0000218E) IN CSECT(U34E0) LENGTH(1) 2107 2108 2608 2610 2612
1069	HEXFE	ADDRESS. HEX LOCATION(0000218F) IN CSECT(U34E0) LENGTH(1) 2241
1070	HEXFF	ADDRESS. HEX LOCATION(00002190) IN CSECT(U34E0) LENGTH(1) 2083
1065	HEX0A	ADDRESS. HEX LOCATION(0000218B) IN CSECT(U34E0) LENGTH(1) 2979
1061	HEX00	ADDRESS. HEX LOCATION(00002187) IN CSECT(U34E0) LENGTH(1) 2456 2622 2723 2740 3023 3114
1062	HEX01	ADDRESS. HEX LOCATION(00002188) IN CSECT(U34E0) LENGTH(1) 2254 2257 2260 2265 2268 2442 2455 2642 2711 3071 3119 3129 3310 3385 3386 3387
1063	HEX02	ADDRESS. HEX LOCATION(00002189) IN CSECT(U34E0) LENGTH(1) 3354 3363 3380
1064	HEX08	ADDRESS. HEX LOCATION(0000218A) IN CSECT(U34E0) LENGTH(1) 3225
1066	HEX20	ADDRESS. HEX LOCATION(0000218C) IN CSECT(U34E0) LENGTH(1) 3195 3232
1067	HEX64	ADDRESS. HEX LOCATION(0000218D) IN CSECT(U34E0) LENGTH(1) 2976
394	HFF00	ABSOLUTE. HEX VALUE(0000FF00) 2879 2957
393	HF000	ABSOLUTE. HEX VALUE(0000F000) 3085
1037	HRDBF	ADDRESS. HEX LOCATION(00002178) IN CSECT(U34E0) LENGTH(1) 502 2015
354	HTOE	ABSOLUTE. HEX VALUE(0000001A) 2864 2947 2964 3091
422	IDCB	ABSOLUTE. HEX VALUE(000017BE) 2023 2151 2153 2175 2179 2212 2214 2217 2229 2284 2286 2308 2312 2331 2333 2386 2388 3269 3275 3279 3315 3369 3393
352	IDLE	ABSOLUTE. HEX VALUE(00000002) 2277 2278
1033	INAD	ADDRESS. HEX LOCATION(00002174) IN CSECT(U34E0) LENGTH(1) 518 2196 2383
407	INDIC	ABSOLUTE. HEX VALUE(00000234) 2146 2189 2279 2322 2410
1978	INIT	ADDRESS. HEX LOCATION(000026CA) IN CSECT(U34E0) LENGTH(1) 479
2186	INITA	ADDRESS. HEX LOCATION(00002904) IN CSECT(U34E0) LENGTH(1) 2178
2195	INITB	ADDRESS. HEX LOCATION(00002916) IN CSECT(U34E0) LENGTH(1) 2142
2253	INITC	ADDRESS. HEX LOCATION(000029D2) IN CSECT(U34E0) LENGTH(1) 2025
2256	INITD	ADDRESS. HEX LOCATION(000029DC) IN CSECT(U34E0) LENGTH(1) 2164 2184 2187
2259	INITE	ADDRESS. HEX LOCATION(000029E4) IN CSECT(U34E0) LENGTH(1) 3168 3213
2264	INITF	ADDRESS. HEX LOCATION(000029F6) IN CSECT(U34E0) LENGTH(1) 2216 2231 2234
2267	INITG	ADDRESS. HEX LOCATION(000029FE) IN CSECT(U34E0) LENGTH(1) 3165 3187 3231
2274	INITJ	ADDRESS. HEX LOCATION(00002A0E) IN CSECT(U34E0) LENGTH(1) 2245 2258 2263 2266 2435 3131
2300	INITK	ADDRESS. HEX LOCATION(00002A6A) IN CSECT(U34E0) LENGTH(1) 2303
2319	INITL	ADDRESS. HEX LOCATION(00002AA6) IN CSECT(U34E0) LENGTH(1) 2311
2328	INITM	ADDRESS. HEX LOCATION(00002AC0) IN CSECT(U34E0) LENGTH(1) 2297 2317 2320
2342	INITN	ADDRESS. HEX LOCATION(00002AEC) IN CSECT(U34E0) LENGTH(1) 2255 2276 2290 2327
2348	INITO	ADDRESS. HEX LOCATION(00002AF8) IN CSECT(U34E0) LENGTH(1) 2344
2354	INITP	ADDRESS. HEX LOCATION(00002B04) IN CSECT(U34E0) LENGTH(1) 2350
2360	INITQ	ADDRESS. HEX LOCATION(00002B10) IN CSECT(U34E0) LENGTH(1) 2356
2366	INITR	ADDRESS. HEX LOCATION(00002B1C) IN CSECT(U34E0) LENGTH(1) 2362
2372	INITS	ADDRESS. HEX LOCATION(00002B28) IN CSECT(U34E0) LENGTH(1) 2368
2380	INITT	ADDRESS. HEX LOCATION(00002B34) IN CSECT(U34E0) LENGTH(1) 2374
2391	INITU	ADDRESS. HEX LOCATION(00002B60) IN CSECT(U34E0) LENGTH(1) 2014 2021 2039 2045 2050 2079 2097 2104 2118 2124 2131 2136 2382
1993	INITO	ADDRESS. HEX LOCATION(000026F6) IN CSECT(U34E0) LENGTH(1) 1998
1999	INIT1	ADDRESS. HEX LOCATION(00002700) IN CSECT(U34E0) LENGTH(1)

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
2001	INIT2	1995 ADDRESS. HEX LOCATION(00002704) IN CSECT(U34E0) LENGTH(1)
2009	INIT3	2029 ADDRESS. HEX LOCATION(00002710) IN CSECT(U34E0) LENGTH(1)
2027	INIT4	1991 2003 2033 ADDRESS. HEX LOCATION(0000274E) IN CSECT(U34E0) LENGTH(1)
2037	INIT5	2032 ADDRESS. HEX LOCATION(0000275E) IN CSECT(U34E0) LENGTH(1)
2086	INIT6	2005 2016 ADDRESS. HEX LOCATION(000027DC) IN CSECT(U34E0) LENGTH(1)
2092	INIT7	2091 ADDRESS. HEX LOCATION(000027E6) IN CSECT(U34E0) LENGTH(1)
2111	INIT8	2090 ADDRESS. HEX LOCATION(0000281A) IN CSECT(U34E0) LENGTH(1)
2167	INIT9	2053 2085 ADDRESS. HEX LOCATION(000028CA) IN CSECT(U34E0) LENGTH(1)
2227	INTBA	2170 ADDRESS. HEX LOCATION(0000298E) IN CSECT(U34E0) LENGTH(1)
2233	INTBB	2223 ADDRESS. HEX LOCATION(000029A4) IN CSECT(U34E0) LENGTH(1)
2247	INTBC	2228 ADDRESS. HEX LOCATION(000029CA) IN CSECT(U34E0) LENGTH(1)
1948	INTID	2240 2242 ADDRESS. HEX LOCATION(000025BA) IN CSECT(U34E0) LENGTH(8)
2119	INT8A	2767 ADDRESS. HEX LOCATION(00002834) IN CSECT(U34E0) LENGTH(1)
2140	INT8B	2088 2099 2109 ADDRESS. HEX LOCATION(00002866) IN CSECT(U34E0) LENGTH(1)
752	ISB	2126 ADDRESS. HEX LOCATION(00001F0C) IN CSECT(U34E0) LENGTH(2)
2988	LABEL	3112 ADDRESS. HEX LOCATION(00003040) IN CSECT(U34E0) LENGTH(1)
2992	LAB1	2916 2995 ADDRESS. HEX LOCATION(00003046) IN CSECT(U34E0) LENGTH(1)
1048	LNGTH	2997 ABSOLUTE. HEX VALUE(00000033)
2473	MCK	1983 ADDRESS. HEX LOCATION(00002BDA) IN CSECT(U34E0) LENGTH(1)
432	MCKSW	1156 ABSOLUTE. HEX VALUE(00000010)
2480	MCK1	2485 ADDRESS. HEX LOCATION(00002BF8) IN CSECT(U34E0) LENGTH(1)
2492	MCK2	2486 2491 ADDRESS. HEX LOCATION(00002C1E) IN CSECT(U34E0) LENGTH(1)
396	M1	2483 ABSOLUTE. HEX VALUE(FFFFFFFF)
397	M2	3267 ABSOLUTE. HEX VALUE(FFFFFFFE)
1025	NEWCA	2871 ADDRESS. HEX LOCATION(00002154) IN CSECT(U34E0) LENGTH(2)
1023	NEWCN	1026 2040 2158 2159 2282 2283 ADDRESS. HEX LOCATION(00002150) IN CSECT(U34E0) LENGTH(2)
1027	NEWIS	2038 2141 2160 2275 ADDRESS. HEX LOCATION(00002156) IN CSECT(U34E0) LENGTH(2)
3095	NEXEN	2177 2188 2310 2321 ADDRESS. HEX LOCATION(0000310E) IN CSECT(U34E0) LENGTH(1)
3044	NEXT	3045 ADDRESS. HEX LOCATION(0000307C) IN CSECT(U34E0) LENGTH(1)
3046	NEXT0	2481 2516 2551 2590 2649 2774 2813 2847 ADDRESS. HEX LOCATION(00003080) IN CSECT(U34E0) LENGTH(1)
3055	NEXT1	3065 3072 ADDRESS. HEX LOCATION(0000309A) IN CSECT(U34E0) LENGTH(1)
3059	NEXT2	3050 3052 ADDRESS. HEX LOCATION(000030A6) IN CSECT(U34E0) LENGTH(1)
3066	NEXT3	3057 ADDRESS. HEX LOCATION(000030BA) IN CSECT(U34E0) LENGTH(1)
3073	NEXT4	3063 ADDRESS. HEX LOCATION(000030D0) IN CSECT(U34E0) LENGTH(1)
3080	NEXT5	3070 ADDRESS. HEX LOCATION(000030E4) IN CSECT(U34E0) LENGTH(1)
3093	NEXT6	3076 ADDRESS. HEX LOCATION(0000310C) IN CSECT(U34E0) LENGTH(1)
371	NINE	3054 ABSOLUTE. HEX VALUE(00000009)
609	NINMA	2842 2859 3323 ADDRESS. HEX LOCATION(00001AAC) IN CSECT(U34E0) LENGTH(2)
607	NINMG	2127 ADDRESS. HEX LOCATION(00001A72) IN CSECT(U34E0) LENGTH(56)
670	NNTMA	609 ADDRESS. HEX LOCATION(00001C24) IN CSECT(U34E0) LENGTH(2)
669	NNTMG	2339 ADDRESS. HEX LOCATION(00001C22) IN CSECT(U34E0) LENGTH(2)
1910	NSTLA	670 ADDRESS. HEX LOCATION(00002584) IN CSECT(U34E0) LENGTH(1)
1937	NSTLB	2772 2811 ADDRESS. HEX LOCATION(000025B2) IN CSECT(U34E0) LENGTH(1)
1858	NSTRA	2783 2822 ADDRESS. HEX LOCATION(00002556) IN CSECT(U34E0) LENGTH(1)
1864	NSTRB	2770 2809 ADDRESS. HEX LOCATION(00002559) IN CSECT(U34E0) LENGTH(1)
779	NTMOT	2782 2821 ADDRESS. HEX LOCATION(00001F56) IN CSECT(U34E0) LENGTH(8)
2762	NULL	2655 ADDRESS. HEX LOCATION(00002E70) IN CSECT(U34E0) LENGTH(1)
2773	NULL1	1160 ADDRESS. HEX LOCATION(00002E9A) IN CSECT(U34E0) LENGTH(1)
2785	NULL2	2779 2784 ADDRESS. HEX LOCATION(00002EC0) IN CSECT(U34E0) LENGTH(1)
436	NULSW	2776 ABSOLUTE. HEX VALUE(00000014)
761	NXTAD	2778 ADDRESS. HEX LOCATION(00001F22) IN CSECT(U34E0) LENGTH(1)
760	OLDAD	2239 3051 3111 ADDRESS. HEX LOCATION(00001F1E) IN CSECT(U34E0) LENGTH(1)
1024	OLDCA	2239 2443 2643 3113 ADDRESS. HEX LOCATION(00002152) IN CSECT(U34E0) LENGTH(2)
1022	OLDCN	1990 2149 2150 2289 2292 2329 2330 ADDRESS. HEX LOCATION(0000214E) IN CSECT(U34E0) LENGTH(2)
1029	OLDVS	1048 1985 2000 2141 2275 2293 ADDRESS. HEX LOCATION(0000215A) IN CSECT(U34E0) LENGTH(2)
		2155 2156 2335

CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
     363  ONE        ABSOLUTE.  HEX VALUE(00000001)
                      482  1004  1979  2040  2149  2150  2161  2168  2171
                     2198  2199  2200  2201  2202  2203  2204  2205  2206
                     2282  2283  2294  2301  2304  2329  2330  2384  2385
                     2452  2457  2610  2622  2632  2633  2634  2658  2676
                     2702  2723  2740  2858  2917  2939  2953  2982  3023
                     3026  3053  3056  3060  3198  3207  3259  3283  3364
                     3375  3377  3380
     387  ONE28      ABSOLUTE.  HEX VALUE(00000080)
                     3078
     410  OPADR      ABSOLUTE.  HEX VALUE(00000240)
                     1989  2158  2289
     483  OPT1       ADDRESS.  HEX LOCATION(0000180E) IN CSECT(U34E0   ) LENGTH(2)
                     2013  2020  2044  2049  2078  2096  2103  2117  2123
                     2130  2135  2408  2434
     350  OUT        ABSOLUTE.  HEX VALUE(00000000)
                     2055  2058  2061  2064  2067  2070  2073  2144  2244
                     2326  2340  2346  2352  2358  2364  2370  2376  2440
                     2476  2511  2546  2587  2728  2765  2804  2844  2873
                     3003  3025
    1026  OUTAD      ADDRESS.  HEX LOCATION(00002154) IN CSECT(U34E0   ) LENGTH(2)
                      510  2022
     351  OUTIN      ABSOLUTE.  HEX VALUE(00000001)
                     2011  2018  2042  2047  2076  2094  2101  2115  2121
                     2128  2133
    1096  PASS       ADDRESS.  HEX LOCATION(000021BF) IN CSECT(U34E0   ) LENGTH(1)
                     2442  2642  3049
    2508  PCK        ADDRESS.  HEX LOCATION(00002C22) IN CSECT(U34E0   ) LENGTH(1)
                     1157
     433  PCKSW      ABSOLUTE.  HEX VALUE(00000011)
                     2520
    2515  PCK1       ADDRESS.  HEX LOCATION(00002C40) IN CSECT(U34E0   ) LENGTH(1)
                     2521  2526
    2527  PCK2       ADDRESS.  HEX LOCATION(00002C66) IN CSECT(U34E0   ) LENGTH(1)
                     2518
    1020  PCYLA      ADDRESS.  HEX LOCATION(0000214C) IN CSECT(U34E0   ) LENGTH(2)
                     3382  3390  3400  3427  3428
     775  PERM       ADDRESS.  HEX LOCATION(00001F46) IN CSECT(U34E0   ) LENGTH(4)
                     2669
     421  PRBA       ABSOLUTE.  HEX VALUE(00001790)
                     2157  2291
    1312  PRCLA      ADDRESS.  HEX LOCATION(000022AE) IN CSECT(U34E0   ) LENGTH(1)
                     2479  2514  2549
    1380  PRCLB      ADDRESS.  HEX LOCATION(0000231A) IN CSECT(U34E0   ) LENGTH(1)
                     2490  2525  2560
    1204  PRCRA      ADDRESS.  HEX LOCATION(0000224A) IN CSECT(U34E0   ) LENGTH(1)
                     2477  2512  2547
    1212  PRCRB      ADDRESS.  HEX LOCATION(0000224E) IN CSECT(U34E0   ) LENGTH(1)
                     2489  2524  2559
    3001  PRINT      ADDRESS.  HEX LOCATION(00003050) IN CSECT(U34E0   ) LENGTH(1)
                     2990
     441  PRMSW      ABSOLUTE.  HEX VALUE(00000019)
                     2670
    1003  PRRID      ADDRESS.  HEX LOCATION(00002138) IN CSECT(U34E0   ) LENGTH(2)
                     1004  2023  2024
    1004  PRRI1      ADDRESS.  HEX LOCATION(00002139) IN CSECT(U34E0   ) LENGTH(1)
                     2022
    1005  PRRI2      ADDRESS.  HEX LOCATION(0000213A) IN CSECT(U34E0   ) LENGTH(2)
                     2028
     997  PRRST      ADDRESS.  HEX LOCATION(00002130) IN CSECT(U34E0   ) LENGTH(2)
                     2149  2153  2154  2282  2284  2285  2329  2331  2332
     735  PRTBK      ADDRESS.  HEX LOCATION(00001DFC) IN CSECT(U34E0   ) LENGTH(2)
                     2872  3002  3024
     733  PRTLN      ADDRESS.  HEX LOCATION(00001DBA) IN CSECT(U34E0   ) LENGTH(1)
                      735  2858  2875  2912  3005  3023  3026
    1000  PRUPR      ADDRESS.  HEX LOCATION(00002134) IN CSECT(U34E0   ) LENGTH(2)
                     2150  2151  2152  2283  2286  2287  2330  2333  2334
     944  RDCB       ADDRESS.  HEX LOCATION(000020DE) IN CSECT(U34E0   ) LENGTH(2)
                     3251  3310  3385
     873  RDW3       ABSOLUTE.  HEX VALUE(00000014)
                     3439
     874  RDW4       ABSOLUTE.  HEX VALUE(00000016)
                     3430
     355  READI      ABSOLUTE.  HEX VALUE(0000001F)
                     2162  2295
     989  RECAL      ADDRESS.  HEX LOCATION(0000212E) IN CSECT(U34E0   ) LENGTH(2)
                      915
     340  RECD1      ABSOLUTE.  HEX VALUE(00003400)
                     2413
    2441  RECS       ADDRESS.  HEX LOCATION(00002BAA) IN CSECT(U34E0   ) LENGTH(1)
                     2437
    2432  RECSL      ADDRESS.  HEX LOCATION(00002B8C) IN CSECT(U34E0   ) LENGTH(1)
                     2249  2493  2528  2563  2639  2745  2786  2825  2885
     742  RECSZ      ADDRESS.  HEX LOCATION(00001DFE) IN CSECT(U34E0   ) LENGTH(1)
                     2878
    2445  RECS0      ADDRESS.  HEX LOCATION(00002BBA) IN CSECT(U34E0   ) LENGTH(1)
                     2453
    2451  RECS1      ADDRESS.  HEX LOCATION(00002BC6) IN CSECT(U34E0   ) LENGTH(1)
                     2447
    2454  RECS2      ADDRESS.  HEX LOCATION(00002BCA) IN CSECT(U34E0   ) LENGTH(1)
                     2450
    1032  RECTP      ADDRESS.  HEX LOCATION(0000216A) IN CSECT(U34E0   ) LENGTH(2)
                      577  2051  2080  2112  2113  2444
    1038  REPRC      ADDRESS.  HEX LOCATION(00002179) IN CSECT(U34E0   ) LENGTH(1)
                     2248  2436  2455  2488  2523  2558  2629  2638  2781
                     2820  2853
    3108  RESET      ADDRESS.  HEX LOCATION(00003110) IN CSECT(U34E0   ) LENGTH(1)
                     2448
    3130  RESND      ADDRESS.  HEX LOCATION(0000315E) IN CSECT(U34E0   ) LENGTH(1)
                     3110  3120  3128
    1012  RESVL      ADDRESS.  HEX LOCATION(0000213C) IN CSECT(U34E0   ) LENGTH(8)
                      610  3150
    3121  RES1       ADDRESS.  HEX LOCATION(00003144) IN CSECT(U34E0   ) LENGTH(1)
                     3118
    1035  RSDBF      ADDRESS.  HEX LOCATION(00002176) IN CSECT(U34E0   ) LENGTH(1)
                      534  2052  2601
     980  RSDCB      ADDRESS.  HEX LOCATION(0000211E) IN CSECT(U34E0   ) LENGTH(2)
                      927  3259  3367  3375  3377
    1156  RTNTB      ADDRESS.  HEX LOCATION(00002230) IN CSECT(U34E0   ) LENGTH(2)
                     2458
    1036  SDABF      ADDRESS.  HEX LOCATION(00002177) IN CSECT(U34E0   ) LENGTH(1)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                      585  2098  2603
     751  SECID      ADDRESS.  HEX LOCATION(00001F06) IN CSECT(U34E0   ) LENGTH(2)
                      987  3380  3382  3383  3384
     509  SECMA      ADDRESS.  HEX LOCATION(00001874) IN CSECT(U34E0   ) LENGTH(2)
                     2017
     507  SECMG      ADDRESS.  HEX LOCATION(00001854) IN CSECT(U34E0   ) LENGTH(30)
                      509
     935  SEDCB      ADDRESS.  HEX LOCATION(000020CE) IN CSECT(U34E0   ) LENGTH(2)
                      909  3261  3323  3383  3384  3420
     369  SEVEN      ABSOLUTE.  HEX VALUE(00000007)
                     2025  2184  2317  2763  3272  3317  3371  3395
     584  SEVMA      ADDRESS.  HEX LOCATION(000019F6) IN CSECT(U34E0   ) LENGTH(2)
                     2093
     582  SEVMG      ADDRESS.  HEX LOCATION(000019CE) IN CSECT(U34E0   ) LENGTH(38)
                      584
     434  SFTSW      ABSOLUTE.  HEX VALUE(00000012)
                     2555
     368  SIX        ABSOLUTE.  HEX VALUE(00000006)
                     2580  3384
     576  SIXMA      ADDRESS.  HEX LOCATION(000019C4) IN CSECT(U34E0   ) LENGTH(2)
                     2075
     574  SIXMG      ADDRESS.  HEX LOCATION(000019B8) IN CSECT(U34E0   ) LENGTH(10)
                      576
     539  SIXMS      ADDRESS.  HEX LOCATION(000018FE) IN CSECT(U34E0   ) LENGTH(26)
                      541
     544  SIXMU      ADDRESS.  HEX LOCATION(0000191E) IN CSECT(U34E0   ) LENGTH(18)
                      546
     549  SIXMV      ADDRESS.  HEX LOCATION(00001936) IN CSECT(U34E0   ) LENGTH(18)
                      551
     554  SIXMW      ADDRESS.  HEX LOCATION(0000194E) IN CSECT(U34E0   ) LENGTH(26)
                      556
     559  SIXMX      ADDRESS.  HEX LOCATION(0000196E) IN CSECT(U34E0   ) LENGTH(12)
                      561
     564  SIXMY      ADDRESS.  HEX LOCATION(00001980) IN CSECT(U34E0   ) LENGTH(20)
                      566
     569  SIXMZ      ADDRESS.  HEX LOCATION(0000199A) IN CSECT(U34E0   ) LENGTH(24)
                      571
     541  SIXM1      ADDRESS.  HEX LOCATION(0000191A) IN CSECT(U34E0   ) LENGTH(2)
                     2054
     546  SIXM3      ADDRESS.  HEX LOCATION(00001932) IN CSECT(U34E0   ) LENGTH(2)
                     2057
     551  SIXM4      ADDRESS.  HEX LOCATION(0000194A) IN CSECT(U34E0   ) LENGTH(2)
                     2060
     556  SIXM5      ADDRESS.  HEX LOCATION(0000196A) IN CSECT(U34E0   ) LENGTH(2)
                     2063
     561  SIXM6      ADDRESS.  HEX LOCATION(0000197C) IN CSECT(U34E0   ) LENGTH(2)
                     2066
     566  SIXM7      ADDRESS.  HEX LOCATION(00001996) IN CSECT(U34E0   ) LENGTH(2)
                     2069
     571  SIXM8      ADDRESS.  HEX LOCATION(000019B4) IN CSECT(U34E0   ) LENGTH(2)
                     2072
     376  SIXTN      ABSOLUTE.  HEX VALUE(00000010)
                      744  760  3260
     385  SIXTY      ABSOLUTE.  HEX VALUE(0000003C)
                     3355
     386  SIXT4      ABSOLUTE.  HEX VALUE(00000040)
                     2874  3004
     863  SKW2       ABSOLUTE.  HEX VALUE(00000002)
                     3438
     865  SKW4       ABSOLUTE.  HEX VALUE(00000006)
                     3429
     867  SKW6       ABSOLUTE.  HEX VALUE(0000000A)
                     3261
    2543  SOFT       ADDRESS.  HEX LOCATION(00002C6A) IN CSECT(U34E0   ) LENGTH(1)
                     1158
    2550  SOFT1      ADDRESS.  HEX LOCATION(00002C88) IN CSECT(U34E0   ) LENGTH(1)
                     2556  2561
    2562  SOFT2      ADDRESS.  HEX LOCATION(00002CAE) IN CSECT(U34E0   ) LENGTH(1)
                     2553
    1094  SPTD       ADDRESS.  HEX LOCATION(000021BC) IN CSECT(U34E0   ) LENGTH(2)
                     2220  2224  3422
    1095  SPTD1      ADDRESS.  HEX LOCATION(000021BE) IN CSECT(U34E0   ) LENGTH(1)
                     3423
     449  SPTD2      ABSOLUTE.  HEX VALUE(00000078)
                     2220
     450  SPTD3      ABSOLUTE.  HEX VALUE(000000B4)
                     2224
    1098  START      ADDRESS.  HEX LOCATION(000021C2) IN CSECT(U34E0   ) LENGTH(4)
                     3061  3115  3149  3153  3157  3161  3162  3183  3218
    2801  STERM      ADDRESS.  HEX LOCATION(00002EC4) IN CSECT(U34E0   ) LENGTH(1)
                     1161
     438  STMSW      ABSOLUTE.  HEX VALUE(00000016)
                     2817
    1097  STOC       ADDRESS.  HEX LOCATION(000021C0) IN CSECT(U34E0   ) LENGTH(2)
                     2221  2225  3149
     451  STOC2      ABSOLUTE.  HEX VALUE(000000F0)
                     2221
     452  STOC3      ABSOLUTE.  HEX VALUE(00000168)
                     2225
     424  STOP       ABSOLUTE.  HEX VALUE(00000006)
                     2148  2191  2281  2324
    2812  STRM1      ADDRESS.  HEX LOCATION(00002EEE) IN CSECT(U34E0   ) LENGTH(1)
                     2818  2823
    2824  STRM2      ADDRESS.  HEX LOCATION(00002F14) IN CSECT(U34E0   ) LENGTH(1)
                     2815
     661  SVNMA      ADDRESS.  HEX LOCATION(00001BF4) IN CSECT(U34E0   ) LENGTH(2)
                     2369
     659  SVNMG      ADDRESS.  HEX LOCATION(00001BCE) IN CSECT(U34E0   ) LENGTH(36)
                      661
     656  SXNMA      ADDRESS.  HEX LOCATION(00001BCA) IN CSECT(U34E0   ) LENGTH(2)
                     2363
     653  SXNMG      ADDRESS.  HEX LOCATION(00001B98) IN CSECT(U34E0   ) LENGTH(40)
                      656
    3179  SYSFN      ADDRESS.  HEX LOCATION(000031C4) IN CSECT(U34E0   ) LENGTH(1)
                     3151  3155
    3147  SYSLG      ADDRESS.  HEX LOCATION(00003162) IN CSECT(U34E0   ) LENGTH(1)
                     2237
    3174  SYSND      ADDRESS.  HEX LOCATION(000031C2) IN CSECT(U34E0   ) LENGTH(1)
                     3148
    3182  SYS0       ADDRESS.  HEX LOCATION(000031CC) IN CSECT(U34E0   ) LENGTH(1)
                     3212
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
  3190    SYS1       ADDRESS. HEX LOCATION(000031E4) IN CSECT(U34E0   ) LENGTH(1)
                  3209
  3200    SYS2       ADDRESS. HEX LOCATION(000031FA) IN CSECT(U34E0   ) LENGTH(1)
                  3193
  3205    SYS3       ADDRESS. HEX LOCATION(00003206) IN CSECT(U34E0   ) LENGTH(1)
                  3197  3199  3202
  3214    SYS4       ADDRESS. HEX LOCATION(0000321E) IN CSECT(U34E0   ) LENGTH(1)
                  3204
  3235    SYS5       ADDRESS. HEX LOCATION(00003260) IN CSECT(U34E0   ) LENGTH(1)
                  3180
   455    TCI        ABSOLUTE. HEX VALUE(00000010)
                  3192
   459    TCIE       ABSOLUTE. HEX VALUE(00000002)
                  3194
   454    TCIT       ABSOLUTE. HEX VALUE(00000000)
                  3191
   463    TCLB       ABSOLUTE. HEX VALUE(00000002)
                  3152  3160
   464    TCLE       ABSOLUTE. HEX VALUE(00000006)
                  3156
   776    TEMP       ADDRESS. HEX LOCATION(00001F4A) IN CSECT(U34E0   ) LENGTH(4)
                  2673
   372    TEN        ABSOLUTE. HEX VALUE(0000000A)
                  1996  2030  2692  3081
   617    TENMA      ADDRESS. HEX LOCATION(00001AE4) IN CSECT(U34E0   ) LENGTH(2)
                  2132
   615    TENMG      ADDRESS. HEX LOCATION(00001AB6) IN CSECT(U34E0   ) LENGTH(44)
                   617
   353    TERM       ABSOLUTE. HEX VALUE(00000007)
                  2394
   639    THNMA      ADDRESS. HEX LOCATION(00001B52) IN CSECT(U34E0   ) LENGTH(2)
                  2345
   637    THNMG      ADDRESS. HEX LOCATION(00001B34) IN CSECT(U34E0   ) LENGTH(28)
                   639
   365    THREE      ABSOLUTE. HEX VALUE(00000003)
                  2187  2320  2474  2672  3302  3320  3374  3398
   381    THRTY      ABSOLUTE. HEX VALUE(0000001E)
                  3122  3169
   382    THRT2      ABSOLUTE. HEX VALUE(00000020)
                  3208
   383    THRT3      ABSOLUTE. HEX VALUE(00000021)
                   746
   392    THR2K      ABSOLUTE. HEX VALUE(00008000)
                  2408
   722    THOMA      ADDRESS. HEX LOCATION(00001DB6) IN CSECT(U34E0   ) LENGTH(2)
                  2243
   720    THOMG      ADDRESS. HEX LOCATION(00001D98) IN CSECT(U34E0   ) LENGTH(28)
                   722
   437    TMOSW      ABSOLUTE. HEX VALUE(00000015)
                  2597  2660
   778    TMOT       ADDRESS. HEX LOCATION(00001F4E) IN CSECT(U34E0   ) LENGTH(8)
                  2659
   770    TMOUT      ADDRESS. HEX LOCATION(00001F3E) IN CSECT(U34E0   ) LENGTH(8)
                  2679
  2407    TMPRG      ADDRESS. HEX LOCATION(00002B6A) IN CSECT(U34E0   ) LENGTH(1)
                  1982
  1101    TMPST      ADDRESS. HEX LOCATION(000021CE) IN CSECT(U34E0   ) LENGTH(4)
                  3217  3219  3222  3223  3227  3228
   768    TPF        ADDRESS. HEX LOCATION(00001F30) IN CSECT(U34E0   ) LENGTH(4)
                  2669  2673
   517    TRDMA      ADDRESS. HEX LOCATION(00001896) IN CSECT(U34E0   ) LENGTH(2)
                  2041
   515    TRDMG      ADDRESS. HEX LOCATION(0000187E) IN CSECT(U34E0   ) LENGTH(22)
                   517
  1949    TRMCC      ADDRESS. HEX LOCATION(000025C2) IN CSECT(U34E0   ) LENGTH(8)
                  2806
   374    TWELV      ABSOLUTE. HEX VALUE(0000000C)
                  2980  3084
   630    TWLMA      ADDRESS. HEX LOCATION(00001B30) IN CSECT(U34E0   ) LENGTH(2)
                  2325
   628    TWLMG      ADDRESS. HEX LOCATION(00001B1E) IN CSECT(U34E0   ) LENGTH(16)
                   630
   377    TWNTY      ABSOLUTE. HEX VALUE(00000014)
                   761
   378    TWNT2      ABSOLUTE. HEX VALUE(00000016)
                   745
   379    TWNT4      ABSOLUTE. HEX VALUE(00000018)
                   762
   380    TWNT9      ABSOLUTE. HEX VALUE(0000001D)
                  3351
   364    TWO        ABSOLUTE. HEX VALUE(00000002)
                  2222  2433  2458  2612  2667  2688  2854  2869  2919
                  2922  2965  2984  3028  3095  3149  3174  3211  3221
                  3235  3281  3286  3321  3382  3383  3383  3384
   390    TWOK       ABSOLUTE. HEX VALUE(00000800)
                  3436
   388    TWO55      ABSOLUTE. HEX VALUE(000000FF)
                  1984  2051
   678    TWOMA      ADDRESS. HEX LOCATION(00001C54) IN CSECT(U34E0   ) LENGTH(2)
                  2475
   676    TWOMG      ADDRESS. HEX LOCATION(00001C28) IN CSECT(U34E0   ) LENGTH(42)
                   678
   683    TW1MA      ADDRESS. HEX LOCATION(00001C84) IN CSECT(U34E0   ) LENGTH(2)
                  2510
   681    TW1MG      ADDRESS. HEX LOCATION(00001C58) IN CSECT(U34E0   ) LENGTH(42)
                   683
   688    TW2MA      ADDRESS. HEX LOCATION(00001CBA) IN CSECT(U34E0   ) LENGTH(2)
                  2545
   686    TW2MG      ADDRESS. HEX LOCATION(00001C88) IN CSECT(U34E0   ) LENGTH(48)
                   688
   693    TW3MA      ADDRESS. HEX LOCATION(00001CD6) IN CSECT(U34E0   ) LENGTH(2)
                  2586
   691    TW3MG      ADDRESS. HEX LOCATION(00001CBE) IN CSECT(U34E0   ) LENGTH(22)
                   693
   697    TW4MA      ADDRESS. HEX LOCATION(00001CF4) IN CSECT(U34E0   ) LENGTH(2)
                  2727
   695    TW4MG      ADDRESS. HEX LOCATION(00001CD8) IN CSECT(U34E0   ) LENGTH(26)
                   697
   702    TW5MA      ADDRESS. HEX LOCATION(00001D1A) IN CSECT(U34E0   ) LENGTH(2)
                  2764
   700    TW5MG      ADDRESS. HEX LOCATION(00001CF8) IN CSECT(U34E0   ) LENGTH(32)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                   702
   707    TW6MA      ADDRESS. HEX LOCATION(00001D44) IN CSECT(U34E0   ) LENGTH(2)
                  2803
   705    TW6MG      ADDRESS. HEX LOCATION(00001D1E) IN CSECT(U34E0   ) LENGTH(36)
                   707
   712    TW8MA      ADDRESS. HEX LOCATION(00001D78) IN CSECT(U34E0   ) LENGTH(2)
                  2843
   710    TW8MG      ADDRESS. HEX LOCATION(00001D48) IN CSECT(U34E0   ) LENGTH(46)
                   712
   717    TW9MA      ADDRESS. HEX LOCATION(00001D94) IN CSECT(U34E0   ) LENGTH(2)
                  2439
   715    TW9MG      ADDRESS. HEX LOCATION(00001D7C) IN CSECT(U34E0   ) LENGTH(22)
                   717
  2841    USER       ADDRESS. HEX LOCATION(00002F18) IN CSECT(U34E0   ) LENGTH(1)
                  1162
  2846    USER1      ADDRESS. HEX LOCATION(00002F28) IN CSECT(U34E0   ) LENGTH(1)
                  2852  2883
  2856    USER2      ADDRESS. HEX LOCATION(00002F44) IN CSECT(U34E0   ) LENGTH(1)
                  2861
  2863    USER3      ADDRESS. HEX LOCATION(00002F5C) IN CSECT(U34E0   ) LENGTH(1)
                  2870
  2884    USER4      ADDRESS. HEX LOCATION(00002F94) IN CSECT(U34E0   ) LENGTH(1)
                  2849
   439    USESW      ABSOLUTE. HEX VALUE(00000017)
                  2851
     3    U34E0      CSECT. START(00001800) LENGTH(7670) ESDID(0)
                     3
   962    VDCB       ADDRESS. HEX LOCATION(000020FE) IN CSECT(U34E0   ) LENGTH(2)
                   958  3387
   891    VFW3       ABSOLUTE. HEX VALUE(00000034)
                  3441
   892    VFW4       ABSOLUTE. HEX VALUE(00000036)
                  3432
  1039    VLNAM      ADDRESS. HEX LOCATION(0000217A) IN CSECT(U34E0   ) LENGTH(1)
                   602  2125
   601    VOLMA      ADDRESS. HEX LOCATION(00001A68) IN CSECT(U34E0   ) LENGTH(2)
                  2120
   598    VOLMG      ADDRESS. HEX LOCATION(00001A2A) IN CSECT(U34E0   ) LENGTH(48)
                   601
   414    WIDCB      ABSOLUTE. HEX VALUE(000014F6)
                  2166  2299
  1075    WORK1      ADDRESS. HEX LOCATION(00002198) IN CSECT(U34E0   ) LENGTH(2)
                  2477  2489  2512  2524  2547  2559  2644  2715  2729
                  2735  2770  2782  2809  2821  2909
  1076    WORK2      ADDRESS. HEX LOCATION(0000219A) IN CSECT(U34E0   ) LENGTH(2)
                  2478  2513  2548  2645  2730  2737  2739  2771  2810
                  2910
  1077    WORK3      ADDRESS. HEX LOCATION(0000219C) IN CSECT(U34E0   ) LENGTH(2)
                  2479  2490  2514  2525  2549  2560  2646  2716  2731
                  2736  2772  2783  2811  2822  2911
   953    WRDCB      ADDRESS. HEX LOCATION(000020EE) IN CSECT(U34E0   ) LENGTH(2)
                  3257  3386
   882    WRW3       ABSOLUTE. HEX VALUE(00000024)
                  3440
   883    WRW4       ABSOLUTE. HEX VALUE(00000026)
                  3431
  1056    YES        ADDRESS. HEX LOCATION(00002182) IN CSECT(U34E0   ) LENGTH(1)
                  2015  2052  2098  2125  2601  2603  3109
   362    ZERO       ABSOLUTE. HEX VALUE(00000000)
                   742  2185  2232  2318  2584  2654  2685  2689  2855
                  2921  2983  3027  3094  3173  3196  3234  3273  3303
                  3308  3318  3348  3372  3396
```

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                             3 ********************************************************************
                             4 *                                                                  *
                             5 *                  ***       PREREQUISITES        ***              *
                             6 *                                                                  *
                             7 *                            NONE                                  *
                             8 *                                                                  *
                             9 ********************************************************************
                            10 *                                                                  *
                            11 *                  ***       MODIFICATIONS        ***              *
                            12 *                                                                  *
                            13 *                CHANGES MADE IN ORDER TO RUN WITHOUT 34F8          *
                            14 *                                                                  *
                            15 ********************************************************************
                            16 *                                                                  *
                            17 *                  ***     REA'S INCORPORATED     ***              *
                            18 *                                                                  *
                            19 *                            NONE                                  *
                            20 *                                                                  *
                            21 ********************************************************************
                            22 *                                                                  *
                            23 *                  ***    SPECIAL INSTRUCTIONS    ***              *
                            24 *                                                                  *
                            25 *                            NONE                                  *
                            26 *                                                                  *
                            27 ********************************************************************
                            28 *                                                                  *
                            29 *                  ***       E. C. HISTORY        ***              *
                            30 *                                                                  *
                            31 *        DATE 01OCT76  DATE 06MAY77  DATE 15SEP77  DATE            *
                            32 *        E.C. 578468   E.C. 578756   E.C. 754882   E.C.             *
                            33 *                                                                  *
                            34 ********************************************************************
002100                      36 U34F1     START X'2100'
002100  2450                37 ADDTABPT  DC    A(STARTAD)          POINTER TO START OF LSB TABLE
002102  0000                38 TOTPROG   DC    X'0000'             TOTAL NUMBER OF PROG THAT WILL FIT
002104  0001                39 PROGACT   DC    X'0001'             TOTAL NUMBER OF PROG LOCATIONS USED
002106  0000                40 ENTNUM    DC    X'0000'             TOTAL NUM OF DEV TABLE ENTRIES USED
002108  0000                41           DC    X'0000'
00210A  4040404040404040    42           DC    21CL10' '           DEV TABLE WITH DEV DEPENDENT DATA
00211C  4040404040404040    43           DC    21CL10' '           *   ALL ENTRIES ARE SET TO INDICATE
0022AE  4040404040404040    44           DC    21CL10' '           *   THAT THE ENTRY IS A CONCATENATED
002380  4040404040404040    45           DC    20CL10' '           *   ENTRY WHICH HAS NOT BEEN
002448  00404040            46           DC    X'00404040'         *   ASSIGNED --- EXCEPT FOR THE LAST
00244C  40404040            47           DC    X'40404040'         *   ENTRY WHICH IS NOT CONCATENATED
002450  0000000000000000    49 STARTAD   DC    21XL8'00'           LSB TABLE --- EACH LSB IS PRECEDED
0024F8  0000000000000000    50           DC    21XL8'00'           *            BY A WORD WHICH WILL
0025A0  0000000000000000    51           DC    21XL8'00'           *            CONTAIN THE PROGRAMS
002648  0000000000000000    52           DC    21XL8'00'           *            INITIAL LOAD ADDRESS
002100                      53           END   U34F1
```


CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
    49    STARTAD    ADDRESS. HEX LOCATION(00002450) IN CSECT(U34F1   ) LENGTH(8)
                                          37
    36    U34F1      CSECT. START(00002100) LENGTH(1520) ESDID(0)
                                           36    53
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                              3 ************************************************************************
                              4 *                                                                      *
                              5 *                    ***       PREREQUISITES        ***               *
                              6 *                                                                      *
                              7 *                                NONE                                  *
                              8 *                                                                      *
                              9 ************************************************************************
                             10 *                                                                      *
                             11 *                    ***       MODIFICATIONS        ***               *
                             12 *                                                                      *
                             13 *          PROGRAMMABLE COMMUNICATIONS SUBSYSTEM ADDED                 *
                             14 *                                                                      *
                             15 ************************************************************************
                             16 *                                                                      *
                             17 *                    ***     REA'S INCORPORATED     ***               *
                             18 *                                                                      *
                             19 *                                NONE                                  *
                             20 *                                                                      *
                             21 ************************************************************************
                             22 *                                                                      *
                             23 *                    ***    SPECIAL INSTRUCTIONS    ***               *
                             24 *                                                                      *
                             25 *                                NONE                                  *
                             26 *                                                                      *
                             27 ************************************************************************
                             28 *                                                                      *
                             29 *                    ***       E. C. HISTORY        ***               *
                             30 *                                                                      *
                             31 *        DATE 010CT76   DATE 02DEC76   DATE 17DEC76   DATE 06MAY77     *
                             32 *        E.C. 578468    E.C. 578469    E.C. 578486    E.C. 578756      *
                             33 *                                                                      *
                             34 *        DATE 15SEP77   DATE 09DEC77   DATE          DATE             *
                             35 *        E.C. 754882    E.C. 755104    E.C.          E.C.             *
                             36 *                                                                      *
                             37 ************************************************************************
 001800                      39 U34F8     START X'1800'
 000000                      41 OUT       EQU   0                  EQU USED TO INDICATE SVC
 000001                      42 OUTIN     EQU   1                  EQU USED TO INDICATE SVC
 000019                      43 ETOH      EQU   25                 EQU USED TO INDICATE SVC
 00001A                      44 HTOE      EQU   26                 EQU USED TO INDICATE SVC
 000007                      45 TERM      EQU   7                  EQU USED TO INDICATE SVC
 00001F                      46 READI     EQU   31                 EQU USED TO INDICATE SVC
 000020                      47 WRITI     EQU   32                 EQU USED TO INDICATE SVC
 000230                      48 LASTADD   EQU   X'0230'            LOCATION OF ADDRESS OF LAST LOC.
 000234                      49 DCPMODE   EQU   X'0234'            CONTROL PROG MODE SWITCHES
 000240                      50 ALTCONTY  EQU   X'0240'            LOCATION OF ALT. CON. TYPE
 002100                      51 ADDTABPT  EQU   X'2100'            LOCATION OF -> TO LSB TABLE
 002102                      52 TOTPROG   EQU   X'2102'            TOTAL PROG INDICATOR
 002104                      53 PROGACT   EQU   X'2104'            TOTAL PROG ACTIVE
 002106                      54 ENTNUM    EQU   X'2106'            TOTAL ENTRIES USED
 FFFFFF                      55 M1        EQU   -1                 -1
 000000                      56 ZERO      EQU   0                  00
 000001                      57 ONE       EQU   1                  01
 000002                      58 TWO       EQU   2                  02
 000003                      59 THREE     EQU   3                  03
 000004                      60 FOUR      EQU   4                  04
 000006                      61 SIX       EQU   6                  06
 000008                      62 EIGHT     EQU   8                  08
 000009                      63 NINE      EQU   9                  09
 00000A                      64 TEN       EQU   10                 10
 00000C                      65 TWELVE    EQU   12                 12
 000010                      66 SIXTEEN   EQU   16                 16
 000011                      67 SEVNTEEN  EQU   17                 17
 000014                      68 TWENTY    EQU   20                 20
 000020                      69 THIRTY2   EQU   32                 32
 000028                      70 FOURTY    EQU   40                 40
 000100                      71 ONEHUND   EQU   X'0100'            HEX ONE HUNDRED
 000009                      72 ADDQUAN   EQU   9                  MASK TO RESET BITS 12 AND 15
 001000                      73 ACTEST    EQU   X'1000'            MASK FOR INDICATING ALT CON TEST
 000080                      74 NOHDONLY  EQU   X'0080'            DONT PRINT HEADER ONLY
 0000C0                      75 ALTCONST  EQU   X'00C0'            STOP MASK FOR PROGRAMMERS CON ONLY
 003000                      76 CONFIGTB  EQU   X'3000'            START ADDRESS OF CONFIGURATION TABLE
 00FFF0                      77 FINDSIZE  EQU   X'FFF0'            MASK FIELD
 00FF00                      78 FINDQUAN  EQU   X'FF00'            MASK FIELD
 008000                      79 ASSIGNBT  EQU   X'8000'            MASK FIELD
 004000                      80 CHAINBIT  EQU   X'4000'            MASK FIELD
 000100                      81 ALTCONBT  EQU   X'0100'            MASK FIELD
 00C140                      82 ABLNK     EQU   C'A '              AN ''A'' WITH A BLANK
 001800  F3F4C6F8             84 $PID      DC    C'34F8'            PROG ID
 001804  0000                 85 $LEVEL    DC    X'0000'            CURRENT RELEASE LEVEL
 001806  1B4A                 86 $INADR    DC    A(UTILSTRT)        -> TO START OF PROG
 001808  1812                 87 $DEVPT    DC    A(DEVTAB)          -> TO START OF DEV TABLE
 00180A  0000                 88 RTNE      DC    A(0)               ROUTINE NUMBER
 00180C  0000                 89 CKPT      DC    A(0)               CHECK POINT NUMBER
 00180E  0000                 90 OPTN1     DC    A(0)               OPTION WORD ONE
 001810  0000                 91 OPTN2     DC    A(0)               OPTION WORD TWO
 001812  0000                 92 DEVTAB    DC    A(0)               DUMMY DEV TABLE
 001814  0003                 93 MAXPROG   DC    A(3)               MAX NUM OF PROG FOR 16K
 001816  0009                 94           DC    A(9)               MAX NUM OF PROG FOR 32K
 001818  000F                 95           DC    A(15)              MAX NUM OF PROG FOR 48K
 00181A  0015                 96           DC    A(21)              MAX NUM OF PROG FOR 64K
 00181C  00                   97           DC    X'00'              END OF MAX NUM TABLE
 00181D  E4F3F8C6F1           98 PROGCON   DC    C'U38F1'           CONTROL BLOCK FOR READ OF U38F1
 001822  0000                 99           DC    A(0)
 001824  00                  100           DC    X'00'
 001825  E4F3F4C6F1          101 PROGDEV   DC    C'U34F1'           CONTROL BLOCK FOR READ OF U34F1
 00182A  0000                102           DC    A(0)
 00182C  2200                103 PROGSTRT  DC    X'2200'            START ADDRESS OF PROG IN 16K
 00182E  2400                104           DC    X'2400'            START ADDRESS OF PROG IN 32K
 001830  2600                105           DC    X'2600'            START ADDRESS OF PROG IN 48K
 001832  2800                106           DC    X'2800'            START ADDRESS OF PROG IN 64K
 001834  0A00                107 PROGSIZE  DC    X'0A00'            MAX LENGTH OF PROG FOR TEST
 001836  00C0                108           DC    X'00C0'            CONTROL BIT FOR NO HEADER ON MSG
 001838  1990                109 $OUTIN    DC    A(MSG03)           ADDRESS OF MESSAGE
 00183A  1846                110           DC    A(INMSG)           ADDRESS OF INPUT AREA
 00183C  0040                111           DC    A(64)              SIZE OF INPUT AREA
 00183E  0000                112           DC    A(0)               EBC CONVERSION
 001840  00C0                113 $OUTDLY   DC    X'00C0'            CONTROL BIT FOR NO HEADING ON MSG
 001842  0000                114 $OUT      DC    A(*-*)             ADDRESS OF MSG
 001844  0000                115           DC    A(0)
 001846  4040                116 INMSG     DC    CL2'  '            INPUT AREA
 001848  4040                117 INMSG1    DC    CL2'  '
 00184A  4040404040404040    118 INMSG2    DC    CL62'  '
 001888  00000000            119 WORKAREA  DC    2A(*-*)            TWO WORD WORK AREA
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
 00188C  0000                120 SAVR3     DC    A(0)               SAVE AREA FOR R3
 00188E  0000                121 RECORDAC  DC    X'0000'            ALT CON INDICATOR
 001890  3D00                123 FAKEDA    DC    X'3D00'            STARTING ADDRESS USED FOR F.P.
 001892                      124 VALIDTYP  EQU   *
 001892  3D                  125           DC    X'3D'              START OF VALID DEV TYPE TABLE 3D
 001893  40                  126           DC    X'40'                                            40
 001894  44                  127           DC    X'44'                                            44
 001895  45                  128           DC    X'45'                                            45
 001896  48                  129           DC    X'48'                                            48
 001897  50                  130           DC    X'50'                                            50
 001898  64                  131           DC    X'64'                                            64
 001899  68                  132           DC    X'68'                                            68
 00189A  78                  133           DC    X'78'                                            78
 00189B  A0                  134           DC    X'A0'                                            A0
 00189C  A3                  135           DC    X'A3'                                            A3
 00189D  A4                  136           DC    X'A4'                                            A4
 00189E  E0                  137           DC    X'E0'                                            E0
 00189F  E8                  138           DC    X'E8'                                            E8
 0018A0  E9                  139           DC    X'E9'                                            E9
 0018A1  F0                  140           DC    X'F0'                                            F0
 0018A2  F1                  141           DC    X'F1'                                            F1
 0018A3  F8                  142           DC    X'F8'                                            F8
 0018A4  0012                143 TYPNUM    DC    A(18)              NUMBER OF VALID DEV TYPES TO CHECK
 0018A6  04                  144 FOURB     DC    X'04'
 0018A8  0000                145 CHANGE    DC    A(0)               FLAG AREA TO INDICATE CHANGE OCCURED
 0018AA  0040                146 CHAINMSK  DC    X'0040'            MASK FIELD FOR CHAIN BIT
 0018AC  0001                147 $HTOE     DC    A(1)               CONTROL BLOCK FOR HEX TO EBC
 0018AE  2103                148 $HTOE1    DC    A(TOTPROG+1)
 0018B0  1927                149 $HTOE2    DC    A(MSG011+2)
 0018B2  0002                150 @HTOE     DC    A(2)               CONTROL BLOCK FOR HEX TO EBC
 0018B4  2106                151 @HTOE1    DC    A(ENTNUM)
 0018B6  1979                152 @HTOE2    DC    A(MSG021)
 0018B8  0001                153 AHTOE     DC    A(1)               CONTROL BLOCK FOR HEX TO EBC
 0018BA  0000                154 AHTOE1    DC    A(*-*)
 0018BC  19C4                155 AHTOE2    DC    A(MSG061)
 0018BE  0001                156 BHTOE     DC    A(1)               CONTROL BLOCK FOR HEX TO EBC
 0018C0  0000                157 BHTOE1    DC    A(*-*)
 0018C2  19D0                158 BHTOE2    DC    A(MSG062)
 0018C4  0001                159 CHTOE     DC    A(1)               CONTROL BLOCK FOR HEX TO EBC
 0018C6  1890                160 FLTPTYP   DC    A(FAKEDA)
 0018C8  19D6                161           DC    A(MSG07)
 0018CA  0001                162 EHTOE     DC    A(1)               CONTROL BLOCK FOR HEX TO EBC
 0018CC  0000                163 TBLPT     DC    A(*-*)
 0018CE  1848                164           DC    A(INMSG1)
 0018D0  0002                165 $ETOH     DC    A(2)               CONTROL BLOCK FOR EBC TO HEX
 0018D2  0000                166 $ETOH1    DC    A(*-*)
 0018D4  1888                167 $ETOH2    DC    A(WORKAREA)
 0018D6  0001                168 THTOE     DC    A(1)
 0018D8  18D8                169 THTOE1    DC    A(*)
 0018DA  1B18                170 THTOE2    DC    A(MSG16)
 0018DC  0001                171 DHTOE     DC    A(1)
 0018DE  18DE                172 DHTOE1    DC    A(*)
 0018E0  1B24                173 DHTOE2    DC    A(MSG17)
 0018E2  F3F4C6F1            175 PGNAME    DC    C'34F1'            NAME OF PROG TO WRITE TO DISK
 0018E6  18E2                176 $WRITI    DC    A(PGNAME)          -> TO NAME TO WRITE
 0018E8  2100                177           DC    X'2100'            START ADDRESS OF PROG TO WRITE
 0018EA  02F8                178           DC    A(760)             NUM OF WORDS TO WRITE
 0018EC  F3F8C6F1            179 PGNAME1   DC    C'38F1'            NAME OF PROG TO WRITE TO DISK
 0018F0  18EC                180 @WRITI    DC    A(PGNAME1)         -> TO NAME TO WRITE
 0018F2  3000                181           DC    X'3000'            START ADDRESS OF PROG TO WRITE
 0018F4  0800                182           DC    A(2048)            NUM OF WORDS TO WRITE
 0018F6                      183 COMTB     EQU   *
 0018F6  C1                  184           DC    C'A'               ADD COMMAND
 0018F7  C4                  185           DC    C'D'               DELETE COMMAND
 0018F8  C2                  186           DC    C'B'               LIST ENTRIES COMMAND
 0018F9  C3                  187           DC    C'C'               SAVE COMMAND
 0018FA  C6                  188           DC    C'F'               INIT COMMAND
 0018FB  C5                  189           DC    C'E'               END COMMAND
 0018FC  00                  190 COMTBND   DC    X'00'              END OF VALID COMMAND TABLE
 0018FE  1D54                191 COMPT     DC    A($ADD)            ADDRESS OF ADD COMMAND
 001900  1EA4                192           DC    A($DELETE)         ADDRESS OF DELETE COMMAND
 001902  1CF6                193           DC    A($LIST)           ADDRESS OF LIST COMMAND
 001904  1FDE                194           DC    A($SAVE)           ADDRESS OF SAVE COMMAND
 001906  1C38                195           DC    A(INITCALL)        ADDRESS OF INIT COMMAND
 001908  200C                196           DC    A($END)            ADDRESS OF END COMMAND
 00190A  3460                198           DC    X'3460'
 00190C  E2E3D6D9C1C7C540C   199 MSG01     DC    C'STORAGE INDICATES UP TO '''
 001925  F0F0F0F07D40C3D6D   200 MSG011    DC    C'0000'' CONCURRENTLY EXECUTING PROGRAMS'
 00194A  00                  201           DC    X'00'
 00194B  00                  202           ALIGN WORD
 00194C  3461                203           DC    X'3461'
 00194E  E3C8C9E240E2E8E2E   204 MSG02     DC    C'THIS SYSTEM IS NOW CONFIGURATED TO EXECUTE '
 001979  F0F0F0F040C4C5E54   205 MSG021    DC    C'0000 DEV ADDRESS(S)'
 00198C  00                  206           DC    X'00'
 00198D  00                  207           ALIGN WORD
 00198E  3462                208           DC    X'3462'
 001990  C5D5E3C5D940D6D7E   209 MSG03     DC    C'ENTER OPTIONS'
 00199D  00                  210           DC    X'00'
                             211           ALIGN WORD
 00199E  3463                212           DC    X'3463'
 0019A0  C9D5E540D9C5D8      213 MSG04     DC    C'INV REQ'
 0019A7  00                  214           DC    X'00'
                             215           ALIGN WORD
 0019A8  3464                216           DC    X'3464'
 0019AA  C4C5E540C1C4C44DE   217 MSG05     DC    C'DEV ADD(S) ACT'
 0019B8  00                  218           DC    X'00'
 0019B9  00                  219           ALIGN WORD
 0019BA  3464                220           DC    X'3464'
 0019BC  C4C5E540C1C4C440    221 MSG06     DC    C'DEV ADD '
 0019C4  E7E7406060640E3E    222 MSG061    DC    C'XX --- TYPE '
 0019D0  E7E7                223 MSG062    DC    C'XX'
 0019D2  00                  224           DC    X'00'
 0019D3  00                  225           ALIGN WORD
 0019D4  3471                226           DC    X'3471'
 0019D6  E7E740606040C9E24   227 MSG07     DC    C'XX -- IS THE DEV ADD USED FOR FLOATING POINT'
 001A02  00                  228           DC    X'00'
 001A03  00                  229           ALIGN WORD
 001A04  3468                230           DC    X'3468'
 001A06  606060C5D4D7E3E86   231 MSG18     DC    C'---EMPTY---'
 001A10  00                  232           DC    X'00'
 001A11  00                  233           ALIGN WORD
 001A12  346F                234           DC    X'346F'
 001A14  D9C5C1C440C5D9D9D   235 MSG21     DC    C'READ ERROR -- COULD NOT READ EITHER U34F1 OR U38F1'
 001A46  00                  236           DC    X'00'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                    COPYRIGHT IBM CORP 1976

001A47  00                 238          ALIGN WORD
001A48  346A               239          DC    X'346A'
001A4A  D5D6E340D2C5D7E34  240 MSG13     DC    C'NOT KEPT ---- ENTER C OR E'
001A64  00                 241          DC    X'00'
001A65  00                 242          ALIGN WORD
001A66  346B               243          DC    X'346B'
001A68  D2C5D7E3           244 MSG14     DC    C'KEPT'
001A6C  00                 245          DC    X'00'
001A6D  00                 246          ALIGN WORD
001A6E  3465               247          DC    X'3465'
001A70  E7E740D5D6E340C1C  248 MSG08     DC    C'XX NOT ADDED ---- TABLE FILLED'
001A8E  00                 249          DC    X'00'
001A8F  00                 250          ALIGN WORD
001A90  3466               251          DC    X'3466'
001A92  E7E740D5D6E340C6D  252 MSG09     DC    C'XX NOT FOUND IN SYSTEM CONFIG TAB'
001AB3  00                 253          DC    X'00'
                           254          ALIGN WORD
001AB4  3467               255          DC    X'3467'
001AB6  E7E740C9D3D3C5C7C  256 MSG10     DC    C'XX ILLEGAL DEV TYPE FOR SYS TEST'
001AD6  00                 257          DC    X'00'
001AD7  00                 258          ALIGN WORD
001AD8  3469               259          DC    X'3469'
001ADA  E7E740D5D6E340C4C  260 MSG12     DC    C'XX NOT DELETED --- NOT FOUND'
001AF6  00                 261          DC    X'00'
001AF7  00                 262          ALIGN WORD
001AF8  346C               263          DC    X'346C'
001AFA  E7E740D5D6E340C1C  264 MSG15     DC    C'XX NOT ADDED ---- DUPLICATE'
001B15  00                 265          DC    X'00'
                           266          ALIGN WORD
001B16  346D               267          DC    X'346D'
001B18  E7E740C1C4C4C5C4   268 MSG16     DC    C'XX ADDED'
001B20  00                 269          DC    X'00'
001B21  00                 270          ALIGN WORD
001B22  346E               271          DC    X'346E'
001B24  E7E740C4C5D3C5E3C  272 MSG17     DC    C'XX DELETED'
001B2E  00                 273          DC    X'00'
001B2F  00                 274          ALIGN WORD
001B30  3470               275          DC    X'3470'
001B32  E7E740C9D3D3C5C7C  276 MSG22     DC    C'XX ILLEGAL --- CHAINED'
001B48  00                 277          DC    X'00'
001B49  00                 278          ALIGN WORD
001B4A  4724 1825          280 UTILSTRT MVA   PROGDEV,R7          LOAD ADDRESS OF CONTROL BLOCK
001B4E  601F               281          SVC   READI               ISSUE SVC
001B50  75A7               282          IR    R5,R5               CKECK FOR GOOD RETURN
001B52  6801 1FFE          283          BNZ   $ERROR              BRANCH IF ERROR
001B56  4724 181D          284          MVA   PROGCON,R7          LOAD ADDRESS OF CONTROL BLOCK
001B5A  601F               285          SVC   READI               ISSUE SVC
001B5C  75A7               286          IR    R5,R5               CHECK FOR GOOD RETURN
001B5E  6801 1FFE          287          BNZ   $ERROR              BRANCH IF ERROR
001B62  4224 3000          288          MVWI  CONFIGTB,R2
001B66  C3A0 0002          289          MVB   (R2,TWO),R3
001B6A  7224               290          MVW   R2,R1
001B6C  7B64 FF00          291          RBTWI FINDQUAN,R3
001B70  0211               292          ABI   SEVNTEEN,R2
001B72  820F 18C6          293 LOOP12    CB    (R2),FLTPTYP*
001B76  1003               294          JE    FNDFP1
001B78  0210               295          ABI   SIXTEEN,R2
001B7A  BBFB               296          JCT   LOOP12,R3
001B7C  5022               297          J     NOFLTPT
001B7E  02FF               298 FNDFP1    ABI   M1,R2
001B80  C360 0002          299 FNDFP     MVB   (R1,TWO),R3
001B84  0110               300          ABI   SIXTEEN,R1
001B86  7B64 FF00          301          RBTWI FINDQUAN,R3
001B8A  810F 18C6          302 LOOP13    CB    (R1),FLTPTYP*
001B8E  1005               303          JE    CKFLT
001B90  0110               304 LOOP13A   ABI   SIXTEEN,R1
001B92  BBFB               305          JCT   LOOP13,R3
001B94  80B0 18C6          306          MVB   FLTPTYP*,(R2)
001B98  5006               307          J     $FTMSG
001B9A  7145               308 CKFLT     CW    R1,R2
001B9C  10F9               309          JE    LOOP13A
001B9E  4029 1890 0100     310          AWI   ONEHUND,FAKEDA
001BA4  50ED               311          J     FNDFP
001BA6  4724 18C4          312 $FTMSG    MVA   CHTOE,R7
001BAA  601A               313          SVC   HTOE
001BAC  4724 18F0          314          MVA   @WRITI,R7
001BB0  6020               315          SVC   WRITI
001BB2  6B18 18C6          316          MVW   FLTPTYP*,R3
001BB6  4020 1842 19D6     317          MVA   MSG07,$OUT
001BBC  4724 1842          318          MVA   $OUT,R7
001BC0  6000               319          SVC   OUT
001BC2  6D08 2102          320 NOFLTPT   MVW   TOTPROG,R5          LOAD TOTAL PROG AREA
001BC6  6800 1C38          321          BZ    INITCALL            INIT SYSTEM IF NOT CALLED BEFORE
001BCA  8028 2102 188E     322          MVB   TOTPROG,RECORDAC    SAVE ALT CON INDICATOR
001BD0  402D 2102 1000     323          RBTWI ACTEST,TOTPROG      TURN OFF INDICATOR
001BD6  4724 18AC          325 INITRET   MVA   $HTOE,R7           LOAD CONTROL BLOCK ADDRESS
001BDA  601A               326          SVC   HTOE                ISSUE SVC
001BDC  4724 18B2          327          MVA   @HTOE,R7            LOAD CONTROL BLOCK ADDRESS
001BE0  601A               328          SVC   HTOE                ISSUE SVC
001BE2  4020 1842 190C     329          MVA   MSG01,$OUT          MOVE ADDRESS OF MSG
001BE8  4724 1842          330          MVA   $OUT,R7             LOAD CONTROL BLOCK ADDRESS
001BEC  4324 2102          331          MVWI  TOTPROG,R3          INIT R3 AS ADDRESS POINTER
001BF0  6000               332          SVC   OUT                 ISSUE SVC
001BF2  4020 1842 194E     333          MVA   MSG02,$OUT          MOVE ADDRESS OF MSG
001BF8  4724 1842          334          MVA   $OUT,R7             LOAD CONTROL BLOCK ADDRESS
001BFC  4324 2106          335          MVWI  ENTNUM,R3           INIT R3 AS ADDRESS POINTER
001C00  6000               336          SVC   OUT                 ISSUE SVC
001C02  6802 1FB2          337          CB    CLEANUP             CLEAN UP REST OF TABLE
001C06  4020 1838 1990     338 TRYAGAIN  MVA   MSG03,$OUTIN        LOAD ADDRESS OF MSG
001C0C  4724 1838          339          MVA   $OUTIN,R7           LOAD CONTROL BLOCK ADDRESS
001C10  6001               340          SVC   OUTIN               ISSUE SVC
001C12  4124 18F6          341          MVA   COMTB,R1            LOAD ADDRESS OF COMMAND TABLE
001C16  4224 18FE          342          MVA   COMPT,R2            LOAD ADDRESS OF ADDRESS TABLE
001C1A  8067 1846          343 LOOP11    CB    INMSG,(R1)+         IS THIS THE COMMAND DESIRED
001C1E* 6850 0000          344          BE    (R2)*               BRANCH YES
001C22  0202               345          ABI   TWO,R2              INCREMENT R2 TO NEXT ADDRESS
001C24  8063 18FC          346          CB    COMTBND,(R1)        IS THIS THE END OF TABLE
001C28  18F8               347          JNE   LOOP11              BRANCH IF NO
001C2A  4020 1842 19A0     348 INVALID   MVA   MSG04,$OUT          MOVE ADDRESS OF MSG
001C30  4724 1842          349          MVA   $OUT,R7             LOAD CONTROL BLOCK ADDRESS
001C34  6000               350          SVC   OUT                 ISSUE SVC
001C36  50E7               351          J     TRYAGAIN            BRANCH
001C38  6F08 18EA          353 INITCALL  MVW   $WRITI+4,R7        LOAD LENGTH OF TABLE IN WORDS
001C3C  402D 188E 1000     354          RBTWI ACTEST,RECORDAC     INIT ALTERNATE CONSOLE BIT
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                    COPYRIGHT IBM CORP 1976

001C42  3709               355          SLL   ONE,R7              CHANGE TO BYTES
001C44  4024 0000          356          MVWI  ZERO,R0             ZERO R0
001C48  4524 2100          357          MVWI  ADDTABPT,R5         LOAD START ADDRESS
001C4C  28AC               358          FFN   R0,(R5)             ZERO TOTAL TABLE
001C4E  4029 18A8 0001     359          AWI   ONE,CHANGE          SET CHANGE INDICATOR
001C54  6D08 0230          360          MVW   LASTADD,R5          MOVE LAST ADDRESS INTO R5
001C58  3562               361          SRL   TWELVE,R5           SHIFT TO GET HIGH ORDER HEX CHAR
001C5A  7DA4 FFF0          362          RBTWI FINDSIZE,R5         RESET ALL OTHER BITS
001C5E  75C4               363          MVW   R5,R6               INIT R6
001C60  3661               364          SRL   ONE,R6              DEVIDE BY TWO
001C62  7EC4 0009          365          RBTWI ADDQUAN,R6          RESET BIT 12 AND 15
001C66  76A8               366          AW    R6,R5               AD TO FIRST HEX CHAR
001C68  6D0D 2102          367          MVW   R5,TOTPROG          STORE AS TOTAL NUM OF POSSIBLE PROGS
001C6C  4124 2106          368          MVWI  ENTNUM,R1           LOAD DEV TAB ADDRESS
001C70  0102               369          ABI   TWO,R1              POINT AT DEV TABLE
001C72  0128               370 LOOP2     ABI   FOURTY,R1           POINT AT NEXT ENTRY
001C74  BDFB               371          JCT   LOOP2,R5            BRANCH FOR TOTAL NUM OF ENTRIES
001C76  6908 2100          372          MVW   R1,ADDTABPT         STORE START ADDRESS OF LSB'S
001C7A  CD25 2106          373          MVWZ  ENTNUM,R5           ZERO ENTRIES ACTIVE
001C7E  CD25 2104          374          MVWZ  PROGACT,R5          ZERO PROG ACTIVE
001C82  4324 1814          375          MVA   MAXPROG,R3          LOAD ADDRESS OF MAX PROG TABLE
001C86  4224 182C          376          MVA   PROGSTRT,R2         LOAD ADDRESS OF PROG START TAB
001C8A  88E3 2102          377 LOOP3     CW    TOTPROG,(R3)        IS THIS THE TOTAL NUM OF POS. PROG
001C8E  1003               378          JE    FND                 BRANCH IF YES
001C90  0202               379          ABI   TWO,R2              BUMP R2
001C92  0302               380          ABI   TWO,R3              BUMP R3
001C94  50FA               381          J     LOOP3               BRANCH UNTIL FOUND
001C96  CBC0               382 FND       MVW   (R3),R3             LOAD MAX NUM OF PROG INTO R3
001C98  CA80               383          MVW   (R2),R2             LOAD START ADDRESS OF SYSTEM INTO R2
001C9A  CA48               384 LOOP4     MVW   R2,(R1)             LOAD START ADDRESS INTO LSB TABLE
001C9C  C865 0002          385          MVWZ  (R1,TWO),R0         ZERO FIRST WORD OF LSB
001CA0  6A08 1834          386          AW    PROGSIZE,R2         ADD PROG SIZE TO START ADDRESS
001CA4  0120               387          ABI   THIRTY2,R1          BUMP TO NEXT LSB POINTER
001CA6  BBF9               388          JCT   LOOP4,R3            LOOP UNTIL DONE
001CA8  4020 1846 C140     390          MVWI  ABLNK,INMSG
001CAE  4020 1E94 1CE4     391          MVA   FILLMR,ADDOUT+TWO
001CB4  4020 1FDC 1CE4     392          MVA   FILLMR,CLEAN3+TWO
001CBA  C125 184A          393          MVBZ  INMSG2,R1
001CBE  4224 3000          394          MVWI  CONFIGTB,R2
001CC2  C3A0 0002          395          MVB   (R2,TWO),R6
001CC6  7EC4 FF00          396          RBTWI FINDQUAN,R6
001CCA  6A0D 18CC          397          MVW   R2,TBLPT
001CCE  4029 18CC 0010     398 LOOP14    AWI   SIXTEEN,TBLPT
001CD4  883B 18CC 0240     399          CW    TBLPT*,ALTCONTY
001CDA  10F9               400          JE    LOOP14
001CDC  4724 18CA          401          MVA   EHTOE,R7
001CE0  601A               402          SVC   HTOE
001CE2  5038               403          J     $ADD
001CE4  BEF4               404 FILLMR    JCT   LOOP14,R6
001CE6  4020 1E94 1E96     405          MVA   ADDOUT,ADDOUT+TWO
001CEC  4020 1FDC 1C06     406          MVA   TRYAGAIN,CLEAN3+TWO
001CF2  6802 1BD6          407          B     INITRET             RETURN
001CF6  6C08 2106          409 $LIST     MVW   ENTNUM,R4           LOAD TOTAL NUM OF PROG ACTIVE
001CFA  1010               410          JZ    $LISTMSG            BRANCH IF ZERO
001CFC  4020 1842 19AA     411          MVA   MSG05,$OUT          LOAD ADDRESS OF MSG
001D02  4724 1842          412          MVA   $OUT,R7             LOAD CONTROL BLOCK ADDRESS
001D06  4020 1840 0080     413          MVWI  NOHDONLY,$OUTDLY    DONT STOP FOR ALT CON
001D0C  6000               414          SVC   OUT                 ISSUE SVC
001D0E  4020 1840 00C0     415          MVWI  ALTCONST,$OUTDLY    STOP FOR ALT CON
001D14  4224 2106          416          MVWI  ENTNUM,R2           LOAD ADDRESS OF ENTRY TABLE
001D18  0202               417          ABI   TWO,R2              BUMP TO POINT AT DEV TAB
001D1A  7264               418 LOOP1     MVW   R2,R3
001D1C  6A0D 18BA          419          MVW   R2,AHTOE1           LOAD ADDRESS OF FROM DATA
001D20  4724 18B8          420          MVA   AHTOE,R7            LOAD ADDRESS OF CONTROL BLOCK
001D24  601A               421          SVC   HTOE                ISSUE SVC
001D26  0201               422          ABI   ONE,R2              BUMP R2 TO TYPE IN TABLE
001D28  6A0D 18C0          423          MVW   R2,BHTOE1           LOAD ADDRESS OF FROM DATA
001D2C  4724 18BE          424          MVA   BHTOE,R7            LOAD ADDRESS OF CONTROL BLOCK
001D30  601A               425          SVC   HTOE                ISSUE SVC
001D32  4020 1842 19BC     426          MVA   MSG06,$OUT          LOAD ADDRESS OF MSG
001D38  4724 1842          427          MVA   $OUT,R7             LOAD CONTROL BLOCK ADDRESS
001D3C  6000               428          SVC   OUT                 ISSUE SVC
001D3E  0209               429          ABI   NINE,R2             BUMP R2 TO NEXT DEV IN TABLE
001D40  BCEC               430          JCT   LOOP1,R4            LOOP FOR ALL DEVISES
001D42  6802 1C06          431 $LISTEND  B     TRYAGAIN            RETURN
001D46  4020 1840 1A06     432 $LISTMSG  MVA   MSG18,$OUT          LOAD ADDRESS OF MSG
001D4C  4724 1842          433          MVA   $OUT,R7             LOAD CONTROL BLOCK ADDRESS
001D50  6000               434          SVC   OUT                 ISSUE SVC
001D52  50F7               435          J     $LISTEND            BRANCH
001D54  4424 1846          437 $ADD      MVA   INMSG,R4            LOAD ADDRESS OF INPUT AREA
001D58  0401               438          ABI   ONE,R4              BUMP PAST COMMAND
001D5A  7424               439 ADDMORE   MVW   R4,R1               INIT R1 TO THIS ADDRESS
001D5C  C240               440          MVB   (R1),R2             MOVE INBUT BYTE INTO R2
001D5E  F200               441          CBI   ZERO,R2             CHECK FOR ZERO
001D60  6800 1FB2          442          BE    CLEANUP             BRANCH IF ZERO
001D64  0401               443          ABI   ONE,R4              INCREMENT R4
001D66  882B 2102 2104     444          CW    TOTPROG,PROGACT     TEST FOR TOTAL PROGS USED UP
001D6C  106B               445          JE    $ADDM1              BRANCH IF YES
001D6E  6C0D 18D2          446          MVW   R4,$ETOH1           LOAD ADDRESS OF DEV ADDRESS INPUT
001D72  4724 18D0          447          MVA   $ETOH,R7            LOAD CONTROL BLOCK ADDRESS
001D76  6019               448          SVC   ETOH                ISSUE SVC
001D78  4224 3000          449          MVWI  CONFIGTB,R2         LOAD ADDRESS OF CONFIG TABLE
001D7C  4124 1888          450          MVA   WORKAREA,R1         LOAD ADDRESS OF WORK AREA
001D80  C3A0 0002          451          MVB   (R2,TWO),R3         LOAD TOTAL NUM OF ENTRIES
001D84  7B64 FF00          452          RBTWI FINDQUAN,R3         RESET HIGH ORDER BITS
001D88  0210               453          ABI   SIXTEEN,R2          POINT AT FIRST REAL ENTRY
001D8A  8243               454 LOOP9     CB    (R2),(R1)           IS THIS THE DEV ADDRESS
001D8C  1010               455          JE    FNDDA               BRANCH IF YES
001D8E  0210               456          ABI   SIXTEEN,R2          POINT AT NEXT ENTRY
001D90  BBFC               457          JCT   LOOP9,R3            BRANCH FOR TOTAL NUM OF ENTRIES
001D92  5060               458          J     $ADDM2              BRANCH
001D94  7A42 0010          459 FNDDA     SWI   SIXTEEN,R2          POINT AT PREVIOUS ENTRY
001D98  4A11               460          TBT   (R2,SEVNTEEN)       IS THIS CONCATINATED
001D9A  1274               461          JON   $ADDM6              BRANCH IF ON
001D9C  0210               462          ABI   SIXTEEN,R2          POINT AT CORRECT ENTRY IF NOT ON
001D9E  4224 1892          463          MVA   VALIDTYP,R3         LOAD ADDRESS OF VALID DEV TABLE
001DA2  6D08 18A4          464          MVW   TYPNUM,R5           LOAD NUM OF TYPES TO CHECK
001DA6  82E7 0001          465 LOOP5     CB    (R2,ONE),(R3)+      IS THIS A VALID DEV TYPE
001DAA  1002               466          JE    GOODTYP             BRANCH IF YES
001DAC  BDFC               467          JCT   LOOP5,R5            LOOP THRU ALL VALID TYPES
001DAE  505A               468          J     $ADDM3              BRANCH
001DB0  0901               469 GOODTYP   MVBI  ONE,R1              INIT R1 TO ONE
001DB2  7264               470          MVW   R2,R3               INIT R3 TO DEV ADDRESS TAB
001DB4  4B11               471 GOODTYP1  TBT   (R3,SEVNTEEN)       IS CHAIN BIT ON
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001DB6  1003                 472          JOFF  GOODTYP2           BRANCH IF NO
001DB8  0310                 473          ABI   SIXTEEN,R3         BUMP ADDRESS
001DBA  0101                 474          ABI   ONE,R1             BUMP R1 COUNTER
001DBC  50FB                 475          J     GOODTYP1           BRANCH
001DBE  690E 2106            476 GOODTYP2 AW    ENTNUM,R1          ADD TO RESULT EXISTING NUM
001DC2  6B08 2102            477          MVW   TOTPROG,R3         LOAD TOTAL PROG ACTIVE
001DC6  EB21 18A6            478          MB    FOURB,R3           MULTIPLY BY FOUR
001DCA  7325                 479          CW    R3,R1              COMPARE TWO VALUES
001DCC  113B                 480          JP    $ADDM1             BRANCH TO ISSUE MSG IF R1 IS TO LARGE
001DCE  402B 0234 0100       481          THI   ALTCONBT,DCPHODE   IS AN ALTERNATE CONSOLE ASSIGNED
001DD4  1006                 482          JOFF  NOTCON             BRANCH IF NO
001DD6  8A0B 0240            483          CW    (R2),ALTCONTY      IS THIS THE ALTERNATE CONSOLE
001DDA  1803                 484          JNE   NOTCON             BRANCH IF NO
001DDC  402C 188E 1000       485          OWI   ACTEST,RECORDAC    INDICATE THAT ALT CON WAS ADDED
001DE2  4324 2106            486 NOTCON   MVWI  ENTNUM,R3          LOAD ADDRESS OF DEV TAB
001DE6  0302                 487          ABI   TWO,R3             POINT AT FIRST ENTRY
001DE8  6D08 2106            488          MVW   ENTNUM,R5          LOAD TOTAL ENTRIES SO FAR
001DEC  1004                 489          JZ    FNDLOC             BRANCH IF ZERO
001DEE  82C3                 490 LOOP6    CB    (R2),(R3)          CHECK TO SEE IF ALREADY THERE
001DF0  1041                 491          JE    $ADDM5             BRANCH IF IT IS
001DF2  030A                 492          ABI   TEN,R3             BUMP TO NEXT DEV ENTRY
001DF4  BDFC                 493          JCT   LOOP6,R5           BRANCH THRU COUNT
001DF6  4029 2106 0001       494 FNDLOC   AWI   ONE,ENTNUM         INCRE TOTAL ENTRY COUNT
001DFC  4029 18A8 0001       495          AWI   ONE,CHANGE          NOTE CHANGE IN TABLE
001E02  7324                 496 DOMORE   MVW   R3,R1              LOAD ADDRESS OF DEV TAB
001E04  4724 000A            497          MVWI  TEN,R7             LOAD R7 WITH LEN OF MOVE
001E08  2A64                 498          MVFN  (R2),(R3)          MOVE CONFIGURATION DATA
001E0A  406C 0002 8000       499          OWI   ASSIGNBT,(R1,TWO)  TURN ON THE ASSIGNED BIT
001E10  690D 18D8            500          MVW   R1,THTOE1          LOAD CONTROL BLOCK WITH ADDRESS
001E14  4724 18D6            501          MVA   THTOE,R7           LOAD ADDRESS OF CONTROL BLOCK
001E18  601A                 502          SVC   HTOE               ISSUE SVC
001E1A  4020 1842 1B18       503          MVA   MSG16,$OUT         LOAD ADDRESS OF MSG
001E20  4724 1842            504          MVA   $OUT,R7            LOAD CONTROL BLOCK ADDRESS
001E24  6B0D 188C            505          MVW   R3,SAVR3           SAVE REG. 3
001E28  4324 1B18            506          MVA   MSG16,R3           INIT R3 WITH ADDRESS
001E2C  6000                 507          SVC   OUT                ISSUE SVC
001E2E  6B08 188C            508          MVW   SAVR3,R3           RESTORE REG. 3
001E32  4911                 509          TBT   (R1,SEVNTEEN)      IS THIS A CONCATENATED MEMBER
001E34  1002                 510          JOFF  CONTINU            BRANCH IF NO
001E36  0206                 511          ABI   SIX,R2             INCREMENT R2 TO POINT AT NEXT MEMBER
001E38  50DE                 512          J     FNDLOC             BRANCH
001E3A  0402                 513 CONTINU  ABI   TWO,R4             UPDATE R4
001E3C  4029 2104 0001       514          AWI   ONE,PROGACT        UPDATE PROG ACTIVE SWITCH
001E42  508B                 515 CONTIN   J     ADDMORE            BRANCH TO CONTINUE
001E44  8418 1A70            517 $ADDM1   MVB   (R4)+,MSG08         MOVE DEV ADD INTO MSG
001E48  8418 1A71            518          MVB   (R4)+,MSG08+1
001E4C  4020 1842 1A70       519          MVA   MSG08,$OUT         LOAD ADDRESS OF MSG
001E52  501F                 520          J     ADDOUT             BRANCH
001E54  8418 1A92            521 $ADDM2   MVB   (R4)+,MSG09         MOVE DEV ADD INTO MSG
001E58  8418 1A93            522          MVB   (R4)+,MSG09+1
001E5C  4020 1842 1A92       523          MVA   MSG09,$OUT         LOAD ADDRESS OF MSG
001E62  5017                 524          J     ADDOUT             BRANCH
001E64  8418 1AB6            525 $ADDM3   MVB   (R4)+,MSG10         MOVE DEV ADD INTO MSG
001E68  8418 1AB7            526          MVB   (R4)+,MSG10+1
001E6C  4020 1842 1AB6       527          MVA   MSG10,$OUT         LOAD ADDRESS OF MSG
001E72  500F                 528          J     ADDOUT             BRANCH
001E74  8418 1AFA            529 $ADDM5   MVB   (R4)+,MSG15         MOVE DEV ADD INTO MSG
001E78  8418 1AFB            530          MVB   (R4)+,MSG15+1
001E7C  4020 1842 1AFA       531          MVA   MSG15,$OUT         LOAD ADDRESS OF MSG
001E82  5007                 532          J     ADDOUT             BRANCH
001E84  8418 1B32            533 $ADDM6   MVB   (R4)+,MSG22         MOVE DEV ADDRESS INTO MSG
001E88  8418 1B33            534          MVB   (R4)+,MSG22+1
001E8C  4020 1842 1B32       535          MVA   MSG22,$OUT         LOAD ADDRESS OF MSG
001E92  6802 1E96            536 ADDOUT   B     ADDOUT1            BRANCH INST. TO ALTER RETURN
001E96  4724 1842            537 ADDOUT1  MVA   $OUT,R7            LOAD CONTROL BLOCK ADDRESS
001E9A  7464                 538          MVW   R4,R5              INIT R3 WITH ADDRESS
001E9C  7B62 0002            539          SWI   TWO,R3             POINT AT PROPER ADDRESS
001EA0  6000                 540          SVC   OUT                ISSUE SVC
001EA2  50CF                 541          J     CONTIN             BRANCH
001EA4  4424 1846            543 $DELETE  MVA   INMSG,R4           LOAD ADDRESS OF INPUT AREA
001EA8  0401                 544          ABI   ONE,R4             BUMP PAST COMMAND
001EAA  7424                 545 DELMORE  MVW   R4,R1              INIT R1
001EAC  C240                 546          MVB   (R1),R2            LOAD FIRST CHAR IN AREA
001EAE  F200                 547          CBI   ZERO,R2            IS CHAR = ZERO
001EB0  6800 1FB2            548          BE    CLEANUP            BRANCH IF YES
001EB4  0401                 549          ABI   ONE,R4             BUMP R4 TO -> TO DEV ADDRESS
001EB6  6D08 2106            550          MVW   ENTNUM,R5          LOAD TOTAL ENTRIES
001EBA  1065                 551          JZ    $DELM1             BRANCH IF ZERO
001EBC  6C0D 18D2            552          MVW   R4,ETOH1           LOAD ADDRESS OF DEV ADDRESS
001EC0  4724 18D0            553          MVA   $ETOH,R7           LOAD CONTROL BLOCK ADDRESS
001EC4  6019                 554          SVC   ETOH               ISSUE SVC
001EC6  4124 1888            555          MVA   WORKAREA,R1        LOAD ADDRESS OF WORK AREA
001ECA  4324 2106            556          MVWI  ENTNUM,R3          LOAD ADDRESS OF DEV TABLE
001ECE  0302                 557          ABI   TWO,R3             BUMP TO DEV TABLE
001ED0  8343                 558 LOOP7    CB    (R3),(R1)          IS THIS THE DEV REQUESTED
001ED2  1003                 559          JE    FNDDEL             BRANCH IF YES
001ED4  030A                 560          ABI   TEN,R3             BUMP TO NEXT DEV IN TABLE
001ED6  BDFC                 561          JCT   LOOP7,R5           INSPECT TOTAL TABLE
001ED8  5056                 562          J     $DELM1             BRANCH
001EDA  830B 0240            563 FNDDEL   CB    (R3),ALTCONTY      IS THIS THE ALT CON
001EDE  1803                 564          JNE   FNDDEL1            BRANCH NO
001EE0  4020 188E 0000       565          MVWI  ZERO,RECORDAC      INDICATE THE DELETE OF THE ALT CON
001EE6  7B62 000A            566 FNDDEL1  SWI   TEN,R3             DECREMENT POINTER
001EEA  4B11                 567          TBT   (R3,SEVNTEEN)      IS THE PRECEDING ONE CONCATENATED
001EEC  1254                 568          JON   $DELM2             BRANCH IF YES
001EEE  030A                 569          ABI   TEN,R3             INCREMENT R3
001EF0  7324                 570          MVW   R3,R1              LOAD R1 WITH DEV TABLE ADDRESS
001EF2  010A                 571          ABI   TEN,R1             BUMP TO POINT AT NEXT ENTRY
001EF4  4B11                 572          TBT   (R3,SEVNTEEN)      IS THIS CONCATENATED
001EF6  102D                 573          JOFF  LOOP8              BRANCH IF NO
001EF8  6B0D 188C            574          MVW   R3,SAVR3           SAVE R3
001EFC  4911                 575 LOOP10   TBT   (R1,SEVNTEEN)      IS THERE MORE THEN TWO
001EFE  1014                 576          JOFF  DELSET             BRANCH IF NO
001F00  690D 18DE            577          MVW   R1,DHTOE1          LOAD ADDRESS OF DEV ADD
001F04  4724 18DC            578          MVA   DHTOE,R7           POINT TO CONTROL BLOCK
001F08  601A                 579          SVC   HTOE               ISSUE SVC
001F0A  4020 1842 1B24       580          MVA   MSG17,$OUT         INSERT ADD INTO CONTROL BLOCK
001F10  4724 1842            581          MVA   $OUT,R7            LOAD ADDRESS OF CONTROL BLOCK
001F14  4324 1B24            582          MVA   MSG17,R3           INIT POINTER R3
001F18  6000                 583          SVC   OUT                PRINT MSG.
001F1A  010A                 584          ABI   TEN,R1             INCREMENT R1
001F1C  7DA2 0001            585          SWI   ONE,R5             DECREMENT COUNT
001F20  402E 2106 0001       586          SWI   ONE,ENTNUM         DECREMENT ENTRY NUM
001F26  50EA                 587          J     LOOP10             BRANCH TO CONTINUE
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001F28  690D 18DE            588 DELSET   MVW   R1,DHTOE1          LOAD ADDRESS OF DEV ADD
001F2C  4724 18DC            589          MVA   DHTOE,R7           POINT TO CONTROL BLOCK
001F30  601A                 590          SVC   HTOE               ISSUE SVC
001F32  4020 1842 1B24       591          MVA   MSG17,$OUT         INSERT ADD INTO CONTROL BLOCK
001F38  4724 1842            592          MVA   $OUT,R7            LOAD ADDRESS OF CONTROL BLOCK
001F3C  4324 1B24            593          MVA   MSG17,R3           INIT POINTER R3
001F40  6000                 594          SVC   OUT                PRINT MSG.
001F42  010A                 595          ABI   TEN,R1             INCREMENT R1
001F44  7DA2 0001            596          SWI   ONE,R5             DECREMENT R5
001F48  402E 2106 0001       597          SWI   ONE,ENTNUM         DECREMENT ENTRY NUM
001F4E  6B08 188C            598          MVW   SAVR3,R3           RESTORE R3
001F52  4724 000A            599 LOOP8    MVWI  TEN,R7             INIT R7 TO MOVE QUANTITY
001F56  2964                 600          MVFN  (R1),(R3)          MOVE NEXT ENTRY UP
001F58  BDFC                 601          JCT   LOOP8,R5           LOOP THRU REMAINING ENTRIES
001F5A  402E 2106 0001       602          SWI   ONE,ENTNUM         DECREMENT ENTRIES
001F60  402E 2104 0001       603          SWI   ONE,PROGACT        DECREMENT PROG ACT INDICATOR
001F66  4029 18A8 0001       604          AWI   ONE,CHANGE          NOTE CHANGE
001F6C  8418 1B24            605          MVB   (R4)+,MSG17        MOVE DEV ADDRESS INTO MSG
001F70  8418 1B25            606          MVB   (R4)+,MSG17+1
001F74  4020 1842 1B24       607          MVA   MSG17,$OUT         LOAD ADDRESS OF MSG
001F7A  4724 1842            608          MVA   $OUT,R7            LOAD CONTROL BLOCK ADDRESS
001F7E  4324 1B24            609          MVA   MSG17,R3           INIT POINTER R3
001F82  6000                 610          SVC   OUT                ISSUE SVC
001F84  5092                 611 CONTINUE J     DELMORE            BRANCH
001F86  8418 1ADA            612 $DELM1   MVB   (R4)+,MSG12         MOV DEV ADDRESS INTO MSG
001F8A  8418 1ADB            613          MVB   (R4)+,MSG12+1
001F8E  4020 1842 1ADA       614          MVA   MSG12,$OUT         LOAD ADDRESS OF MSG
001F94  5007                 615          J     DELOUT             BRANCH
001F96  8418 1B32            616 $DELM2   MVB   (R4)+,MSG22         MOVE DEV ADDRESS INTO MSG
001F9A  8418 1B33            617          MVB   (R4)+,MSG22+1
001F9E  4020 1842 1B32       618          MVA   MSG22,$OUT
001FA4  4724 1842            619 DELOUT   MVA   $OUT,R7            LOAD CONTROL BLOCK ADDRESS
001FA8  7464                 620          MVW   R4,R3              INIT POINTER R3
001FAA  7B62 0002            621          SWI   TWO,R3             DECREMENT TO POINT AT ADD
001FAE  6000                 622          SVC   OUT                ISSUE SVC
001FB0  50E9                 623          J     CONTINUE           BRANCH
001FB2  6C08 2106            624 CLEANUP  MVW   ENTNUM,R4          LOAD TOTAL ENTRIES
001FB6  4524 2106            625          MVWI  ENTNUM,R5          LOAD ADDRESS OF TAB
001FBA  0502                 626          ABI   TWO,R5             BUMP TO TABLE
001FBC  7487                 627          IR    R4,R4              TEST R6
001FBE  1002                 628          JZ    CLEAN2             BRANCH IF ZERO
001FC0  050A                 629 CLEAN1   ABI   TEN,R5             BUMP R5 BY ENT LEN
001FC2  BCFE                 630          JCT   CLEAN1,R4          BRANCH FOR TOTAL ENT NUM
001FC4  6F08 2100            631 CLEAN2   MVW   ADDTABPT,R7         LOAD ADDRESS OF LSB TABLE
001FC8  75EA                 632          SW    R5,R7              OBTAIN TOTAL LEN OF MOVE
001FCA  6C08 18AA            633          MVW   CHAINMSK,R4        LOAD MASK FIELD
001FCE  2CAC                 634          FFN   R4,(R5)            LOAD STORAGE WITH X'80'
001FD0  7DA2 0008            635          SWI   EIGHT,R5           DECREMENT TO POINT AT LAST ENTRY
001FD4  71A7                 636          IR    R1,R5              STORE ADDRESS IN R1
001FD6  404D 4000            637 CLEAN3   RBTWI CHAINBIT,(R1)      ZERO THIS CHAIN BIT
001FDA  6802 1C06            638          B     TRYAGAIN           BRANCH TO CONTINUE
001FDE  4724 18E6            640 $SAVE    MVA   $WRITI,R7          LOAD CONTROL BLOCK ADDRESS
001FE2  8028 188E 2102       641          MVB   RECORDAC,TOTPROG   SET INDICATOR IN TABLE
001FE8  6020                 642          SVC   WRITI              ISSUE SVC
001FEA  4020 1842 1A68       643          MVA   MSG14,$OUT         LOAD ADDRESS OF MSG
001FF0  4724 1842            644          MVA   $OUT,R7            LOAD CONTROL BLOCK ADDRESS
001FF4  6000                 645          SVC   OUT                ISSUE SVC
001FF6  C925 18A8            646          MVWZ  CHANGE,R1          ZERO CHANGE FLAG
001FFA  6802 1C06            647          B     TRYAGAIN           RETURN
001FFE  4020 1842 1A14       649 $ERROR   MVA   MSG21,$OUT         LOAD ADDRESS OF MSG
002004  4724 1842            650          MVA   $OUT,R7            LOAD CONTROL BLOCK ADDRESS
002008  6000                 651          SVC   OUT                ISSUE SVC
00200A  500B                 652          J     GOODEND            BRANCH
00200C  C925 18A8            653 $END     MVWZ  CHANGE,R1          HAS A CHANGE BEEN NOTED
002010  1008                 654          JZ    GOODEND            BRANCH NO
002012  4020 1842 1A4A       655          MVA   MSG13,$OUT         LOAD ADDRESS OF MSG
002018  4724 1842            656          MVA   $OUT,R7            LOAD CONTROL BLOCK ADDRESS
00201C  6000                 657          SVC   OUT                ISSUE SVC
00201E  6802 1C06            658          B     TRYAGAIN           RETURN
002022  6007                 659 GOODEND  SVC   TERM               TERMINATE WITH SVC CALL
001800                       660          END   U34F8
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
       0  .R0.       ABSOLUTE. HEX VALUE(00000000)
                     356   358   385
       0  .R1.       ABSOLUTE. HEX VALUE(00000001)
                     290   299   300   302   304   308   341   343   346
                     368   369   370   372   384   384   384   385   387
                     393   439   440   450   454   469   474   476   479
                     496   499   500   509   545   546   555   558   570
                     571   575   577   584   588   595   600   636   637
                     646   653
       0  .R2.       ABSOLUTE. HEX VALUE(00000002)
                     288   289   290   292   293   295   298   306   308
                     342   344   345   376   379   383   383   383   383
                     384   386   394   395   397   416   417   418   419
                     422   423   429   440   441   449   451   453   454
                     456   459   460   462   465   470   483   490   498
                     511   546   547
       0  .R3.       ABSOLUTE. HEX VALUE(00000003)
                     289   291   296   299   301   305   316   331   335
                     375   377   380   382   382   382   382   388   418
                     451   452   457   463   465   470   471   473   477
                     478   479   486   487   490   492   496   498   505
                     506   508   538   539   556   557   558   560   563
                     566   567   569   570   572   574   582   593   598
                     600   609   620   621
       0  .R4.       ABSOLUTE. HEX VALUE(00000004)
                     409   430   437   438   439   443   446   513   517
                     518   521   522   525   526   529   530   533   534
                     538   543   544   545   549   552   605   606   612
                     613   616   617   620   624   627   627   630   633
                     634
       0  .R5.       ABSOLUTE. HEX VALUE(00000005)
                     282   282   286   286   320   357   358   360   361
                     362   363   366   367   371   373   374   464   467
                     488   493   550   561   585   596   601   625   626
                     629   632   634   635   636
       0  .R6.       ABSOLUTE. HEX VALUE(00000006)
                     363   364   365   366   395   396   404
       0  .R7.       ABSOLUTE. HEX VALUE(00000007)
                     280   284   312   314   318   325   327   330   334
                     339   349   353   355   401   412   420   424   427
                     433   447   497   501   504   537   553   578   581
                     589   592   599   608   619   631   632   640   644
                     650   656
     437  $ADD       ADDRESS. HEX LOCATION(00001D54) IN CSECT(U34F8   ) LENGTH(4)
                     191   403
     517  $ADDM1     ADDRESS. HEX LOCATION(00001E44) IN CSECT(U34F8   ) LENGTH(4)
                     445   480
     521  $ADDM2     ADDRESS. HEX LOCATION(00001E54) IN CSECT(U34F8   ) LENGTH(4)
                     458
     525  $ADDM3     ADDRESS. HEX LOCATION(00001E64) IN CSECT(U34F8   ) LENGTH(4)
                     468
     529  $ADDM5     ADDRESS. HEX LOCATION(00001E74) IN CSECT(U34F8   ) LENGTH(4)
                     491
     533  $ADDM6     ADDRESS. HEX LOCATION(00001E84) IN CSECT(U34F8   ) LENGTH(4)
                     461
     543  $DELETE    ADDRESS. HEX LOCATION(00001EA4) IN CSECT(U34F8   ) LENGTH(4)
                     192
     612  $DELM1     ADDRESS. HEX LOCATION(00001F86) IN CSECT(U34F8   ) LENGTH(4)
                     551   562
     616  $DELM2     ADDRESS. HEX LOCATION(00001F96) IN CSECT(U34F8   ) LENGTH(4)
                     568
     653  $END       ADDRESS. HEX LOCATION(0000200C) IN CSECT(U34F8   ) LENGTH(4)
                     196
     649  $ERROR     ADDRESS. HEX LOCATION(00001FFE) IN CSECT(U34F8   ) LENGTH(6)
                     283   287
     165  $ETOH      ADDRESS. HEX LOCATION(000018D0) IN CSECT(U34F8   ) LENGTH(2)
                     447   553
     166  $ETOH1     ADDRESS. HEX LOCATION(000018D2) IN CSECT(U34F8   ) LENGTH(2)
                     446   552
     312  $FTMSG     ADDRESS. HEX LOCATION(00001BA6) IN CSECT(U34F8   ) LENGTH(4)
                     307
     147  $HTOE      ADDRESS. HEX LOCATION(000018AC) IN CSECT(U34F8   ) LENGTH(2)
                     325
     409  $LIST      ADDRESS. HEX LOCATION(00001CF6) IN CSECT(U34F8   ) LENGTH(4)
                     193
     431  $LISTEND   ADDRESS. HEX LOCATION(00001D42) IN CSECT(U34F8   ) LENGTH(4)
                     435
     432  $LISTMSG   ADDRESS. HEX LOCATION(00001D46) IN CSECT(U34F8   ) LENGTH(6)
                     410
     114  $OUT       ADDRESS. HEX LOCATION(00001842) IN CSECT(U34F8   ) LENGTH(2)
                     317   318   329   330   333   334   348   349   411
                     412   426   427   432   433   503   504   519   523
                     527   531   535   537   580   581   591   592   607
                     608   614   618   619   643   644   649   650   655
                     656
     113  $OUTDLY    ADDRESS. HEX LOCATION(00001840) IN CSECT(U34F8   ) LENGTH(2)
                     413   415
     109  $OUTIN     ADDRESS. HEX LOCATION(00001838) IN CSECT(U34F8   ) LENGTH(2)
                     338   339
     640  $SAVE      ADDRESS. HEX LOCATION(00001FDE) IN CSECT(U34F8   ) LENGTH(4)
                     194
     176  $WRITI     ADDRESS. HEX LOCATION(000018E6) IN CSECT(U34F8   ) LENGTH(2)
                     353   640
     150  @HTOE      ADDRESS. HEX LOCATION(000018B2) IN CSECT(U34F8   ) LENGTH(2)
                     327
     180  @WRITI     ADDRESS. HEX LOCATION(000018F0) IN CSECT(U34F8   ) LENGTH(2)
                     314
      82  ABLNK      ABSOLUTE. HEX VALUE(0000C140)
                     390
      73  ACTEST     ABSOLUTE. HEX VALUE(00001000)
                     323   354   485
     439  ADDMORE    ADDRESS. HEX LOCATION(00001D5A) IN CSECT(U34F8   ) LENGTH(2)
                     515
     536  ADDOUT     ADDRESS. HEX LOCATION(00001E92) IN CSECT(U34F8   ) LENGTH(4)
                     391   405   520   524   528   532
     537  ADDOUT1    ADDRESS. HEX LOCATION(00001E96) IN CSECT(U34F8   ) LENGTH(4)
                     405   536
      72  ADDQUAN    ABSOLUTE. HEX VALUE(00000009)
                     365
      51  ADDTABPT   ABSOLUTE. HEX VALUE(00002100)
                     357   372   631
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
     153  AHTOE      ADDRESS. HEX LOCATION(000018B8) IN CSECT(U34F8   ) LENGTH(2)
                     420
     154  AHTOE1     ADDRESS. HEX LOCATION(000018BA) IN CSECT(U34F8   ) LENGTH(2)
                     419
      81  ALTCONBT   ABSOLUTE. HEX VALUE(00000100)
                     481
      75  ALTCONST   ABSOLUTE. HEX VALUE(000000C0)
                     415
      50  ALTCONTY   ABSOLUTE. HEX VALUE(00000240)
                     399   483   563
      79  ASSIGNBT   ABSOLUTE. HEX VALUE(00008000)
                     499
     156  BHTOE      ADDRESS. HEX LOCATION(000018BE) IN CSECT(U34F8   ) LENGTH(2)
                     424
     157  BHTOE1     ADDRESS. HEX LOCATION(000018C0) IN CSECT(U34F8   ) LENGTH(2)
                     423
      80  CHAINBIT   ABSOLUTE. HEX VALUE(00004000)
                     637
     146  CHAINMSK   ADDRESS. HEX LOCATION(000018AA) IN CSECT(U34F8   ) LENGTH(2)
                     633
     145  CHANGE     ADDRESS. HEX LOCATION(000018A8) IN CSECT(U34F8   ) LENGTH(2)
                     359   495   604   646   653
     159  CHTOE      ADDRESS. HEX LOCATION(000018C4) IN CSECT(U34F8   ) LENGTH(2)
                     312
     308  CKFLT      ADDRESS. HEX LOCATION(00001B9A) IN CSECT(U34F8   ) LENGTH(2)
                     303
     624  CLEANUP    ADDRESS. HEX LOCATION(00001FB2) IN CSECT(U34F8   ) LENGTH(4)
                     337   442   548
     629  CLEAN1     ADDRESS. HEX LOCATION(00001FC0) IN CSECT(U34F8   ) LENGTH(2)
                     630
     631  CLEAN2     ADDRESS. HEX LOCATION(00001FC4) IN CSECT(U34F8   ) LENGTH(4)
                     628
     638  CLEAN3     ADDRESS. HEX LOCATION(00001FDA) IN CSECT(U34F8   ) LENGTH(4)
                     392   406
     191  COMPT      ADDRESS. HEX LOCATION(000018FE) IN CSECT(U34F8   ) LENGTH(2)
                     342
     183  COMTB      ADDRESS. HEX LOCATION(000018F6) IN CSECT(U34F8   ) LENGTH(1)
                     341
     190  COMTBND    ADDRESS. HEX LOCATION(000018FC) IN CSECT(U34F8   ) LENGTH(1)
                     346
      76  CONFIGTB   ABSOLUTE. HEX VALUE(00003000)
                     288   394   449
     515  CONTIN     ADDRESS. HEX LOCATION(00001E42) IN CSECT(U34F8   ) LENGTH(2)
                     541
     513  CONTINU    ADDRESS. HEX LOCATION(00001E3A) IN CSECT(U34F8   ) LENGTH(2)
                     510
     611  CONTINUE   ADDRESS. HEX LOCATION(00001F84) IN CSECT(U34F8   ) LENGTH(2)
                     623
      49  DCPMODE    ABSOLUTE. HEX VALUE(00000234)
                     481
     545  DELMORE    ADDRESS. HEX LOCATION(00001EAA) IN CSECT(U34F8   ) LENGTH(2)
                     611
     619  DELOUT     ADDRESS. HEX LOCATION(00001FA4) IN CSECT(U34F8   ) LENGTH(4)
                     615
     588  DELSET     ADDRESS. HEX LOCATION(00001F28) IN CSECT(U34F8   ) LENGTH(4)
                     576
      92  DEVTAB     ADDRESS. HEX LOCATION(00001812) IN CSECT(U34F8   ) LENGTH(2)
                      87
     171  DHTOE      ADDRESS. HEX LOCATION(000018DC) IN CSECT(U34F8   ) LENGTH(2)
                     578   589
     172  DHTOE1     ADDRESS. HEX LOCATION(000018DE) IN CSECT(U34F8   ) LENGTH(2)
                     577   588
     162  EHTOE      ADDRESS. HEX LOCATION(000018CA) IN CSECT(U34F8   ) LENGTH(2)
                     401
      62  EIGHT      ABSOLUTE. HEX VALUE(00000008)
                     635
      54  ENTNUM     ABSOLUTE. HEX VALUE(00002106)
                     151   335   368   373   409   416   476   486   488
                     494   550   556   586   597   602   624   625
      43  ETOH       ABSOLUTE. HEX VALUE(00000019)
                     448   554
     123  FAKEDA     ADDRESS. HEX LOCATION(00001890) IN CSECT(U34F8   ) LENGTH(2)
                     160   310
     404  FILLMR     ADDRESS. HEX LOCATION(00001CE4) IN CSECT(U34F8   ) LENGTH(2)
                     391   392
      78  FINDQUAN   ABSOLUTE. HEX VALUE(0000FF00)
                     291   301   396   452
      77  FINDSIZE   ABSOLUTE. HEX VALUE(0000FFF0)
                     362
     160  FLTPTYP    ADDRESS. HEX LOCATION(000018C6) IN CSECT(U34F8   ) LENGTH(2)
                     293   302   306   316
     382  FND        ADDRESS. HEX LOCATION(00001C96) IN CSECT(U34F8   ) LENGTH(2)
                     378
     459  FNDDA      ADDRESS. HEX LOCATION(00001D94) IN CSECT(U34F8   ) LENGTH(4)
                     455
     563  FNDDEL     ADDRESS. HEX LOCATION(00001EDA) IN CSECT(U34F8   ) LENGTH(4)
                     559
     566  FNDDEL1    ADDRESS. HEX LOCATION(00001EE6) IN CSECT(U34F8   ) LENGTH(4)
                     564
     299  FNDFP      ADDRESS. HEX LOCATION(00001B80) IN CSECT(U34F8   ) LENGTH(4)
                     311
     298  FNDFP1     ADDRESS. HEX LOCATION(00001B7E) IN CSECT(U34F8   ) LENGTH(2)
                     294
     494  FNDLOC     ADDRESS. HEX LOCATION(00001DF6) IN CSECT(U34F8   ) LENGTH(6)
                     489   512
     144  FOURB      ADDRESS. HEX LOCATION(000018A6) IN CSECT(U34F8   ) LENGTH(1)
                     478
      70  FOURTY     ABSOLUTE. HEX VALUE(00000028)
                     370
     659  GOODEND    ADDRESS. HEX LOCATION(00002022) IN CSECT(U34F8   ) LENGTH(2)
                     652   654
     469  GOODTYP    ADDRESS. HEX LOCATION(00001DB0) IN CSECT(U34F8   ) LENGTH(2)
                     466
     471  GOODTYP1   ADDRESS. HEX LOCATION(00001DB4) IN CSECT(U34F8   ) LENGTH(2)
                     475
     476  GOODTYP2   ADDRESS. HEX LOCATION(00001DBE) IN CSECT(U34F8   ) LENGTH(4)
                     472
      44  HTOE       ABSOLUTE. HEX VALUE(0000001A)
                     313   326   328   402   421   425   502   579   590
     353  INITCALL   ADDRESS. HEX LOCATION(00001C38) IN CSECT(U34F8   ) LENGTH(4)
                     195   321
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
   325    INITRET     ADDRESS. HEX LOCATION(00001BD6) IN CSECT(U34F8   ) LENGTH(4)
                      407
   116    INMSG       ADDRESS. HEX LOCATION(00001846) IN CSECT(U34F8   ) LENGTH(2)
                      110   343   390   437   543
   117    INMSG1      ADDRESS. HEX LOCATION(00001848) IN CSECT(U34F8   ) LENGTH(2)
                      164
   118    INMSG2      ADDRESS. HEX LOCATION(0000184A) IN CSECT(U34F8   ) LENGTH(62)
                      393
    48    LASTADD     ABSOLUTE. HEX VALUE(00000230)
                      360
   418    LOOP1       ADDRESS. HEX LOCATION(00001D1A) IN CSECT(U34F8   ) LENGTH(2)
                      430
   575    LOOP10      ADDRESS. HEX LOCATION(00001EFC) IN CSECT(U34F8   ) LENGTH(2)
                      587
   343    LOOP11      ADDRESS. HEX LOCATION(00001C1A) IN CSECT(U34F8   ) LENGTH(4)
                      347
   293    LOOP12      ADDRESS. HEX LOCATION(00001B72) IN CSECT(U34F8   ) LENGTH(4)
                      296
   302    LOOP13      ADDRESS. HEX LOCATION(00001B8A) IN CSECT(U34F8   ) LENGTH(4)
                      305
   304    LOOP13A     ADDRESS. HEX LOCATION(00001B90) IN CSECT(U34F8   ) LENGTH(2)
                      309
   398    LOOP14      ADDRESS. HEX LOCATION(00001CCE) IN CSECT(U34F8   ) LENGTH(6)
                      400   404
   370    LOOP2       ADDRESS. HEX LOCATION(00001C72) IN CSECT(U34F8   ) LENGTH(2)
                      371
   377    LOOP3       ADDRESS. HEX LOCATION(00001C8A) IN CSECT(U34F8   ) LENGTH(4)
                      381
   384    LOOP4       ADDRESS. HEX LOCATION(00001C9A) IN CSECT(U34F8   ) LENGTH(2)
                      388
   465    LOOP5       ADDRESS. HEX LOCATION(00001DA6) IN CSECT(U34F8   ) LENGTH(4)
                      467
   490    LOOP6       ADDRESS. HEX LOCATION(00001DEE) IN CSECT(U34F8   ) LENGTH(2)
                      493
   558    LOOP7       ADDRESS. HEX LOCATION(00001ED0) IN CSECT(U34F8   ) LENGTH(2)
                      561
   599    LOOP8       ADDRESS. HEX LOCATION(00001F52) IN CSECT(U34F8   ) LENGTH(4)
                      573   601
   454    LOOP9       ADDRESS. HEX LOCATION(00001D8A) IN CSECT(U34F8   ) LENGTH(2)
                      457
    93    MAXPROG     ADDRESS. HEX LOCATION(00001814) IN CSECT(U34F8   ) LENGTH(2)
                      375
   199    MSG01       ADDRESS. HEX LOCATION(0000190C) IN CSECT(U34F8   ) LENGTH(25)
                      329
   200    MSG011      ADDRESS. HEX LOCATION(00001925) IN CSECT(U34F8   ) LENGTH(37)
                      149
   204    MSG02       ADDRESS. HEX LOCATION(0000194E) IN CSECT(U34F8   ) LENGTH(43)
                      333
   205    MSG021      ADDRESS. HEX LOCATION(00001979) IN CSECT(U34F8   ) LENGTH(19)
                      152
   209    MSG03       ADDRESS. HEX LOCATION(00001990) IN CSECT(U34F8   ) LENGTH(13)
                      109   338
   213    MSG04       ADDRESS. HEX LOCATION(000019A0) IN CSECT(U34F8   ) LENGTH(7)
                      348
   217    MSG05       ADDRESS. HEX LOCATION(000019AA) IN CSECT(U34F8   ) LENGTH(14)
                      411
   221    MSG06       ADDRESS. HEX LOCATION(000019BC) IN CSECT(U34F8   ) LENGTH(8)
                      426
   222    MSG061      ADDRESS. HEX LOCATION(000019C4) IN CSECT(U34F8   ) LENGTH(12)
                      155
   223    MSG062      ADDRESS. HEX LOCATION(000019D0) IN CSECT(U34F8   ) LENGTH(2)
                      158
   227    MSG07       ADDRESS. HEX LOCATION(000019D6) IN CSECT(U34F8   ) LENGTH(44)
                      161   317
   248    MSG08       ADDRESS. HEX LOCATION(00001A70) IN CSECT(U34F8   ) LENGTH(30)
                      517   518   519
   252    MSG09       ADDRESS. HEX LOCATION(00001A92) IN CSECT(U34F8   ) LENGTH(33)
                      521   522   523
   256    MSG10       ADDRESS. HEX LOCATION(00001AB6) IN CSECT(U34F8   ) LENGTH(32)
                      525   526   527
   260    MSG12       ADDRESS. HEX LOCATION(00001ADA) IN CSECT(U34F8   ) LENGTH(28)
                      612   613   614
   240    MSG13       ADDRESS. HEX LOCATION(00001A4A) IN CSECT(U34F8   ) LENGTH(26)
                      655
   244    MSG14       ADDRESS. HEX LOCATION(00001A68) IN CSECT(U34F8   ) LENGTH(4)
                      643
   264    MSG15       ADDRESS. HEX LOCATION(00001AFA) IN CSECT(U34F8   ) LENGTH(27)
                      529   530   531
   268    MSG16       ADDRESS. HEX LOCATION(00001B18) IN CSECT(U34F8   ) LENGTH(8)
                      170   503   506
   272    MSG17       ADDRESS. HEX LOCATION(00001B24) IN CSECT(U34F8   ) LENGTH(10)
                      173   580   582   591   593   605   606   607   609
   231    MSG18       ADDRESS. HEX LOCATION(00001A06) IN CSECT(U34F8   ) LENGTH(10)
                      432
   235    MSG21       ADDRESS. HEX LOCATION(00001A14) IN CSECT(U34F8   ) LENGTH(50)
                      649
   276    MSG22       ADDRESS. HEX LOCATION(00001B32) IN CSECT(U34F8   ) LENGTH(22)
                      533   534   535   616   617   618
    55    M1          ABSOLUTE. HEX VALUE(FFFFFFFF)
                      298
    63    NINE        ABSOLUTE. HEX VALUE(00000009)
                      429
   320    NOFLTPT     ADDRESS. HEX LOCATION(00001BC2) IN CSECT(U34F8   ) LENGTH(4)
                      297
    74    NOHDONLY    ABSOLUTE. HEX VALUE(00000080)
                      413
   486    NOTCON      ADDRESS. HEX LOCATION(00001DE2) IN CSECT(U34F8   ) LENGTH(4)
                      482   484
    57    ONE         ABSOLUTE. HEX VALUE(00000001)
                      355   359   364   422   438   443   465   469   474
                      494   495   514   544   549   585   586   596   597
                      602   603   604
    71    ONEHUND     ABSOLUTE. HEX VALUE(00000100)
                      310
    41    OUT         ABSOLUTE. HEX VALUE(00000000)
                      319   332   336   350   414   428   434   507   540
                      583   594   610   622   645   651   657
    42    OUTIN       ABSOLUTE. HEX VALUE(00000001)
                      340
   175    PGNAME      ADDRESS. HEX LOCATION(000018E2) IN CSECT(U34F8   ) LENGTH(4)
                      176
```


CROSS-REFERENCE LISTING

```
DECLARED  NAME      ATTRIBUTES AND REFERENCES
   179    PGNAME1     ADDRESS. HEX LOCATION(000018EC) IN CSECT(U34F8   ) LENGTH(4)
                      180
    53    PROGACT     ABSOLUTE. HEX VALUE(00002104)
                      374   444   514   603
    98    PROGCON     ADDRESS. HEX LOCATION(0000181D) IN CSECT(U34F8   ) LENGTH(5)
                      284
   101    PROGDEV     ADDRESS. HEX LOCATION(00001825) IN CSECT(U34F8   ) LENGTH(5)
                      280
   107    PROGSIZE    ADDRESS. HEX LOCATION(00001834) IN CSECT(U34F8   ) LENGTH(2)
                      386
   103    PROGSTRT    ADDRESS. HEX LOCATION(0000182C) IN CSECT(U34F8   ) LENGTH(2)
                      376
    46    READI       ABSOLUTE. HEX VALUE(0000001F)
                      281   285
   121    RECORDAC    ADDRESS. HEX LOCATION(0000188E) IN CSECT(U34F8   ) LENGTH(2)
                      322   354   485   565   641
   120    SAVR3       ADDRESS. HEX LOCATION(0000188C) IN CSECT(U34F8   ) LENGTH(2)
                      505   508   574   598
    67    SEVNTEEN    ABSOLUTE. HEX VALUE(00000011)
                      292   460   471   509   567   572   575
    61    SIX         ABSOLUTE. HEX VALUE(00000006)
                      511
    66    SIXTEEN     ABSOLUTE. HEX VALUE(00000010)
                      295   300   304   398   453   456   459   462   473
   163    TBLPT       ADDRESS. HEX LOCATION(000018CC) IN CSECT(U34F8   ) LENGTH(2)
                      397   398   399
    64    TEN         ABSOLUTE. HEX VALUE(0000000A)
                      492   497   560   566   569   571   584   595   599
                      629
    45    TERM        ABSOLUTE. HEX VALUE(00000007)
                      659
    69    THIRTY2     ABSOLUTE. HEX VALUE(00000020)
                      387
   168    THTOE       ADDRESS. HEX LOCATION(000018D6) IN CSECT(U34F8   ) LENGTH(2)
                      501
   169    THTOE1      ADDRESS. HEX LOCATION(000018D8) IN CSECT(U34F8   ) LENGTH(2)
                      500
    52    TOTPROG     ABSOLUTE. HEX VALUE(00002102)
                      148   320   322   323   331   367   377   444   477
                      641
   338    TRYAGAIN    ADDRESS. HEX LOCATION(00001C06) IN CSECT(U34F8   ) LENGTH(6)
                      351   406   431   638   647   658
    65    TWELVE      ABSOLUTE. HEX VALUE(0000000C)
                      361
    58    TWO         ABSOLUTE. HEX VALUE(00000002)
                      289   299   345   369   379   380   385   391   392
                      395   405   406   417   451   487   499   513   539
                      557   621   626
   143    TYPNUM      ADDRESS. HEX LOCATION(000018A4) IN CSECT(U34F8   ) LENGTH(2)
                      464
   280    UTILSTRT    ADDRESS. HEX LOCATION(00001B4A) IN CSECT(U34F8   ) LENGTH(4)
                      86
    39    U34F8       CSECT. START(00001800) LENGTH(2084) ESDID(0)
                      39   660
   124    VALIDTYP    ADDRESS. HEX LOCATION(00001892) IN CSECT(U34F8   ) LENGTH(1)
                      463
   119    WORKAREA    ADDRESS. HEX LOCATION(00001888) IN CSECT(U34F8   ) LENGTH(2)
                      167   450   555
    47    WRITI       ABSOLUTE. HEX VALUE(00000020)
                      315   642
    56    ZERO        ABSOLUTE. HEX VALUE(00000000)
                      356   441   547   565
```

********** LAST PAGE **********

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/     ENDUP
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000000                        3 S3400 START 0
                              4 ********************************************************************************
                              5 *                                                                              *
                              6 *                     ***       PREREQUISITES        ***                       *
                              7 *                                LEVEL 4 CPU                                   *
                              8 *                                                                              *
                              9 ********************************************************************************
                             10 *                                                                              *
                             11 *                     ***       MODIFICATIONS        ***                       *
                             12 *                                                                              *
                             13 *            1. ADD SUPPORT FOR ANOTHER DISPLAY STATION (4978).                *
                             14 *            2. CORRECT SVC 32 (WRITI).                                        *
                             15 *            3. ADD THE AUTO CALL OF THE PARITY ERROR WRITE PROG(3401)         *
                             16 *            4. DELETE SUPPORT OF DOWN LEVEL DISKETTE UNIT                     *
                             17 *            5. INSURE STOP CODES BEING WRITTEN TO LAST WORD OF STG.           *
                             18 *            6. CHANGE COMMAND B SO THAT IT WILL BE IGNORED IF                 *
                             19 *               NOT FOLLOWED BY A PID                                          *
                             20 *                                                                              *
                             21 ********************************************************************************
                             22 *                                                                              *
                             23 *                     ***    REA'S INCORPORATED     ***                       *
                             24 *                                                                              *
                             25 *                                NONE                                          *
                             26 *                                                                              *
                             27 ********************************************************************************
                             28 *                                                                              *
                             29 *                     ***    SPECIAL INSTRUCTIONS   ***                       *
                             30 *                                                                              *
                             31 *                                NONE                                          *
                             32 *                                                                              *
                             33 ********************************************************************************
                             34 *                                                                              *
                             35 *                     ***       E. C. HISTORY        ***                       *
                             36 *                                                                              *
                             37 *       DATE 01OCT76  DATE 02DEC76  DATE 06MAY77  DATE 10JUN77                 *
                             38 *       E.C. 578468   E.C. 578469   E.C. 578756   E.C. 578625                  *
                             39 *                                                                              *
                             40 *       DATE 15SEP77  DATE          DATE          DATE                        *
                             41 *       E.C. 754882   E.C.          E.C.          E.C.                        *
                             42 *                                                                              *
                             43 ********************************************************************************
                             44 ********************************************************************************
                             45 *                                                                              *
                             46 *     SYSTEM EQUATES                                                           *
                             47 *                                                                              *
                             48 ********************************************************************************
000001                       49 SM    EQU   1                    SUMMARY MASK DISABLE OR
                             50 *                                ENABLE CODE
000002                       51 AT    EQU   2                    ADDRESS TRANSLATOR ENABLE OR
                             52 *                                DISABLE CODE
                             53 ********************************************************************************
                             54 *                                                                              *
                             55 *     EQUATED NAMES FOR SUPPORTED SVC'S                                        *
                             56 *                                                                              *
                             57 ********************************************************************************
000000                       58 OUT   EQU   0                    OUT SVC
000001                       59 OUTIN EQU   1                    OUTIN SVC
000002                       60 IDLE  EQU   2                    IDLE SVC
                             61 *     EQU   3                    ** RESERVED FOR FUTURE EXPANSION **
000004                       62 CHNGE EQU   4                    CHANGE LEVEL SVC
000005                       63 PGMCK EQU   5                    ALLOW RETURN ON PROGRAM CHECK SVC
000006                       64 EXIT  EQU   6                    EXIT SVC
000007                       65 TERM  EQU   7                    TERMINATE SVC
000008                       66 RESET EQU   8                    RESET DEVICE SVC
000009                       67 RID   EQU   9                    READ ID SVC
00000A                       68 START EQU   10                   START CYCLE STEAL SVC
00000B                       69 STCSS EQU   11                   START CYCLE STEAL STATUS SVC
00000C                       70 PREP  EQU   12                   PREPARE DEVICE SVC
00000D                       71 READ0 EQU   13                   READ WITH FUNCTION BIT 3 OFF SVC
00000E                       72 READ1 EQU   14                   READ WITH FUNCTION BIT 3 ON SVC
00000F                       73 RSTAT EQU   15                   READ STATUS SVC
000010                       74 WRIT0 EQU   16                   WRITE WITH FUNCTION BIT 3 OFF SVC
000011                       75 WRIT1 EQU   17                   WRITE WITH FUNCTION BIT 3 ON SVC
000012                       76 CTRL  EQU   18                   CONTROL SVC
000013                       77 RICB  EQU   19                   RELEASE INTERRUPT CONTROL BLOCK SVC
000014                       78 CICB  EQU   20                   CONNECT INTERUPT CONTROL BLOCK SVC
000015                       79 HIO   EQU   21                   HALT I/O SVC
000016                       80 REQSD EQU   22                   REQUEST USE OF DCP DISKETTE SVC
000017                       81 RELSD EQU   23                   RELEASE USE OF DCP DISKETTE SVC
                             82 *     EQU   24                   ** RESERVED FOR FUTURE EXPANSION **
000019                       83 ETOH  EQU   25                   EBCDIC TO HEX SVC (STRING)
00001A                       84 HTOE  EQU   26                   HEX TO EBCDIC SVC (STRING)
00001B                       85 ATOH  EQU   27                   ASCII TO HEX SVC (STRING)
00001C                       86 HTOA  EQU   28                   HEX TO ASCII SVC (STRING)
00001D                       87 ETOA  EQU   29                   EBCDIC TO ASCII SVC (STRING)
00001E                       88 ATOE  EQU   30                   ASCII TO EBCDIC SVC (STRING)
00001F                       89 READI EQU   31                   READ DATA SETS FOR MDI/UTIL
000020                       90 WRITI EQU   32                   WRITE DATA SETS FOR UTIL
000021                       91 WAIT  EQU   33                   WAIT FOR MIN 40 MILI SEC
                             92 *
000021                       93 VLDSV EQU   33                   NUMBER OF HIGHEST VALID SVC
                             94 ********************************************************************************
                             95 *                                                                              *
                             96 *     EQUATES USED BY DCP                                                      *
                             97 *                                                                              *
                             98 ********************************************************************************
000000                       99 TPGSW EQU   0                    TERMINATE PGM SW
000001                      100 ADDTR EQU   1                    RELOCATE PROB PROG
000002                      101 STERC EQU   2                    STOP ERROR COUNTING
000003                      102 UTIL  EQU   3                    UTILITY REQUESTING DATA
000004                      103 LODED EQU   4                    PGM LOADED
000006                      104 STOP  EQU   6                    STOP AFTER MSG OUT
000007                      105 ALTDV EQU   7                    ALTERNATE OUTPUT DEV ASSIGNED
000008                      106 NXTVT EQU   8                    TAKE NEXT DATA SET IND
000009                      107 CONDV EQU   9                    INPUT FROM PROGRAMMER'S CONSOLE
00000A                      108 IRD   EQU   10                   MDI READ REQUEST
00000E                      109 CNRUN EQU   14                   UNIT ADR ASSIGNMENT RUN
000003                      110 NINTL EQU   3                    HIGHEST INT LEVEL ON SYSTEM
00000E                      111 OPWRD EQU   14                   DISP TO PGM OPTION WORD
00000D                      112 EOT   EQU   X'0D'                END OF MESSAGE CHAR(RETURN)
00007F                      113 DLETE EQU   X'7F'                DELETE CHAR (RUBOUT)
00004E                      114 PLUS  EQU   C'+'                 EBCDIC CHARACTER '+' PLUS
000060                      115 MINUS EQU   C'-'                                 '-' MINUS
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000040                      116 EBBK  EQU   C' '                                          ' ' BLANK
00005C                      117 ASTRK EQU   C'*'                                          '*' ASTERISK
004040                      118 DBLBLNK EQU C'  '                                        '  ' DOUBLE BLANK
001800                      119 NEGZR EQU   X'1800'              NEGATIVE AND ZERO INDICATORS
000064                      120 STPCD EQU   X'64'                STOP CODE FOR MEMORY
000010                      121 SMBIT EQU   X'0010'              SUMMARY MASK BIT
002100                      122 ADDTABPT EQU X'2100'             SYSTEM TEST TABLE START ADDRESS
002104                      123 PROGACT  EQU X'2104'             POINTER TO NUMBER OF ACTIVE PROGRAMS
000000                      124 ZERO  EQU   0                    VALUE OF 0
000001                      125 ONE   EQU   1                             1
000002                      126 TWO   EQU   2                             2
000003                      127 THREE EQU   3                             3
000004                      128 FOUR  EQU   4                             4
000005                      129 FIVE  EQU   5                             5
000006                      130 SIX   EQU   6                             6
000007                      131 SEVEN EQU   7                             7
000008                      132 EIGHT EQU   8                             8
000009                      133 NINE  EQU   9                             9
00000A                      134 TEN   EQU   10                            10
00000B                      135 ELEVN EQU   11                            11
00000C                      136 TWELV EQU   12                            12
00000D                      137 THRTN EQU   13                            13
00000E                      138 FORTN EQU   14                            14
00000F                      139 FIVTN EQU   15                            15
000010                      140 SIXTN EQU   16                            16
000011                      141 SEVTN EQU   17                            17
000014                      142 TWNTY EQU   20                            20
000015                      143 TWEN1 EQU   21                            21
000017                      144 TWEN3 EQU   23                            23
000019                      145 TWEN5 EQU   25                            25
00001A                      146 TWEN6 EQU   26                            26
00001C                      147 TWEN8 EQU   28                            28
00001E                      148 THRTY EQU   30                            30
000020                      149 THRY2 EQU   32                            32
000022                      150 THRY4 EQU   34                            34
00002A                      151 FRTY2 EQU   42                            42
00002C                      152 FRTY4 EQU   44                            44
000030                      153 FRTY6 EQU   48                            48
000039                      154 FIFT7 EQU   57                            57
00003C                      155 SIXTY EQU   60                            60
000040                      156 SIXT4 EQU   64                            64
000042                      157 SIXT6 EQU   66                            66
00004B                      158 SEVN5 EQU   75                            75
0000C0                      159 ONE92 EQU   192                           192
0000D0                      160 TWO08 EQU   208                           208 (INPROC,SUP ST,SM MSK)
000100                      161 TWO56 EQU   256                           256
000160                      162 THR52 EQU   352                           352
001000                      163 FOURK EQU   4096                          4096
000030                      164 HTHTY EQU   X'30'                         HEX 30
003FFE                      165 H3FFE EQU   X'3FFE'                       HEX 3FFE
00FF00                      166 HFF00 EQU   X'FF00'                       HEX FF00 - MASK
00000F                      167 H000F EQU   X'000F'                       HEX 000F - MASK
FFFFFF                      168 M1    EQU   -1                          -1
FFFFFE                      169 M2    EQU   -2                          -2
FFFFFD                      170 M3    EQU   -3                          -3
FFFFFC                      171 M4    EQU   -4                          -4
FFFFF0                      172 M16   EQU   -16                         -16
FFFFE4                      173 M28   EQU   -28                         -28
FFFFE2                      174 M30   EQU   -30                         -30
00D4C3                      175 MCKLB EQU   C'MC'
00D7C3                      176 PKLAB EQU   C'PC'
                            177 ********************************************************************************
                            178 *                                                                              *
                            179 *     EQUATES FOR DISKETTE                                                     *
                            180 *                                                                              *
                            181 ********************************************************************************
000006                      182 BOE   EQU   6                    DISP TO BOE FROM START OF
                            183 *                                ENTRY IN VTOC
000008                      184 EOE   EQU   8                    DISP TO EOE FROM START OF
                            185 *                                ENTRY IN VTOC
00000C                      186 DSTYP EQU   12                   DISP TO TYPE OF DATA SET IN
                            187 *                                ENTRY OF VTOC
00000F                      188 SPTE  EQU   15                   NUMBER SECTORS/TRACK
00000F                      189 DIP2A EQU   15                   ADDR 1ST DIPL2 SECTOR
00001E                      190 EDIP2 EQU   30                   ADDR LAST DIPL2 SECTOR+1
000078                      191 PRC1A EQU   120                  ADDR 1ST PROC1 SECTOR
0000B4                      192 EPRC1 EQU   180                  ADDR LAST PROC1 SECTOR+1
0000B4                      193 PRC2A EQU   180                  ADDR 1ST PROC2 SECTOR
0000F0                      194 EPRC2 EQU   240                  ADDR LAST PROC2 SECTOR+1
0000F0                      195 PRC3A EQU   240                  ADDR 1ST PROC3 SECTOR
00012C                      196 EPRC3 EQU   300                  ADDR LAST PROC3 SECTOR+1
00014A                      197 VTOCA EQU   330                  ADDR 1ST VTOC SECTOR
000168                      198 EVTOC EQU   360                  ADDR LAST VTOC SECTOR+1
0008AB                      199 LDSST EQU   2219                 ADDR LAST SECTOR ON DISKETTE
000168                      200 FDSST EQU   360                  ADDR 1ST DATA SECTOR
00000A                      201 DCPCY EQU   10                   CYLINDER DCP ON
000020                      202 LVTE  EQU   32                   LENGTH IN BYTES OF A VTOC ENTRY
000008                      203 NDFPS EQU   8                    NUMBER ENTRIES/SECTOR IN VTOC
000004                      204 CHDLG EQU   4                    DISP TO DATA IN MULT SECT'S
00000A                      205 VHLG  EQU   10                   NUMBER BYTES OF HEADER INFORMATION
0000F0                      206 THDLG EQU   240                  OFFSET TO RELOCATION FLAGS
00000E                      207 IHDLP EQU   14                   NUM BYTES PAST ALL HEADER INFO
00001E                      208 VHDLP EQU   30                   ON 1ST SECTOR OF EACH PROGRAM DATA
                            209 *                                SET
                            210 ********************************************************************************
                            211 *                                                                              *
                            212 *     EQUATES FOR CODED STOPS USED BY ECP                                      *
                            213 *          (NORMAL AND ERROR)                                                  *
                            214 *                                                                              *
                            215 ********************************************************************************
003400                      216 RECD1 EQU   X'3400'              ECP WAIT
003401                      217 ACNG  EQU   X'3401'              ALTERNATE CONSOLE ERROR
003402                      218 PCKCD EQU   X'3402'              PROGRAM CHECK ERROR
003403                      219 MCKCD EQU   X'3403'              MACHINE CHECK ERROR
003404                      220 PTWMG EQU   X'3404'              POWER THERMAL ERROR
003405                      221 PSTER EQU   X'3405'              PROGRAM TERM
003406                      222 INVCD EQU   X'3406'              INVALID COMMAND ERROR
003407                      223 ALTCN EQU   X'3407'              ALT IN/OUT UNDER TEST
003408                      224 RES   EQU   X'3408'              ALT IN/OUT ON LINE
003409                      225 UXP   EQU   X'3409'              UNEXPECTED I/O INTERRUPT
00340A                      226 BPCD5 EQU   X'340A'              PROGRAM STARTED
00340B                      227 LPCD4 EQU   X'340B'              DISKETTE ERROR
00340C                      228 LPCD5 EQU   X'340C'              PROGRAM NOT FOUND
00340D                      229 LPCD6 EQU   X'340D'              PROGRAM LOADED
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
003410                      241 RPCD2 EQU   X'3410'              PROGRAM NOT EXPECTING REPLY
003413                      242 VFYCD EQU   X'3413'              VERIFY CONSOLE DATA ENTRY
003414                      243 ENTCD EQU   X'3414'              ASK FOR DATA ENTRY
003415                      244 SVCOD EQU   X'3415'              TOO MANY SVC CALLS
003817                      245 CODE2 EQU   X'3817'              KEYBOARD BEING REDEFINED
00341D                      246 DMPCD EQU   X'341D'              DATA IS BEING DUMPED
                            248 ********************************************************************************
                            249 *                                                                              *
                            250 *     THE FOLLOWING EQUATES ARE THE DISPLACEMENT FROM THE                      *
                            251 *     START OF A PROGRAM HEADER OF THE VARIOUS INFORMATION IN                  *
                            252 *     EACH PROGRAM HEADER                                                      *
                            253 *                                                                              *
                            254 ********************************************************************************
000000                      255 HID   EQU   0                    PROG I.D.
000000                      256 DVADR EQU   0                    DEVICE TYPE IN DEVICE TABLE
000001                      257 DVTYP EQU   1                    DEVICE ADR IN DEVICE TABLE
000003                      258 HDDP1 EQU   3                    DEVICE DEPENDENT DATA
000004                      259 HDDP2 EQU   4                    DEVICE DEPENDENT DATA
000006                      260 LSADR EQU   6                    LAST ADR DISPLACEMENT
000006                      261 HPK   EQU   6                    PROTECT KEY
000007                      262 HPK1  EQU   7                    PROTECT KEY PLUS ONF
000006                      263 HPSA  EQU   6                    DIAG PROG START ADR
000006                      264 INTAR EQU   6                    DEVICE INTERRUPT ADR
000008                      265 HDVTB EQU   08                   DIAG DEV TABLE POINTER
000011                      266 EXPNT EQU   17
000012                      267 TBEND EQU   18                   END OF TABLE IND
000013                      268 SCEND EQU   19                   END OF SECTOR IND
000014                      269 CICBT EQU   20                   C I C B INDICATOR
000008                      270 CFEXT EQU   08
000012                      271 HTUID EQU   18                   MDI MAP I.D DISPLACEMENT
000010                      272 UDTAS EQU   16                   UNIT ASSIGNED BIT
000020                      273 PDTAS EQU   32
000000                      274 UNCRT EQU   0                    UNCONDITIONAL RETURN BIT
000002                      275 CKDAD EQU   2                    REQUEST FOR ALT CON ON LINE
00000B                      276 IOCHK EQU   11                   I/O CHK IN PSW
                            277 ********************************************************************************
                            278 *
                            279 *     THE FOLLOWING EQUATES ARE THE OFFSETS INTO EACH CONFIGURATION
                            280 *     ENTRY FOR THE DATA SPECIFIED. (16 BYTES / ENTRY)
                            281 *
                            282 ********************************************************************************
000000                      283 CUDA  EQU   0                    DEVICE ADDRESS
000001                      284 CUDT  EQU   1                    DEVICE TYPE
000002                      285 CUDF  EQU   2                    CONTROL FLAGS
000003                      286 CUDD1 EQU   3                    DEVICE DEPENDENT DATA -- 1
000004                      287 CUDD2 EQU   4                    DEVICE DEPENDENT DATA -- 2
000005                      288 CUDD3 EQU   5                    DEVICE DEPENDENT DATA -- 3
000006                      289 CUDD4 EQU   6                    DEVICE DEPENDENT DATA -- 4
000007                      290 CUDD5 EQU   7                    DEVICE DEPENDENT DATA -- 5
000008                      291 CUDD6 EQU   8                    DEVICE DEPENDENT DATA -- 6
000009                      292 CUDD7 EQU   9                    DEVICE DEPENDENT DATA -- 7
00000A                      293 CUDD8 EQU   10                   DEVICE DEPENDENT DATA -- 8
00000B                      294 CUDD9 EQU   11                   DEVICE DEPENDENT DATA -- 9
00000C                      295 CUDDA EQU   12                   DEVICE DEPENDENT DATA -- 10
00000D                      296 CUDDB EQU   13                   DEVICE DEPENDENT DATA -- 11
00000E                      297 CUDRI EQU   14                   DEVICE READ ID DATA RETURNED
                            299 ********************************************************************
                            300 *
                            301 *     THE FOLLOWING EQUATES ARE THE DISPLACEMENTS FROM THE
                            302 *     START OF A QUE BLOCK OF THE VARIOUS INFORMATION.
                            303 *
                            304 ********************************************************************
000000                      305 QIAR  EQU   0                    IARB OF CALLING PROGRAM
000002                      306 QAKR  EQU   2
000004                      307 QLSR  EQU   4
000006                      308 QR0   EQU   6                    XR0 OF CALLING PROGRAM
000008                      309 QR1   EQU   8                    XR1 OF CALLING PROGRAM
00000A                      310 QR2   EQU   10                   XR2 OF CALLING PROGRAM
00000C                      311 QR3   EQU   12                   XR3 OF CALLING PROGRAM
00000E                      312 QR4   EQU   14                   XR4 OF CALLING PROGRAM
000010                      313 QR5   EQU   16                   XR5 OF CALLING PROGRAM
000012                      314 QR6   EQU   18                   XR6 OF CALLING PROGRAM
000014                      315 QR7   EQU   20                   XR7 OF CALLING PROGRAM
000016                      316 QSVC  EQU   22                   SVC NUMBER OF CALLING PROGRAM
000017                      317 QRAL  EQU   23                   RETURN CODE AND LEVEL ENTERED
                            318 *                                INTO SVC ON
000018                      319 QAV1  EQU   24                   AVAILABLE WORD 1
00001A                      320 QAV2  EQU   26                   AVAILABLE WORD 2
                            322 ********************************************************************
                            323 *
                            324 *     THE FOLLOWING EQUATES ARE THE DISPLACEMENTS FROM THE START
                            325 *     OF EACH SLOT IN THE DEVICE TABLE TO THE VARIOUS
                            326 *     INFORMATION IN EACH SLOT
                            327 *
                            328 ********************************************************************
000002                      329 QAG   EQU   2                    RETURN ADDRESS IF COND CODE OF
                            330 *                                INTERUPT MATCHES THE COND
                            331 *                                CODE AT QCC
000004                      332 QAB   EQU   4                    RETURN ADDRESS IF CONDITION
                            333 *                                CODE OF INTERUPT DOES NOT
                            334 *                                MATCH CONDITION CODE AT QCC
000007                      335 QCC   EQU   7                    CONDITION CODE EXPECTED
                            337 ********************************************************************
                            338 *
                            339 *     THE FOLLOWING IS A MAP OF LOW STG - ALL STG LOCATIONS
                            340 *     UP TO THE SYSTEM LSB'S APE PERMANENT ASSIGMENTS.
                            341 *
                            342 ********************************************************************
000000  6802 1848           343 SDCP  B     INIT                 INITIALLY BRANCH TO INITIALIZATION
000002                      344 SDCP2 EQU   SDCP+2               ROUTINE. INITIALIZATION WILL
                            345 *                                POINT IT TO RESTART ROUTINE
                            346 *                                (RESTR).
000004  00000000           347 RESVD DC    2A(0)                RESERVED
000008  0260               348 MCKPT DC    A(PCKLB)             MACHINE CHECK LSB POINTER
00000A  09E8               349 MCKSI DC    A(MCKEP)             MACHINE CHECK SIA
00000C  0260               350 PCKPT DC    A(PCKLB)             PROGRAM CHECK LSB POINTER
00000E  099A               351 PCKSI DC    A(PCKEP)             PROGRAM CHECK SIA
000010  02AE               352 SVCPT DC    A(SVCLB)             SVC LSB POINTER
000012  0944               353 SVCSI DC    A(SVC)               SVC SIA
000014  0260               354 PTWPT DC    A(PCKLB)             POWER FAILURE LSB POINTER
000016  09FE               355 PTWSI DC    A(PTWEP)             POWER FAILURE SIA
000018  0260               356 TRAPT DC    A(PCKLB)             TRACE LSB POINTER
00001A  099A               357 TRASI DC    A(PCKEP)             TRACE SIA
00001C  0296               358 CONPT DC    A(CONLB)             CONSOLE INT LSB POINTER
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00001E  0C06               359 CONSI DC    A(CONEP)             CONSOLE INT SIA
000020  0260               360 SFTPT DC    A(PCKLB)             SOFT TRAP LSB POINTER
000022  099A               361 SFTSI DC    A(PCKEP)             SOFT TRAP SIA
000024  0000000000000000   362         DC  6A(0)                RESERVED LOCATIONS
000030  052405240524052405240 363 DEVIT DC  128A(STRIT)         DEVICE 00-FF INTERUPT SIA
000130  052405240524052405240 364         DC  128A(STRIT)      INITIALLY SET TO STRAY
                            366 ********************************************************************
                            367 *                                                                  *
                            368 *     THIS PAGE CONTAINS THE INTERPROGRAM COMMUNICATION AREA. ALL  *
                            369 *     ENTRIES MUST REMAIN IN THEIR EXACT STOPAGE LOCATIONS.        *
                            370 *                                                                  *
                            371 ********************************************************************
000230  0000               372 LASAD DC    A(0)                 LAST VALID STG WORD ADR
000232  0000               373 CPUMD DC    A(0)                 ISB FROM IPL'ED DEVICE
000233                     374 DKAD  EQU   CPUMD+ONE            IPL DEVICE ADR
                            375 *                                INTERUPT ROUTINE
                            376 *     (DCP INDICATORS)
000234  8200               377 INDIC DC    B'1000001000000000'  INDICATORS USED BY DCP
                            378 *                                   BIT  0 - SPARE
                            379 *                                   BIT  1 - RELOCATE PROB PROG
                            380 *                                   BIT  2 - SPARE
                            381 *                                   BIT  3 - 1=UTILITY REQ FOR DATA
                            382 *                                   BIT  4 - PGM LOADED
                            383 *                                   BIT  5 - IPL BIT
                            384 *                                   BIT  6 - STOP AFTER MSG
                            385 *                                   BIT  7 - ALT OUT DEV ASIGNED
                            386 *                                   BIT  8 - IND TAKE NEXT FNTRY
                            387 *                                   BIT  9 - INPUT FROM PROG CONSOLE
                            388 *                                   BIT 10 - SVC READI
                            389 *                                   BIT 11 - STOP ERROR COUNTING
                            390 *                                   BIT 12 - SPARE
                            391 *                                   BIT 13 - SPARE
                            392 *                                   BIT 14 - UNIT ASSIGN REQ
                            393 *                                   BIT 15 - CONVERT TO HEX
000236  0A2A               394 DCP01 DC    A(FNDDS)
000238  0AAA               395 DCP02 DC    A(DSKRD)
00023A  0AB0               396 DCP03 DC    A(DSKWR)
00023C  040E               397 DCP04 DC    A(DBUF)
00023E  17EE               398 DCP05 DC    A(FNDPG)
000240  0000               399 OPADR DC    A(*-*)               ADR OF ASSIGNED OUTPUT DEV
000241                     400 OPTYP EQU   OPADR+ONE            DEV TYPE FOR ASSIG OUTPUT
000242  03BD               401 SEID0 DC    A(SEID1)
000244  1000               402 SECSZ DC    X'1000'
000246  0B16               403 DKINT DC    A(DSKIT)             ADDR DISKETTE INTERRUPT ROUTINE
000248  07C0               404 DCP06 DC    A(SCHED)             ADDRESS OF THE SCHEDULER ROUTINE
00024A  00000000           405 DCP07 DC    2A(0)                EXPANSION AREA FOR COMMON POINTERS
                            406 *
00024E  14D8               407 ECP00 DC    A(DUMPX)             ADDR DUMP ROUTINE EXIT INSTRUCTION
000250  031A               408 ECP01 DC    A(CMD7)              ADDR STOP CMND POINTER
000252  031E               409 ECP02 DC    A(CMD9)              ADDR TERM CMND POINTER
000254  0322               410 ECP03 DC    A(CMDB)              ADDR BEGIN CMND POINTER
000256  0330               411 ECP04 DC    A(SVCI)              ADDR SVC IDLE POINTER
000258  033A               412 ECP05 DC    A(SVCT)              ADDR SVC TERM POINTER
00025A  05AC               413 ECP06 DC    A(DVTAB)             CICB TABLE ADDPESS
00025C  07C0               414 ECP07 DC    A(SCHED)             SCHEDULER ROUTINE ADDRESS
00025E  0FBE               415 ECP08 DC    A($PRNT)             COMMON PRINT ROUTINE ADDRESS
                            416 ********************************************************************
                            418 ********************************************************************
                            419 *
                            420 *     STORAGE AREA RESERVED FOR LSB'S
                            421 *
                            422 ********************************************************************
000260  0000000000000000   423 PCKLB DC    12A(0)               MACHINE CHECK AND PROGRAM CHECK LSB
000278  0000000000000000   424 PTWLB DC    12A(0)               POWER - THERMAL WARNING LSB
000296  0000000000000000   425 CONLB DC    11A(0)               CONSOLE LSB
0002AC  0000               426 CONLV DC    A(0)                 CONSOLE LSB
0002AE  0000000000000000   427 SVCLB DC    15A(0)               INITIAL LSB FOR SVC INTERRUPTS
0002CC  0000000000000000   428         DC  15A(0)               ADDITIONAL LSB'S FOR SVC INT
0002EA  0000000000000000   429 STLSB DC    15A(0)
000308  FFFF               430 DMONE DC    F'-1'                STOPPER - CONSTANT FOR DOUBLE
00030A  FFFF               431         DC  F'-1'                        MINUS ONE
000308                     432 HEXFF EQU   DMONE
000308                     433 MINON EQU   DMONE
                            435 *     DECODE OPERATOR COMMANDS ROUTINE (OPCMD)
                            436 *     BRANCH TABLE FOR OPERATOR COMMANDS
00030C                      437 CMDTB EQU   *
00030C  11B0               438         DC  A(NORTN)             0 - NO RESPONCE
00030E  11BE               439         DC  A(YSRTN)             1 - YES RESPONCE
000310  1436               440         DC  A(EFRON)             2 - STOP ERROR COUNTING
000312  143E               441         DC  A(ERROF)             3 - RESUME ERROR COUNTING
000314  0A78               442         DC  A(FN26)              4 - INVALID
000316  0A78               443         DC  A(FN26)              5 - INVALID
000318  11C4               444         DC  A(RSPGM)             6 - RESUME PROGRAM
00031A  0A78               445 CMD7    DC  A(FN26)              7 - STOP SYSTEM TEST
00031C  1198               446         DC  A(COUNT)             8 - DUMP PROGRAM COUNTERS
00031E  0A78               447 CMD9    DC  A(FN26)              9 - TERMINATE DEVICE
000320  0A78               448         DC  A(FN26)              A - INVALID
000322  123A               449 CMDB    DC  A(BPPGM)             B - BEGIN PROGRAM OR DEVICE
000324  0A78               450         DC  A(FN26)              C - INVALID
000326  144E               451         DC  A(DUMPS)             D - DUMP STORAGE
000328  0A78               452         DC  A(FN26)              E - INVALID
00032A  13B2               453         DC  A(REPGM)             F - RESPOND TO PROGRAM
                            455 ********************************************************************
                            456 *
                            457 *     THE FOLLWING IS THE ADDRESSES BRANCHED TO BY THE INITIAL
                            458 *     SVC HANDLER FOR EACH INDIVIDUAL SVC PARAMETER FIELD.  THEY
                            459 *     ARE IN ASCENDING NUMERICAL ORDER.  ANY NOT SHOWN ARE
                            460 *     INVALID.
                            461 *
                            462 ********************************************************************
00032C                      463 ISVCP EQU   *
00032C  0B9A               464         DC  A(CONSO)         SVC 0  ADDR OF OUT SVC
00032E  0B9A               465         DC  A(CONSO)             1  ADDR OF OUTIN SVC
000330  0CB8               466 SVCI    DC  A(DELAY)             2  ADDR OF IDLE SVC
000332  0CB4               467         DC  A(DUMMY)             3  ** RESREVED FOR FUTURE EXPANSION **
000334  0CC0               468         DC  A(CHNG)              4  CHANGE LEVEL SVC
000336  0C94               469         DC  A(DUMMY)             5  ** RESREVED FOR FUTURE EXPANSION **
000338  0CD2               470         DC  A(EXITA)             6  EXIT WITHOUT RETURN SVC
00033A  0CDC               471 SVCT    DC  A(TERMA)             7  TERMINATE SVC RTN
00033C  0D22               472         DC  A(OIO)               8  RESET DEVICE SVC
00033E  0D22               473         DC  A(OIO)               9  READ ID SVC
000340  0D22               474         DC  A(OIO)              10  START CYCLE STEAL SVC
000342  0D22               475         DC  A(OIO)              11  START CYCLE STEAL STATUS SVC
000344  0D22               476         DC  A(OIO)              12  PREPARE DEVICE SVC
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000346  0D22                477        DC    A(OIO)              13  READ WITH FUNCTION BIT 3 OFF SVC
000348  0D22                478        DC    A(OIO)              14  READ WITH FUNCTION BIT 3 ON SVC
00034A  0D22                479        DC    A(OIO)              15  READ STATUS SVC
00034C  0D22                480        DC    A(OIO)              16  WRITE WITH FUNCTION BIT 3 OFF SVC
00034E  0D22                481        DC    A(OIO)              17  WRITE WITH FUNCTION BIT 3 ON SVC
000350  0D22                482        DC    A(OIO)              18  CONTROL SVC
000352  0DAE                483        DC    A(RCIB1)            19  RELEASE INTERUPT CONTROL BLOCK SVC
000354  0DEE                484        DC    A(CICB1)            20  CONNECT INTERUPT CONTROL BLOCK SVC
000356  0D22                485        DC    A(OIO)              21  HALT I/O
000358  0E32                486        DC    A(REQD1)            22  REQUEST ECP DISKETTE SVC
00035A  0E4A                487        DC    A(RELD1)            23  RELEASE ECP DISKETTE SVC
00035C  0CB4                488        DC    A(DUMMY)            24  ** RESERVED FOR FUTURE EXPANSION **
00035E  0E8E                489        DC    A(ETH)              25  EBCDIC TO HEX SVC
000360  0E62                490        DC    A(HTE)              26  HEX TO EBCDIC SVC
000362  0E96                491        DC    A(ATH)              27  ASCII TO HEX SVC
000364  0E68                492        DC    A(HTA)              28  HEX TO ASCII SVC
000366  0EB0                493        DC    A(ETA)              29  EBCDIC TO ASCII SVC
000368  0EBE                494        DC    A(ATE)              30  ASCII TO EBCDIC SVC
00036A  0F1E                495        DC    A(IREAD)            31  READ DATA SETS
00036C  0F5E                496        DC    A(IWRIT)            32  WRITE DATA SETS FOR UTILITIES
00036E  0CB8                497        DC    A(DELAY)            33  DELAY A MIN OF 40 MICRO SEC
                            499 ********************************************************************
                            500 *
                            501 *     COMMONLY USED CONSTANTS AND WORK AREAS
                            502 *
                            503 ********************************************************************
                            505 *     CONFIGURATION SAVE AREA
000370  0000                506 DRSVL DC    A(0)                                   REGISTER SAVE AREA
000372  0000                507 DRSV7 DC    A(0)
000374  0000                508 DRSV0 DC    A(0)
000376  0000                509 DRSV1 DC    A(0)
000378  0000                510 DRSV2 DC    A(0)
00037A  0000                511 DRSV3 DC    A(0)
00037C  0000                512 DRSV4 DC    A(0)
00037E  0000                513 DRSV5 DC    A(0)
000380  0000                514 DRSVH DC    A(0)
                            516 *     RESET I/O ROUTINE (DISDV)
000382  6F00               517 DIRST DC    X'6F00'                                RESET DEVICE IDCB
000383                      518 DIRS  EQU   DIRST+1
000384  0000                519       DC    A(0)
000386  6000               520 DIPRE DC    X'6000'                                RESET I BIT IDCB
000387                      521 DIPR  EQU   DIPRE+ONE
000388  0000                522       DC    A(0)
                            524 *     CONVERSION ROUTINES (ATH/ETH/ATE/ETA)
00038A  0000                525 WORK  DC    A(*-*)                                 WORK SPACE
00038C  0000                526 WORK1 DC    A(*-*)                                  USED BY VARIOUS
00038E  0000                527 WORK2 DC    A(*-*)                                  ROUTINES IN DCP
000390  F000               529 HLTIO DC    X'F000'                                IDCB FOR HALT I/O
000392  0000                530       DC    X'0000'
                            531 *     DISKETTE AND SEEK ROUTINES (DSK  /SEEK)
000394  0000                532 DKRTY DC    A(0)                                   DISKETTE RETRY COUNT
000396  000A                533 PCYLA DC    A(DCPCY)                               CYLINDER HEAD PRESENTLY AT
000398  00000000000000000   534 DKLL  DC    10A(0)
0003AC  0000                535 DK2R7 DC    A(0)
0003AE  0000                536 DKR0  DC    A(0)
0003B0  0000                537 DKR1  DC    A(0)
0003B2  0000                538 DKR2  DC    A(0)
0003B4  0000                539 DKR3  DC    A(0)
0003B6  0000                540 DKR4  DC    A(0)
0003B8  0000                541 DKR5  DC    A(0)
0003BA  0000                542 DKHL  DC    A(0)
0003BC  7000                543 SEIDB DC    X'7000'                                START IDCB
0003BD                      544 SEID1 EQU   SEIDB+1
0003BE  03CC                545       DC    A(SEDCB)                               ADDR SEEK DCB
0003C0  6F00               546 DKRST DC    X'6F00'                                RESET DISKETTE IDCB
0003C2  0000                547       DC    X'0000'
0003C4  7000               548 CALIB DC    X'7000'                                RECALIBRATE IDCB
0003C6  040C                549       DC    A(RECAL)
0003C8  6000               550 DSKPR DC    X'6000'                                PREPARE DISKETTE IDBC
0003CA  0005                551       DC    X'0005'
                            552 *     SEEK DCB
0003CC  8005               553 SEDCB DC    X'8005'                                DCB CONTROL WORD
0003CE  0000                554       DC    A(0)                                   SEEK CONTROL WORD
0003D0  0000                555       DC    A(0)                                   FORMAT DATA WORD
0003D2  1000                556       DC    X'1000'                                N-C
0003D4  0000                557       DC    A(0)                                   H-R
0003D6  0000                558       DC    A(0)                                   CHAIN ADDRESS
0003D8  0000                559       DC    A(0)                                   BYTE COUNT
0003DA  0000                560       DC    A(0)                                   DATA ADDR
000000                      561 SKW1  EQU   SEDCB-SEDCB                            DCB CONTROL WORD
000002                      562 SKW2  EQU   SKW1+2                                 SEEK CONTROL WORD
000004                      563 SKW3  EQU   SKW1+4                                 FORMAT DATA WORD
000006                      564 SKW4  EQU   SKW1+6                                 N-C
000008                      565 SKW5  EQU   SKW1+8                                 H-R
00000A                      566 SKW6  EQU   SKW1+10                                CHAIN ADDR
00000C                      567 SKW7  EQU   SKW1+12                                BYTE COUNT
00000E                      568 SKW8  EQU   SKW1+14                                DATA ADDR
                            569 *     READ DCB
0003DC  2009               570 RDCB  DC    X'2009'                                DCB CONTROL WORD
0003DE  0000                571       DC    A(0)                                   SEEK CONTROL WORD
0003E0  0000                572       DC    A(0)                                   FORMAT DATA WORD
0003E2  1000                573       DC    X'1000'                                N-C
0003E4  0000                574       DC    A(0)                                   H-R
0003E6  0000                575       DC    A(0)                                   CHAIN ADDR
0003E8  0100                576       DC    A(256)                                 BYTE COUNT
0003EA  040E                577       DC    A(DBUF)                                DATA ADDR
000010                      578 RDW1  EQU   RDCB-SEDCB                            DCB CONTROL WORD
000012                      579 RDW2  EQU   RDW1+2                                 SEEK CONTROL WORD
000014                      580 RDW3  EQU   RDW1+4                                 FORMAT DATA WORD
000016                      581 RDW4  EQU   RDW1+6                                 N-C
000018                      582 RDW5  EQU   RDW1+8                                 H-R
00001A                      583 RDW6  EQU   RDW1+10                                CHAIN ADDR
00001C                      584 RDW7  EQU   RDW1+12                                BYTE COUNT
00001E                      585 RDW8  EQU   RDW1+14                                DATA ADDR
                            586 *     WRITE DCB
0003EC  8001               587 WRDCB DC    X'8001'                                DCB CONTROL WORD
0003EE  0000                588       DC    A(0)                                   SEEK CONTROL WORD
0003F0  0000                589       DC    A(0)                                   FORMAT DATA WORD
0003F2  1000                590       DC    X'1000'                                N-C
0003F4  0000                591       DC    A(0)                                   H-R
0003F6  03FC                592       DC    A(VDCB)                                CHAIN ADDR
0003F8  0100                593       DC    A(256)                                 BYTE COUNT
0003FA  040E                594       DC    A(DBUF)                                DATA ADDR
000020                      595 WRW1  EQU   WRDCB-SEDCB                            DCB CONTROL WORD
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000022                      596 WRW2  EQU   WRW1+2                                 SEEK CONTROL WORD
000026                      597 WRW3  EQU   WRW2+4                                 FORMAT DATA WORD
000026                      598 WRW4  EQU   WRW1+6                                 N-C
000028                      599 WRW5  EQU   WRW1+8                                 H-R
00002A                      600 WRW6  EQU   WRW1+10                                CHAIN ADDR
00002C                      601 WRW7  EQU   WRW1+12                                BYTE COUNT
00002E                      602 WRW8  EQU   WRW1+14                                DATA ADDR
                            603 *     VERIFY DCB
0003FC  000C               604 VDCB  DC    X'000C'                                DCB CONTROL WORD
0003FE  0000                605       DC    A(0)                                   SEEK CONTROL WORD
000400  0000                606       DC    A(0)                                   FORMAT DATA WORD
000402  1000                607       DC    X'1000'                                N-C
000404  0000                608       DC    A(0)                                   H-R
000406  0000                609       DC    A(0)                                   CHAIN ADDR
000408  0100                610       DC    A(256)                                 BYTE COUNT
00040A  0000                611       DC    A(0)                                   DATA ADDR
000030                      612 VFW1  EQU   VDCB-SEDCB                            DCB CONTROL WORD
000032                      613 VFW2  EQU   VFW1+2                                 SEEK CONTROL WORD
000034                      614 VFW3  EQU   VFW1+4                                 FORMAT DATA WORD
000036                      615 VFW4  EQU   VFW1+6                                 N-C
000038                      616 VFW5  EQU   VFW1+8                                 H-R
00003A                      617 VFW6  EQU   VFW1+10                                CHAIN ADDR
00003C                      618 VFW7  EQU   VFW1+12                                BYTE COUNT
00003E                      619 VFW8  EQU   VFW1+14                                DATA ADDR
                            621 *     RECALIBRATE DCB
00040C  0007               622 RECAL DC    X'0007'                                RECALIBRATE DCB
00040E  0000000000000000   624 DBUF  DC    128A(0)                                DISKETTE BUFFER AREA
000410                      626 CNTNM EQU   DBUF+2                                 MESSAGE AREA FOR DUMP OF PROGRAM
000414                      627 CNTAD EQU   CNTNM+4                                    EXECUTION COUNT(S)
000416                      628 CNTMG EQU   CNTNM+6
000426                      629 CNTZR EQU   CNTNM+22
00040E                      630 DMPS  EQU   DBUF                                   DUMP START ADDRESS
000410                      631 DMPE  EQU   DBUF+2                                 DUMP ENDING ADDRESS
000412                      632 DMPC  EQU   DBUF+4                                 DUMP LED CODE AREA
000414                      633 DMPES EQU   DBUF+6                                 DUMP EBC START ADDRESS
000418                      634 DMPBL EQU   DBUF+10                                DUMP BLANK AREA
00041C                      635 DMPDT EQU   DBUF+14                                DUMP START OF DATA
                            637 *     ISSUE I/O ROUTINE (OIO)
00050E  6F                 638 COMD  DC    X'6F'                                  COMMAND FIELD FOR RESET
00050F  20                  639       DC    X'20'                                  COMMAND FIELD FOR RID
000510  70                  640       DC    X'70'                                  COMMAND FIELD FOR START
000511  7F                  641       DC    X'7F'                                  COMMAND FIELD FOR STCSS
000512  60                  642       DC    X'60'                                  COMMAND FIELD FOR PREP
000513  00                  643       DC    X'00'                                  COMMAND FIELD FOR READ0
000514  10                  644       DC    X'10'                                  COMMAND FIELD FOR READ1
000515  20                  645       DC    X'20'                                  COMMAND FIELD FOR RSTAT
000516  40                  646       DC    X'40'                                  COMMAND FIELD FOR WRIT0
000517  50                  647       DC    X'50'                                  COMMAND FIELD FOR WRIT1
000518  60                  648       DC    X'60'                                  COMMAND FIELD FOR CTRL
                            650 *     INPUT FROM PROGRAMMERS CONSOLE
000519  0B                 651 OPTB  DC    X'0B'                                    OPERATOR COMMAND - BEGIN MANUAL MODE
00051A  00                  652 CMND  DC    X'00'                                    OPERATOR COMMAND
00051B  00                  653 CNCT  DC    X'00'                                    CONSOLE INPUT WORD COUNT
00051C  0000                654 CNDAT DC    A(*-*)                                   CONSOLE INPUT DATA AREA
00051E  0002                655 CNVTX DC    A(2)
000520  051C                656 CNVTY DC    A(CNDAT)
000522  150C                657 CNVTZ DC    A(PRTBU)
                            660 *     STRAY INTERRUPT ROUTINE (STRIT)
000524  10F2               661 STRIT DC    A(ST01)                                ADDR USER DEVICES INT RTN
000526  6F00               662 SIRST DC    X'6F00'                                A DEV RESET FOR STRAY INT IDCB
000527                      663 SIRS  EQU   SIRST+1
                            665 *     CONVERT CONTROL BLOCKS
000528  0002               666 RTNCV DC    A(TWO)
00052A  180A                667       DC    A(RTNE)
00052C  0708                668       DC    A(MCKM3)
00052E  0002               670 CKPTC DC    A(TWO)
000530  180C                671       DC    A(CKPT)
000532  0712                672       DC    A(MCKM4)
000534  0002               674 PSWCV DC    A(TWO)
000536  150C                675       DC    A(PRTBU)
000538  071C                676       DC    A(MCKM7)
00053A  0002               678 IARCV DC    A(TWO)
00053C  150C                679       DC    A(PRTBU)
00053E  0726                680       DC    A(MCKM8)
000540  0002               682 UNEXP DC    A(TWO)
000542  0556                683       DC    A(UIOMS)
000544  079E                684       DC    A(UIMSG)
000546  0000               686 CNVT  DC    A(0)
000548  0000               687 CNVT1 DC    A(0)
00054A  1518               688 CNVT2 DC    A(PRBUF)
00054C  0000               690 REVT  DC    A(*-*)
00054E  0000               691 REVT1 DC    A(*-*)
000550  0000               692 REVT2 DC    A(*-*)
000552  0000               694 UDTR4 DC    A(0)
000554  0000               695 UDTR5 DC    A(0)
000556  0000               696 UIOMS DC    A(0)                                   WORK AREA FOR UNEXP I/O
000558  1A                 697 SPT   DC    X'1A'                                  NUMER SECTORS/TRACK
000559  0F                 698 SPT1  DC    X'0F'
00055A  C4                 699 DCHAR DC    C'D'                                   TEST FOR DIAG PGM IN AUTO
00055B  C5                 700 ECHAR DC    C'E'
00055C  D6                 701 OCHAR DC    C'O'
00055D  F3F8C6F14040       702 CFGN1 DC    C'38F1  '
000563  00                 703 STFLG DC    X'00'
000564  00                 704 ALTSM DC    X'00'
000566  0000               705 LSSVC DC    A(*-*)                                 ADR LAST SVC  ISSUED BY DCP
000568  F3F4F0F0            706 ECPHX DC    C'3400'
00056C  00C0               707 $NOHD DC    X'00C0'
00056E  0000               708 $OUT  DC    A(*-*)
000570  0080               709       DC    X'0080'
000572  0414               710 OUTDP DC    A(DMPES)
000574  0002               711 DHTOE DC    A(2)                                   CONTROL BLOCK FOR DUMP ROUTINE
000576  040E               712 DHTE1 DC    A(DMPS)
000578  0414               713 DHTE2 DC    A(DMPES)
00057A  0008               714 DETOH DC    A(8)                                   CONTROL BLOCK FOR DUMP ROUTINE
00057C  0000               715 DETH1 DC    A(*-*)
00057E  040E               716 DETH2 DC    A(DMPS)
000580  0000               717 SAVEPNT DC  A(*-*)
000582  0002               718 PHTOE DC    A(2)
000584  0000               719 PHTOE1 DC   A(*-*)
000586  0000               720 PHTOE2 DC   A(*-*)
000588  0008               721 QHTOE DC    A(8)
00058A  0000               722 QHTOE1 DC   A(*-*)
00058C  0000               723 QHTOE2 DC   A(*-*)
00058E  0002               724 ADDHE DC    A(2)
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000590  17F8                  725          DC  A(LDADD)
000592  07B8                  726          DC  A(PRGN7)
000594  F0F2F6F0F0F2F7F0      727 FAKDP    DC  C'02600270'
                              729 ********************************************************************
                              730 *                                                                  *
                              731 *     THE FOLLOWING ARE STACK CONTROL BLOCK AND THE TEA IS         *
                              732 *     INITIALIZED TO TWO LARGER THAN THE HLA DURING A RESTART.     *
                              733 *                                                                  *
                              734 ********************************************************************
00059C  0382                  735 DRSV  DC    A(DRSVH+TWO)             TEA
00059E  0382                  736 DRSVA DC    A(DRSVH+TWO)             HLA
0005A0  0370                  737       DC    A(DRSVL)                 LLA
0005A2  03BC                  738 DKSV  DC    A(DKHL+TWO)              TEA
0005A4  03BC                  739 DKSV2 DC    A(DKHL+TWO)              HLA
0005A6  0398                  740       DC    A(DKLL)                  LLA
                              742 ********************************************************************
                              743 *
                              744 *     THE FOLLOWING PARAMETERS ARE SET AT INITIALIZATION TIME
                              745 *
                              746 ********************************************************************
0005A8  00                    747 ALTSG DC    X'00'                    OUTPUT DEV ASSIGNED
0005A9  FF                    748 INTLD DC    X'FF'                    INITIAL LOAD IND
0005AA  0000                  749 CNFRT DC    A(0)
0005AC  00000000000000000     750 DVTAB DC    84A(0)                   C I C B ADRESS POINTERS
                              752 ********************************************************************
                              753 *
                              754 *     CONSTANTS USED BY THE CONVERSION ROUTINES
                              755 *
                              756 ********************************************************************
                              757 *     ASCII CONVERSION CONTROL BLOCK
000654  0002                  758 ASCTB DC    A(2)                     DATA BYTE COUNT
000656  065A                  759       DC    A(ASCDT)                 DATA ADDRESS
000658  0000                  760 ASCBF DC    A(*-*)                   BUFFER ADDRESS
00065A  0000                  761 ASCDT DC    A(*-*)                   DATA
                              762 *     CONVERSION TABLES
00065C  00010203040506070     763 HEXTA DC    X'00010203040506070809 0A0B0C0D0E0F00'
00066D  F0                    764 MKF0  DC    X'F0'                    MASK AND ALIGN
00066E  3031323334353637 3     765 ASC11 DC    S'0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ'
000692  2324252627282A2        766       DC    S'#$%&&'' ()**,-./:;<=>?@ '
0006A7  20                    767       DC    S' '                     SPACE
0006A8  F0F1F2F3F4F5F6F7F     768 EBCDI DC    C'0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ'
0006CC  7B5B6C507D4D5D5C4     769       DC    C'#$%&&'' ()**,-./:;<=>?@ '
0006E1  40                    770 EBCBK DC    C' '                     SPACE
0006BF                        771 NORES EQU   EBCDI+TWEN3
0006CA                        772 YSRES EQU   EBCDI+THRY4
                              774 ********************************************************************
                              775 *
                              776 *     MESSAGES USED BY DCP AND THE UTILITY ROUTINES
                              777 *
                              778 ********************************************************************
                              779 *     PRINT TERMINATION ROUTINE(PRTSM)
0006E2  3405                  780       DC    A(PSTER)                 ERROR CODE
0006E4  D7E3                  781 PRMS  DC    C'PT'
0006E6  0080                  782 PRPR  DC    X'0080'                  EOM AND DCP MSG CNTL FLD
0006E8  06E4                  784 PRPRM DC    A(PRMS)                  ADDRESS OF MESSAGE
0006EA  3404                  786       DC    A(PTHNG)                 ERROR CODE
0006EC  D7E6D940E3C8C5D9D     787 PTMSG DC    C'PWR THERM WARN'
0006FA  00C0                  788 HEX00 DC    X'00C0'                  EOM AND DCP MSG CNTL FLD
0006FC  06EC                  790 PTMS  DC    A(PTMSG)                 ADDRESS OF MESSAGE
0006FE  3403                  792 MCKMG DC    A(MCKCD)                 ERROR CODE
000700  D4C3D2                793 MCKM1 DC    C'MCK'
000703  40D9E3D57E            794 MCKM2 DC    C' RTN='
000708  E7E7E7E740            795 MCKM3 DC    C'XXXX '
00070D  C3D2D7E37E            796       DC    C'CKPT='
000712  E7E7E7E740            797 MCKM4 DC    C'XXXX '
000717  D7E2E67E40            798 MCKM7 DC    C'PSW= '
00071C  E7E7E7E740            799 MCKM5 DC    C'XXXX '
000721  C9C1D97E40            800 MCKM6 DC    C'IAR= '
000726  E7E7E7E7              801 MCKM8 DC    C'XXXX'
00072A  00C0                  802       DC    X'00C0'                  EOM AND DCP MSG CNTL FIELD
00072C  0700                  804 MCKMA DC    A(MCKM1)
00072E  3406                  806       DC    A(INVCD)                 ERROR CODE
000730  C9D5E540D9C5D840      807 ERMS1 DC    C'INV REQ '
000738  0080                  808 ERMS2 DC    X'0080'                  EOM AND DCP MSG CNTL FLD
00073A  0730                  810 INCMD DC    A(ERMS1)                 ADDRESS OF MESSAGE
00073C  340B                  812       DC    A(LPCD4)                 ERROR CODE
00073E  C4C9E2D2C5E3E3C54     813 LPG4  DC    C'DISKETTE ERROR'
00074C  00C0                  814       DC    X'00C0'                  EOM AND DCP MSG CNTL FLD
00074E  073E                  816 LPB   DC    A(LPC4)                  ADDRESS OF MESSAGE
000750  340C                  818       DC    A(LPCD5)                 ERROR CODE
000752  D7D5C640              819 LPG5  DC    C'PNF '
000756  00C0                  820       DC    X'00C0'                  EOM AND DCP MSG CNTL FLD
000758  0752                  822 LPC   DC    A(LPG5)                  ADDRESS OF MESSAGE
00075A  340A                  824       DC    A(BPCD5)                 ERROR CODE
00075C  E2E3                  825 BPG5  DC    C'ST'
00075E  0080                  826       DC    X'0080'                  EOM AND DCP MSG CNTL FLD
000760  075C                  828 PAPL5 DC    A(BPG5)                  ADDRESS OF MESSAGE
000762  3400                  830       DC    A(RECD1)                 ERROR CODE
000764  D9C4E840              831 DCPWM DC    C'RDY '
000768  0080                  832       DC    X'0080'                  EOM AND DCP MSG CNTL FLD
00076A  0764                  834 REMG1 DC    A(DCPWM)                 ADDRESS OF MESSAGE
00076C  3407                  836       DC    A(ALTCN)
00076E  C1D3E340C3D6D540D     837 ALTRC DC    C'ALT CON OFF '
00077A  0080                  838       DC    X'0080'
00077C  076E                  840 ALCON DC    A(ALTRC)
00077E  3408                  842       DC    A(RES)
000780  C1D3E340C3D6D540D     843 REAS  DC    C'ALT CON ON'
00078A  0080                  844       DC    X'0080'
00078C  0780                  846 REASG DC    A(REAS)
00078E  3409                  848       DC    A(UXPI)
000790  E4D5C5E740C9D5E34     849 UNXPC DC    C'UNEX INT ISB= '
00079E  40404040              850 UIMSG DC    4C' '
0007A2  00C0                  851       DC    X'00C0'
0007A4  0790                  853 UNEIO DC    A(UNXPC)
0007A6  340D                  855       DC    A(LPCD6)
0007A8                        856 PRG   EQU   *
0007A8  404040404040D3D6C     857 PRGN  DC    C'      LOADED'
0007B4  00                    858 PRGN6 DC    X'00'
0007B5  C1E340                859       DC    C'AT '
0007B8  E7E7E7E7              860 PRGN7 DC    C'XXXX'
0007BC  0080                  861 PRGN8 DC    X'0080'
0007A9                        862 PRGN1 EQU   PRGN+ONE
0007AB                        863 PRGN3 EQU   PRGN+THREE
0007AC                        864 PRGN4 EQU   PRGN+FOUR
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0007AD                        865 PRGN5 EQU   PRGN+FIVE
0007BE  07A8                  867 LPD   DC    A(PRG)
                              869 ********************************************************************
                              870 *
                              871 *     NAME    SCHEDULER
                              872 *
                              873 *     PURPOSE THIS ROUTINE DETERMINES WHICH PROGRAM IS TO RUN
                              874 *             NEXT.
                              875 *
                              876 *     METHOD  IT IS CALLED BY A BRANCH TO SCHED
                              877 *
                              878 ********************************************************************
0007C0                        879 SCHED EQU   *
0007C0  C320 0563             880       MVB   STFLG,R3                 LOAD STRAY INTER FLAG
0007C4  1A05                  881       JNN   SCHD1                    BR IF OFF
0007C6  8028 0559 0563        882       MVB   SPT1,STFLG               TURN OFF FLAG
0007CC  6802 097A             883       B     SVCRT                    BR TO RETURN TO STRAY INTER ROUTINE
0007D0                        884 SCHD1 EQU   *
0007D0  5820 0308             885       SEIMR MINON                    ALLOW ANY INT PENDING
0007D4  6201                  886       EN    SM                       ALLOW ANY INTERUPT PENDING
                              887 *                                    TO BE HANDLED
0007D6  4724 0234             888       MVA   INDIC,R7                 LOAD ADDRESS OF INDICATORS
0007DA  4F89                  889       TBTR  (R7,CONDV)               IS INPUT PROG CON BIT ON
0007DC  100A                  890       JOFF  SCHD2                    BRANCH IF NO
0007DE  4620 07F4             891       MVA   SCHD3,R6                 LOAD ADDRESS OF LEX IAR
0007E2  CE24 0296             892       CW    CONLB,R6                 IS THE IAR FROM WAIT STATE
0007E6  1F05                  893       JLGE  SCHD2                    BRANCH YES
0007E8  4124 0296             894       MVA   CONLB,R1                 LOAD ADDRESS OF CONSOLE LSB
0007EC  C260 0017             895       MVB   (R1,QRAL),R2             LOAD LEVEL OF LSB
0007F0  5A46                  896       SELB  R2,(R1)                  RETURN TO INTERRUPTED PROG - NSI
0007F2                        897 SCHD2 EQU   *
0007F2  6100                  898       LEX   ZERO                     TO RESUME RUNNING
0007F4                        899 SCHD3 EQU   *
                              901 ********************************************************************
                              902 *
                              903 *     THE FOLLOWING ROUTINE IS BRANCHED TO AT IPL TIME AND ON A
                              904 *     RESTART OF A DIAGNOSTIC PROGRAM.
                              905 *
                              906 ********************************************************************
0007F4                        907 RESTR EQU   *
0007F4  4020 001E 0C06        908       MVA   CONEP,CONSI              RE-INIT CONSOL INTERRUPT ADDRESS
0007FA  4020 001C 0296        909       MVA   CONLB,CONPT              RE-INIT CONSOL LSB POINTER
000800  4724 0234             910       MVA   INDIC,R7                 LOAD ADDRESS OF INDICATORS
000804  4F89                  911       TBTR  (R7,CONDV)               TURN OFF INDICATOR BIT
000806  0812                  912       MVBI  CNTBK-ACFCS,R0           GET NUMBER WORDS TO ZERO ON
000808  4124 1794             913       MVA   ACFCS,R1                 RESTART-ADDR 1ST WORD
00080C                        914 RE05  EQU   *
00080C  C255                  915       MVBZ  (R1)+,R2                 ZERO OUT SWITCHES
00080E  B8FE                  916       JCT   RE05,R0                  IF NOT DONE LOOP
000810  C220 05A9             917       MVB   INTLD,R2                 IS THIS AN INITIAL RUN
000814  1806                  918       JNZ   RE50                     B-YES
000816  4224 06E6             919       MVA   PRPR,R2                  IND NO DIAG SPECIFIED
00081A  4324 1800             920       MVA   PID,R3                   PROG RESIDENT AREA
00081E  6802 123A             921       B     BPPGM                    BEGIN CONFIGURE RUN
000822                        922 RE50  EQU   *
000822  4724 076A             923       MVA   REMG1,R7                 ADR OF WAIT MSG
000826  6000                  924       SVC   OUT                      OUTPUT THE MSG
000828                        925 RETRN EQU   *
000828  0D01                  926       MVBI  ONE,R5                   SET REG TO 1
00082A  4724 0234             927       MVA   INDIC,R7                 ADR OF DCP INDICATORS
00082E  4F07                  928       TBT   (R7,ALTDV)               IS AN ALTER DEVICE ASSIG
000830  6A10 14F0             929       BON   ACMSG*                   B-YES
000834  50C5                  930       J     SCHED                    NO--RETURN TO SCHEDULER
000836                        932 UDTID EQU   *
000836  4324 1800             933       MVA   PID,R3                   ADR OF DIAG PROG
00083A  E1C4                  934       MVWS  (R3,HDVTB),R1            ADR OF DIAG DEV TAB
00083C  C060 0001             935       MVB   (R1,ONE),R0              ANY DEVICES NEEDED
000840  68E0 0000             936       BZ    (R7)                     B-NO--RETURN
000844  8828 059E 059C        937       MVW   DRSVA,DRSV               RESTORE THE POINTER
00084A  4028 059C C000        938       STM   R6,DRSV                  SAVE ALL REGS
000850  4F07                  939       TBTR  (R7,CKDAD)               REQUEST FOR ALT BACK ON LINE
000852  121E                  940       JON   UDT15                    J-YES
000854  4020 17EE 055D        941       MVA   CFGN1,FNDPG              ADR OF DATA SET TO FIND
00085A  4724 0234             942       MVA   INDIC,R7                 ADR OF DCP INDICATORS
00085E  4F4E                  943       TBTS  (R7,CNRUN)               T/ON IND CONFIG RUN
000860  4020 05AA 086A        944       MVA   UDT03,CNFRT              RETURN ADR
000866  6802 1298             945       B     LP06                     REREAD CORRECT SECTOR
00086A                        946 UDT03 EQU   *
00086A  9128 0018 0552        947       MVD   (R1,QAV1),UDTR4          SAVE THE SECTOR POINTER
000870  4224 042C             948       MVA   DBUF+VHDLP,R2            ADJUST PAST HEADER
000874                        949 UDT04 EQU   *
000874  6908 0376             950       MVW   DRSV1,R1                 RESTORE R1
000878  0801                  951       MVBI  ONE,R0                   NUM OF DEVICES TO ASSIGN
00087A  0102                  952       ABI   TWO,R1                   BUMP R1
00087C  4990                  953       TBTR  (R1,UDTAS)               RESET ASSIGNED BIT
00087E                        954 UDT07 EQU   *
00087E  8983                  955       CW    (R1),(R2)                IS THIS THE SPECIFIC ONE
000880  1018                  956       JE    UDT21                    J-YES
000882  4A12                  957       TBT   (R2,TBEND)               END OF THE TABLE
000884  6A00 0908             958       BON   UDT31                    J-YES
000888  4A13                  959       TBT   (R2,SCEND)               END OF SECTOR
00088A  1240                  960       JON   UDT35                    J-YES--GO GET NEXT SECTOR
00088C  0210                  961       ABI   SIXTN,R2                 BUMP TO NEXT ENTRY
00088E  50F7                  962       J     UDT07                    TRY THE NEXT ENTRY
000890                        963 UDT15 EQU   *
000890  C425 05A8             964       MVBZ  ALTSG,R4                 WAS AN ALT DEV ASSIGNED
000894  1039                  965       JZ    UDT31                    J-NO
000896  4724 0234             966       MVA   INDIC,R7                 ADR OF DCP INDICATORS
00089A  4F47                  967       TBTS  (R7,ALTDV)               T/ON THIS IND
00089C  8626 17E8 178E        968       MVW   INTAD,ACVTR*             RESTORE INTERRUPT ADDRESS
0008A2  C325 0564             969       MVBZ  ALTSM,R3                 DID DCP ASSIGN
0008A6  1001                  970       JZ    UDT16                    J-NO
0008A8  4F86                  971       TBTR  (R7,STOP)                T/OFF IND
0008AA                        972 UDT16 EQU   *
0008AA  4724 078C             973       MVA   REASG,R7                 ADR OF MSG TO OUTPUT
0008AE  6000                  974       SVC   OUT                      PRINT THE MSG
0008B0  502B                  975       J     UDT31
0008B2                        976 UDT21 EQU   *
0008B2  80A3 0240             977       CB    OPADR,(R2)               IS THE ALT DEV UP FOR TEST
0008B6  1816                  978       JNE   UDT27                    J-NO
0008B8  4624 0234             979       MVA   INDIC,R6                 ADR FOR DCP INDICATORS
0008BC  4E07                  980       TBT   (R6,ALTDV)               WAS AN ALT DEV ASSIGNED
0008BE  1012                  981       JOFF  UDT27                    J-NO
0008C0  4724 077C             982       MVA   ALCON,R7                 ADR OF MSG TO BE PRINTED
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

0008C4  6000                983         SVC   OUT                  PRINT THE MSG
0008C6  4B87                984         TBTR  (R6,ALTDV)           RESET THE ALT DEV ASSIG IND
0008C8  8028 0308 05A8      985         MVB   HEXFF,ALTSG          SET INDICATOR THAT ALT WAS ASSIG
0008CE  4B46                986         TBTS  (R6,STOP)            SET THE INDICATOR
0008D0  1203                987         JON   UDT25                J-IT WAS ON
0008D2  8028 0308 0564      988         MVB   HEXFF,ALTSM          SET INDICATOR THAT ALT WAS ASSIG
0008D8                      989 UDT25   EQU   *
0008D8  8838 178E 17E8      990         MVW   ACVTR*,INTAD         SAVE INTERRUPT ADDRESS
0008DE  4030 178E 0524      991         MVA   STRIT,ACVTR*         STRAY INTERRUPT ADDRESS
0008E4                      992 UDT27   EQU   *
0008E4  0F0A                993         MVBI  TEN,R7               NUM OF BYTES TO MOVE
0008E6  2A24                994         MVFN  (R2),(R1)            MOVE THE DATA
0008E8  7A42 000A           995         SWI   TEN,R2               ADJUST POINTER
0008EC  7922 000A           996         SWI   TEN,R1               AGAIN
0008F0  4950                997         TBTS  (R1,UDTAS)           SET THE ASSIGNED BIT
0008F2  4A12                998         TBT   (R2,TBEND)           END OF THE TABLE
0008F4  1209                999         JON   UDT31                J-YES
0008F6  4A13               1000         TBT   (R2,SCEND)           END OF SECTOR
0008F8  1209               1001         JON   UDT35                J-YES--GO GET NEXT SECTOR
0008FA  4911               1002         TBT   (R1,EXPNT)           MULTIPLE ENTRIES
0008FC  1005               1003         JOFF  UDT31                J-NO
0008FE  4024 0000          1004         MVWI  ZERO,R0              CLEAR R0
000902  0210               1005         ABI   SIXTN,R2             BUMP TO NEXT ENTRY
000904                     1006 UD29A  EQU   *
000904  010A               1007         ABI   TEN,R1               BUMP R1
000906  50D5               1008         J     UDT21                CONTINUE
000908                     1009 UDT31  EQU   *
000908  402A 059C          1010         LMB   DRSV                 RETURN
00090C                     1011 UDT35  EQU   *
00090C  D028 17F0          1012         MVD   R0,SAV               SAVE THESE REGS
000910  4124 0278          1013         MVA   ETHLB,R1             ADR OF THE QUE
000914  D420 0552          1014         MVD   UDTR4,R4             GET THE SECTOR PARAMETERS
000918  0401               1015         ABI   ONE,R4               UPDATE
00091A  05FF               1016         ABI   M1,R5                THE SECTOR PARAMETERS
00091C  10F5               1017         JZ    UDT31                ALL THRU
00091E  4724 0234          1018         MVA   INDIC,R7             DCP INDICATORS
000922  4F4E               1019         TBTS  (R7,CNRUN)           T/ON THE IND
000924  4020 05AA 092E     1020         MVA   UDT36,CNFRT          RETURN ADR
00092A  6802 12BE          1021         B     LP07A                GET THE NEXT SECTOR
00092E                     1022 UDT36  EQU   *
00092E  9128 0018 0552     1023         MVD   (R1,QAV1),UDTR4      SAVE THE SECTOR POINTER
000934  D020 17F0          1024         MVD   SAV,R0               RESTORE THIS REG
000938  4224 0412          1025         MVA   DBUF+CHDLG,R2        POINT TO DATA
00093C  4911               1026         TBT   (R1,EXPNT)           CHAIN BIT ON
00093E  12E2               1027         JON   UD29A                J-YES
000940  6802 087E          1028         B     UDT07
                           1029 ********************************************************************
                           1030 *
                           1031 *      NAME    INITIAL SVC HANDLER
                           1032 *
                           1033 *      PURPOSE THIS ROUTINE HANDLES THE INITIAL SVC.  IT
                           1034 *              DETERMINES WHO SHOULD GET CONTROL AND PASSES
                           1035 *              CONTROL TO THAT INDIVIDAL SVC ROUTINE.
                           1036 *
                           1037 *      METHOD  THIS ROUTINE BUILDS A QUE BLOCK AND PASSES THE
                           1038 *              ADDRESS OF THAT BLOCK TO THE INDIVIDUAL SVC
                           1039 *              ROUTINE IN XR1.
                           1040 *
                           1041 ********************************************************************
000944                     1042 SVC    EQU   *
000944  6908 0010          1043         MVW   SVCPT,R1             ADDR OF SVC LSB POINTER
000948  4424 0308          1044         MVA   DMONE,R4             ADR OF THE END OF LSB'S
00094C  7425               1045         CW    R4,R1                END OF THE LSB'S YET
00094E  1804               1046         JNE   SVC05                B-NO
000950  4424 3415          1047         MVWI  SVCOD,R4             PUT CODE IN R4
000954  7890               1048         SECON R4                   PUT THE CODE IN LIGHTS
000956  50FF               1049         J     *
000958                     1050 SVC05  EQU   *
000958  4029 0010 001E     1051         ANI   THRTY,SVCPT          BUMP TO NEXT LSB
00095E  7899               1052         CPCL  R4                   COPY CURRENT LEVEL
000960  C468 0017          1053         MVB   R4,(R1,QRAL)         SET LEVEL FOR RETURN
000964  E340               1054         MVWS  (R1,QIAR),R3         ADDR OF SVC
000966  03FE               1055         ABI   M2,R3                DECREMENT POINTER
000968  C4E0 0001          1056         MVB   (R3,ONE),R4          MOVE SVC NUMBER INTO QUE BLK
00096C  C468 0016          1057         MVB   R4,(R1,QSVC)
000970                     1058 SV10   EQU   *
000970  F421               1059         CBI   WLDSV,R4
000972  1103               1060         JP    SVCRT
000974  3409               1061         SLL   ONE,R4               DOUBLE FOR 2 BYTE PARA
000976  6892 032C          1062         B     (R4,ISVCP)*          BRANCH TO INDIVIDUAL SVC ROUTINE
                           1063 *
                           1064 *      RETURN HERE TO RETURN TO NSI
                           1065 *
00097A                     1066 SVCRT  EQU   *
00097A  C320 179C          1067         MVB   PRTSW,R3             LOAD PRINT SWITCH
00097E  1806               1068         JNZ   SVCR1                BRANCH IF ON
000980  C320 0563          1069         MVB   STFLG,R3             LOAD STRAY INTER FLAG
000984  1003               1070         JZ    SVCP1                BRANCH IF OFF
000986  C325 0563          1071         MVBZ  STFLG,R3             ZERO FLAG
00098A  5005               1072         J     SVCR2                BRANCH
00098C                     1073 SVCR1  EQU   *
00098C  690D 0010          1074         MVW   R1,SVCPT             RESET LSB POINTER TO FREED LSB
000990  C260 0017          1075         MVB   (R1,QRAL),R2         GET THE RETURN LEVEL
000994  5A46               1076         SELB  R2,(R1)              RETURN TO CALLER - NSI
000996                     1077 SVCR2  EQU   *
000996  6802 07D0          1078         B     SCHD1                BRANCH
                           1079 ********************************************************************
                           1080 *
                           1081 *      NAME    PCKEP
                           1082 *
                           1083 *      PURPOSE PROGRAM CHECK INTEPRUPT HANDLER
                           1084 *
                           1085 *      METHOD  DETERMINE IF PROGRAM CHECKS WILL BE HANDLED
                           1086 *                      BY THE DIAGNOSTIC PROGRAM.
                           1087 *              ....ON RETURN TO THE DIAGNOSTIC PROGRAM,
                           1088 *                  R7 = IAR WHERE PROGRAM CHECK OCCURRED
                           1089 *                  R6 = PSW AT THE TIME OF THE INTERRUPT.
                           1090 *                  RETURN IS THROUGH THE DIAGNOSTIC PROGRAM
                           1091 *                  PROGRAM CHECK-ENTRY POINT.
                           1092 *
                           1093 *                  ON TERMINATION THE PSW, IAR, AND
                           1094 *                  PROGRAM ID ARE PRINTED IN THE PROG-CK MSG.
                           1095 *
                           1096 ********************************************************************
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

000999                     1099 PCKEP  EQU   *
000999  582F 0276          1100         CPPSR PCKLB+QSVC           SAVE PSW
00099E  4124 0260          1101         MVA   PCKLB,R1             ADDR OF PROGRAM CHECK LSB
0009A2  4020 06FE 3402     1102         MVWI  PCKCD,MCKMG          PROG CHECK CODE
0009A8  4020 0700 D7C3     1103         MVWI  PKLAB,MCKM1          MOVE PC TO MESSAGE
0009AE                     1104 PCK20  EQU   *
0009AE  6F0D 0278          1105         MVW   R7,PTWLB             LOAD SAR INTO THE DUMP AREA
0009B2  4724 0528          1106         MVA   RTNCV,R7             PREPARE TO CONVERT RTN NUM
0009B6  601A               1107         SVC   HTOE
0009B8  4724 052E          1108         MVA   CKPTC,R7             PREPARE TO CONVERT CHECKPOINT
0009BC  601A               1109         SVC   HTOE
0009BE  8928 0016 150C     1110         MVW   (R1,QSVC),PRTBU      CONVERT PSW
0009C4  4724 0534          1111         MVA   PSWCV,R7             CONVERT BLOCK
0009C8  601A               1112         SVC   HTOE
0009CA  8928 0000 150C     1113         MVW   (R1,QIAR),PRTBU      CONVERT IAR
0009D0  4724 053A          1114         MVA   IARCV,R7             CONVERT BLOCK
0009D4  601A               1115         SVC   HTOE
0009D6  6808 180A          1116         MVW   RTNE,R0              SETTING
0009DA  E340               1117         MVWS  (R1,QIAR),R3         THE REGISTERS
0009DC  E24B               1118         MVWS  (R1,QSVC),R2         FOR THE FULL FUNCTION CON
0009DE  6908 180C          1119         MVW   CKPT,R1              UP
0009E2  4724 072C          1120         MVA   MCKMA,R7             TTY CONTROL BLOCK
0009E6  5011               1121         J     PTW1                 PRINT PROGRAM CHECK MESSAGE
                           1122 ********************************************************************
                           1123 *
                           1124 *      NAME    MCKEP
                           1125 *
                           1126 *      PURPOSE THE MACHINE CHECK INTERRUPT HANDLER
                           1127 *
                           1128 *      METHOD  PRINTS A MESSAGE TO INDICATE A MACHINE CHECK
                           1129 *
                           1130 ********************************************************************
0009E8                     1131 MCKEP  EQU   *
0009E8  582F 0276          1132         CPPSR PCKLB+QSVC           SAVE PSW
0009EC  4020 06FE 3403     1133         MVWI  MCKCD,MCKMG          MACHINE CHECK CODE
0009F2  4020 0700 D4C3     1134         MVWI  MCKLB,MCKM1          MOVE MC TO MESSAGE
0009F8  4124 0260          1135         MVA   PCKLB,R1             LOAD ADDRESS OF LSB
0009FC  50D8               1136         J     PCK20
                           1137 ********************************************************************
                           1138 *
                           1139 *      NAME    PTWEP
                           1140 *
                           1141 *      PURPOSE POWER - THERMAL WARNING INTERRUPT HANDLER
                           1142 *
                           1143 *      METHOD  SET A SWITCH INDICATING TO DCP THAT A POWER - THERMAL
                           1144 *              INTERRUPT HAS OCCURRED.
                           1145 *
                           1146 ********************************************************************
0009FE                     1147 PTWEP  EQU   *
0009FE  6F0D 0278          1148         MVW   R7,PTWLB             LOAD SAR INTO THE DUMP AREA
000A02  582F 0276          1149         CPPSR PCKLB+QSVC           SAVE PSW
000A06  4724 06FC          1150         MVA   PTMS,R7              ADR OF MESSAGE THERMAL SWITCH
000A0A                     1151 PTW1   EQU   *
000A0A  680C 0390          1152         IO    HLTIO                RESET ALL CHANNEL ACTIVITY
000A0E  CE25 179C          1153         MVWZ  PRTSW,R6
000A12  6000               1154         SVC   OUT
000A14  D125 027A          1155         MVDZ  PTWLB+TWO,R1         ZERO OUT UNUSED WORDS
000A18  D125 027E          1156         MVDZ  PTWLB+SIX,R1          ''  ''   ''  ''
000A1C  4224 0594          1157         MVA   FAKDP,R2             LOAD ADDRESS OF FAKE DUMP AREA
000A20  4020 14D6 14D8     1158         MVA   DUMPX,DUMPY+TWO      CHANGE BRANCH ADDRESS OF DUMP RTN
000A26  6802 1454          1159         B     DUMPB                BRANCH TO BEGIN DUMP
                           1160 ********************************************************************
                           1161 *                                                                  *
                           1162 *      THE FOLLOWING IS THE DESCRIPTION OF THE DIAGNOSTIC          *
                           1163 *      DISKETTE FORMAT:                                            *
                           1164 *       START      END                                             *
                           1165 *      CYL  TRK  CYL  TRK     DESCRIPTION                          *
                           1166 *       0    0    0    1      IPL PROGRAM                          *
                           1167 *       1    0    3    1      DISKETTE DIAGNOSTIC TEST TRACKS      *
                           1168 *       4    0    5    1      CPU TEST PROGRAM (PROC1)             *
                           1169 *       6    0    7    1      CPU TEST PROGRAM (PROC2)             *
                           1170 *       8    0    9    1      CPU TEST PROGRAM (PROC3)             *
                           1171 *      10    0   10    1      DCP PROGRAM (DCP0)                   *
                           1172 *      11    0   11    1      VTOC (DIRECTORY)                     *
                           1173 *      12    0   73    1      PROBLEM PROGRAM SPACE                *
                           1174 *                             MDI                                  *
                           1175 *                             MAPS AND TUS                         *
                           1176 *                             DCP UTILITIES                        *
                           1177 *                             OTHER DIAGNOSTICS                    *
                           1178 *      74    0   76    1      DISKETTE DIAGNOSTIC TEST TRACKS      *
                           1179 *                                                                  *
                           1180 ********************************************************************
                           1181 *                                                                  *
                           1182 *      THE FOLLOWING IS THE FORMAT OF A VTOC ENTRY:                *
                           1183 *                                                                  *
                           1184 *      EACH ENTRY IS 32 BYTES IN LENGTH WITH 8 ENTRIES/SECTOR.     *
                           1185 *                                                                  *
                           1186 *      BYTES       DESCRIPTION                                     *
                           1187 *       0- 5     DATASET NAME IN EBCDIC.                           *
                           1188 *       6- 7     BEGINNING RECORD NUMBER OF THE PROGRAM (BOE).     *
                           1189 *       8- 9     ENDING RECORD NUMBER+1 OF THE PROGRAM (EOE).      *
                           1190 *      10-11     RESERVED (USED IN PPGPDS ENTRY AS EOD).           *
                           1191 *         12     TYPE OF DATASET - 'P' PROGRAM DATASET.            *
                           1192 *                               - 'D' NON-ADDRESSABLE DATASET.     *
                           1193 *      13-16     RESERVED.                                         *
                           1194 *         17     PATCH COUNT (TIMES PROGRAM HAS BEEN PATCHED).     *
                           1195 *      18-24     PROGRAM PART NUMBER.                              *
                           1196 *      25-31     PROGRAM EC NUMBER.                                *
                           1197 *                                                                  *
                           1198 ********************************************************************
                           1199 *                                                                  *
                           1200 *      THE FOLLOWING IS THE METHOD OF RECORD NUMBERING:            *
                           1201 *                                                                  *
                           1202 *      ALL RECORDS ARE GIVEN A UNIQUE NUMBER 0-2309.  NUMBERING    *
                           1203 *      STARTS AT CYLINDER 0, TRACK 0, RECORD 1  (0)  AND GOES      *
                           1204 *      TO CYLINDER 76, TRACK 1, RECORD 15  (2309).  SEQUENCING     *
                           1205 *      GOES FROM TRACK 0 RECORD 15 TO TRACK 1 RECORD 1 THEN TO     *
                           1206 *      THE NEXT CYLINDER TRACK 0.                                  *
                           1207 *                                                                  *
                           1208 ********************************************************************
                           1209 *                                                                  *
                           1210 *      THE FOLLOWING IS THE FORMAT OF A DATASET CONTAINING A       *
                           1211 *      PROGRAM.                                                    *
```

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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                         1217 *                                                                        *
                         1218 *     FIRST SECTOR OF PROGRAM                                            *
                         1219 *                                                                        *
                         1220 *     BYTES                                                              *
                         1221 *      0-  1  LENGTH OF PROGRAM IN BYTES.                                *
                         1222 *      2-  3  ADDRESS PROGRAM IS TO START EXECUTION AT.                  *
                         1223 *      4-  5  NUMBER DATA SECTORS IN DATASET.                            *
                         1224 *      6-  9  RESERVED.                                                  *
                         1225 *     10- 11  ADDRESS OF 1ST DATA WORD-MUST BE AN EVEN ADDRESS.          *
                         1226 *     12- 13  NUMBER DATA WORDS IN RECORD.                               *
                         1227 *     14-239  113 DATA WORD-OBJECT MODULE.                               *
                         1228 *    240-255  RELOCATION FLAGS.                                          *
                         1229 *                                                                        *
                         1230 *     REMAINING SECTORS OF PROGRAM                                       *
                         1231 *     BYTES                                                              *
                         1232 *      0-  1  ADDRESS OF 1ST DATA WORD-MUST BE AN EVEN ADDRESS.          *
                         1233 *      2-  3  NUMBER DATA WORDS IN RECORD.                               *
                         1234 *      4-239  118 DATA WORDS-OBJECT MODULE.                              *
                         1235 *    240-255  RELOCATION FLAGS.                                          *
                         1236 *             BIT 0 IS RELOCATION FLAG FOR 1ST DATA WORD.                *
                         1237 *             BIT 1 FOR 2ND DATA WORD ETC.....                           *
                         1238 *                                                                        *
                         1239 *                 BIT ON INDICATES DATA WORD IS RELOCATABLE.             *
                         1240 *                     OFF INDICATES ABSOLUTE.                            *
                         1241 *                                                                        *
                         1242 **************************************************************************
                         1243 **************************************************************
                         1244 *                                                            *
                         1245 *     NAME    FNDDS                                          *
                         1246 *                                                            *
                         1247 *     PURPOSE TO FIND A DATA SET NAME IN THE VTOC            *
                         1248 *                                                            *
                         1249 *     METHOD  THE ADDRESS OF THE QUE BLOCK GENERATED BY THE  *
                         1250 *             DIAGNOSTIC PROGRAM SVC IS PASSED TO THIS FOUTINE IN
                         1251 *             XR1.  THE DATA SET NAME IN THE DIAGNOSTIC PROGRAM
                         1252 *             PARA LIST IS COMPARED WITH ENTRIES IN THE VTOC.
                         1253 *             CONTROL WILL BE RETURNED WITH THE FOLLOWING REGS
                         1254 *             SET WHEN THIS ROUTINE IS COMPLETED.
                         1255 *                                                            *
                         1256 *                R0=ADDR OF CORE LOCATION OF VTOC ENTRY OR NEXT
                         1257 *                   AVAILABLE ADDR IF NOT FOUND.             *
                         1258 *                R1=QUE BLOCK ADDR                           *
                         1259 *                R2=HEADER ADDR OF DIAGNOSTIC PROGRAM        *
                         1260 *                R3=ADDR OF DIAGNOSTIC PROGRAM PARA LIST     *
                         1261 *                R4=SECTOR ADDR OF VTOC WHERE DATA SET NAME  *
                         1262 *                   FOUND OR WHERE SLOT AVAILABLE IF NOT FOUND.
                         1263 *                R5=0 IF FOUND, 1 IF NOT FOUND, 2 IF DISKETTE ERROR
                         1264 *                   4 IF VTOC FULL                           *
                         1265 *                R6=NEXT AVAIL DATA SECTOR ADDR IF NOT FOUND OR
                         1266 *                   EOE OF DATA SET IF FOUND.                *
                         1267 *                                                            *
                         1268 *             CONDITION CODE UPON RETURN WILL REFLECT CONTENTS
                         1269 *             OF XR5.                                        *
                         1270 *                                                            *
                         1271 **************************************************************
 000A2A                  1272 **************************************************************
 000A2A                  1273 FNDDS EQU   *
 000A2A  A74D            1274       MVWS  R7,(R1,QAV2)          SAVE RETURN ADDR
 000A2C                  1275 FN05  EQU   *
 000A2C  4424 014A       1276       MVWI  VTOCA,R4              ADDR 1ST VTOC SECTOR
 000A30  6B08 17EE       1277       MVW   FNDPG,R3              ADR OF DATA SET NAME
 000A34                  1278 FN10  EQU   *
 000A34  6F03 0AAA       1279       BAL   DSKRD,R7              READ A VTOC SECTOR
 000A38  75A7            1280       IR    R5,R5
 000A3A  182C            1281       JNZ   FN40                  BR IF DISKETTE ERROR
 000A3C  0F08            1282       MVBI  NDPPS,R7              NUMBER DATA SET DEFINED/RECORD
 000A3E                  1283 FN20  EQU   *
 000A3E  E500            1284       MVWS  (R0),R5               SEE IF END OF ENTRIES IN VTOC
 000A40  102C            1285       JZ    FN50                  IF SO BR
 000A42  830B 06E1       1286       CB    (R3),EBCBK            WAS A DIAGNOSTIC SPECIFIED
 000A46  102B            1287       JE    FN60                  B-NO--TAKE THE FIRST ONE
 000A48  4224 0234       1288       MVA   INDIC,R2              ADR OF DCP INDICATORS
 000A4C  4A08            1289       TBT   (R2,NXTVT)            TAKE NEXT IND ON
 000A4E  1227            1290       JON   FN60                  B-YES--TAKE THIS ONE
 000A50                  1291 FN22  EQU   *
 000A50  E604            1292       MVWS  (R0,EOE),R6           SAVE EOE
 000A52  7044            1293       MVW   R0,R2                 ADR OF HEX PID
 000A54  0201            1294       ABI   ONE,R2                BUMP PAST 1ST CHAR
 000A56  0D04            1295       MVBI  FOUR,R5               BYTE COUNT
 000A58                  1296 FN25  EQU   *
 000A58  8397            1297       CB    (R3)+,(R2)+           SEE IF DATA SET NAME IS THE SAME
 000A5A  1813            1298       JNE   FN30                  B-NO NOT THIS ONE
 000A5C  BDFD            1299       JCT   FN25,R5               FINISH THE DATA SET NAME
 000A5E  4224 0234       1300       MVA   INDIC,R2              ADR OF IND FOR UTIL
 000A62  4A83            1301       TBTR  (R2,UTIL)             UTILITY REQUEST
 000A64  1220            1302       JON   FN70                  YES TAKE THIS ONE
 000A66  4A0A            1303       TBT   (R2,IRD)
 000A68  121E            1304       JON   FN70
 000A6A  4A0E            1305       TBT   (R2,CNRUN)            LOOKING FOR CONFIG TABLE
 000A6C  121C            1306       JON   FN70                  J-YES
 000A6E  7064            1307       MVW   R0,R3                 POINT R3 AT BUF FIELD
 000A70  832B 000C 055A  1308       CB    (R3,DSTYP),DCHAR      IS CHAR A ''D''
 000A76  1817            1309       JNE   FN70                  BRANCH IF NOT
 000A78                  1310 FN26  EQU   *
 000A78  4724 073A       1311       MVA   INCMD,R7              LOAD MESSAGE ADDRESS
 000A7C  6000            1312       SVC   OUT                   ISSUE MESSAGE
 000A7E  6802 07C0       1313       B     SCHED                 BRANCH TO CONTINUE
 000A82                  1314 FN30  EQU   *
 000A82  0020            1315       ABI   LVTE,R0              UPDATE TO NEXT ENTRY
 000A84  6B08 17EE       1316       MVW   FNDPG,R3              RESET NAME POINTER
 000A88  BFDA            1317       JCT   FN20,R7               LOOP THRU ALL DATA SETS ON SECT
 000A8A  0401            1318       ABI   ONE,R4                UPDATE TO NEXT SECTOR
 000A8C  7C06 0168       1319       CWI   FVTOC,R4              SEE IF END OF VTOC
 000A90  12D1            1320       JN    FN10                  IF SO BR
 000A92  0D04            1321       MVBI  FOUR,R5               SET NO ROOM ON DISKETTE ERROR CODE
 000A94                  1322 FN40  EQU   *
 000A94  75A7            1323       IR    R5,R5                 SET INDICATORS TO REFLECT XR5
 000A96  6832 001A       1324       B     (R1,QAV2)*            RETURN TO CALLING RTN
 000A9A                  1325 FN50  EQU   *
 000A9A  0D01            1326       MVBI  ONE,R5                SET DATA SET NOT FOUND
 000A9C  50FB            1327       J     FN40                  GO RETURN
 000A9E                  1328 FN60  EQU   *
 000A9E  800B 055A       1329       CB    (R0),DCHAR            DIAGNOSTIC PGM
 000AA2  18EF            1330       JNE   FN30                  B-NO
 000AA4  4A88            1331       TBTR  (R2,NXTVT)            RESET BIT IF ON
```



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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
 000AA6                  1332 FN70  EQU   *
 000AA6  0D00            1333       MVBI  ZERO,R5               SET DATA SET FOUND
 000AA8  50F5            1334       J     FN40                  GO RETURN
                         1335 **************************************************************
                         1336 *
                         1337 *     THE FOLLOWING ROUTINE IS ENTERED BY THE DCP TO DO
                         1338 *     A READ FROM THE DCP DISKETTE INTO ITS OWN BUFFER.
                         1339 *
                         1340 **************************************************************
 000AAA                  1341 DSKRD EQU   *
 000AAA  4524 03DC       1342       MVA   RDCB,R5               ADDR READ DCB
 000AAE  5002            1343       J     DSK10                 GO ISSUE READ
                         1344 **************************************************************
                         1345 *
                         1346 *     THE FOLLOWING ROUTINE IS ENTERED BY THE DCP TO DO
                         1347 *     A WRITE TO THE DCP DISKETTE FROM ITS OWN BUFFER.
                         1348 *
                         1349 *     FROM THE LABEL ISDIO ON IS A COMMON ROUTINE TO SET UP THE
                         1350 *     DCBS AND ISSUE THE IO COMMAND TO THE DISKETTE. IT ALSO CHECKS
                         1351 *     THE CONDITION CODE AFTER THE I/O AND DOES ERROR RECOVERY.
                         1352 *
                         1353 **************************************************************
 000AB0                  1354 DSKWR EQU   *
 000AB0  4524 03EC       1355       MVA   WRDCB,R5              ADDR WRITE DCB
 000AB4                  1356 DSK10 EQU   *
 000AB4  4024 040E       1357       MVA   DBUF,R0               ADD DISKETTE BUFFER
 000AB8  4020 0394 0010  1358       MVWI  SIXTN,DKRTY           SET RETRY COUNT
 000ABE  6D0D 03D6       1359       MVW   R5,SEDCB+SKW6         SET CHAIN ADDR IN SEEK DCB
 000AC2  8828 05A4 05A2  1360       MVW   DKSV2,DKSV            RESTORE THE POINTER
 000AC8  4028 05A2 C000  1361       STM   R6,DKSV               SAVE REGS
 000ACE  680C 03C8       1362       IO    DSKPR
 000AD2  6F05 0B08       1363       BNCC  SEVEN,IS25
 000AD6                  1364 DSK20 EQU   *
 000AD6  6F03 0B46       1365       BAL   SEEK,R7               GO SET UP DCBS
 000ADA  4624 03BC       1366       MVA   SEIDB,R6              IDCB TO START SEEK
 000ADE                  1367 IS10  EQU   *
 000ADE  4029 0394 FFFF  1368       AWI   M1,DKRTY              DECREMENT RETRY COUNT
 000AE4  1211            1369       JN    IS25                  RETURN IF UNRECOVERABLE ERROR
 000AE6  68CC 0000       1370       IO    (R6)                  ISSUE I/O TO DISKETTE
 000AEA                  1371 IS12  EQU   *
 000AEA  6F04 07C0       1372       BCC   SEVEN,SCHED           GO TO SCHED IF I/O OK
 000AEE                  1373 IS20  EQU   *
 000AEE  680C 03C0       1374       IO    DKRST                 ISSUE RESET
 000AF2  680C 03C8       1375       IO    DSKPR                 ISSUE PFEPARF
 000AF6  6F05 0B08       1376       BNCC  SEVEN,IS25            BR IF IN ERROR
 000AFA  0F00            1377       MVBI  ZERO,R7               INITIALIZE R7 TO 0
 000AFC                  1378 IS22  EQU   *
 000AFC  68CC 0000       1379       IO    (R6)                  RE-ISSUE THE IO
 000B00  6A05 0AEA       1380       BNCC  TWO,IS12              IF NOT CC = BUSY AFTER RESET THEN
                         1381 *                                 GO TEST FOR CC = 7
 000B04  0701            1382       ABI   ONE,R7                ELSE ADD TO RETRY/DELAY COUNTER
 000B06  11FA            1383       JP    IS22                  LOOP UNTIL OVERFLOW OR CC NOT = 2
 000B08                  1384 IS25  EQU   *
 000B08  4020 03B8 0002  1385       MVWI  TWO,DKR5              SET DISKETTE ERROR CODE
 000B0E  4020 0246 0B16  1386       MVA   DSKIT,DKINT           RETURN TO CALLING RTN
 000B14  5005            1387       J     DK04
                         1388 **************************************************************
                         1389 *
                         1390 *     THE FOLLOWING ROUTINE HANDLES INTERUPTS FROM THE
                         1391 *     DCP CONTROLLED FLOPPY DISKETTE.
                         1392 *
                         1393 **************************************************************
 000B16                  1394 DSKIT EQU   *
 000B16  6B05 0B24       1395       BNCC  THREE,DK10            BR IF NOT DEVICE END INT
 000B1A  4020 03B8 0000  1396       MVWI  ZERO,DKR5             SET DISKETTE I/O OK
 000B20                  1397 DK04  EQU   *
 000B20  402A 05A2       1398       LMB   DKSV                  RET TO RTN REQUESTING I/O
 000B24                  1399 DK10  EQU   *
 000B24  6C04 07C0       1400       BCC   FOUR,SCHED            DISKETTE JUST BECAME READY
 000B28  4624 03C4       1401       MVA   CALIB,R6              GET RECALIBRATE ADR
 000B2C  4020 0246 0B34  1402       MVA   DK12,DKINT            NEW RETURN ADR
 000B32  50D5            1403       J     IS10                  UNRECOVERABLE ERROR
 000B34                  1404 DK12  EQU   *
 000B34  6B05 0B08       1405       BNCC  THREE,IS25            RESTORE ORIGINAL RETURN ADR
 000B38  4020 0246 0B16  1406       MVA   DSKIT,DKINT           RESTORE THE ORIGINAL ADDRESS
 000B3E  4020 0396 0000  1407       MVWI  ZERO,PCYLA            ZERO THE PRESENT ADR
 000B44  50C8            1408       J     DSK20                 REISSUE THE I/O
                         1409 **************************************************************
                         1410 *
                         1411 *     THE FOLLOWING ROUTINE BUILDS AND SETS THE SEEK CONTROL
                         1412 *     WORD IN THE SEEK DCB AND THE HEAD-RECORD AND N-CYL WORDS
                         1413 *     IN READ, WRITE AND VERIFY DCBS.
                         1414 *
                         1415 *     THE SECTOR ADDR IS PASSED TO THIS ROUTINE IN XR4 AND IT
                         1416 *     COMPUTES THE SEEK INFORMATION FROM WHERE THE HEAD
                         1417 *     PRESENTLY IS.
                         1418 *
                         1419 **************************************************************
 000B46                  1420 SEEK  EQU   *
 000B46  4224 03CC       1421       MVA   SEDCB,R2              ADDR DISKETTE DCBS
 000B4A  6E08 0396       1422       MVW   PCYLA,R6              GET WHERE HEAD PRESENTLY AT
 000B4E  0B00            1423       MVBI  ZERO,R3               SET HEAD 0 IN SEEK CNTRL WD
 000B50  6C08 03B6       1424       MVW   DKR4,R4               GET SECTOR ADDR GOING TO
 000B54  C020 0244       1425       MVB   SECSZ,R0
 000B58  1803            1426       JNZ   SE03
 000B5A  EC22 0558       1427       DB    SPT,F4
 000B5E  5005            1428       J     SE10
 000B60                  1429 SE03  EQU   *
 000B60  EC22 0559       1430       DB    SPT1,R4               GET CYL GOING TO
 000B64  1302            1431       JEV   SE10
 000B66  7DA3 0100       1432       OWI   TWO56,R5              SET HEAD 1 IN H-R WORD
 000B6A                  1433 SE10  EQU   *
 000B6A  340A            1434       SRL   ONE,R4                GET CYL ADDR
 000B6C  6C0D 0396       1435       MVW   R4,PCYLA              SET WHERE GOING
 000B70  0501            1436       ABI   ONE,R5                SET RECORD NUMBER TO BE
                         1437 *                                 BETWEEN 1-15
 000B72  6C09 0244       1438       OW    SECSZ,R4              SET SECTOR LENGTH TO 256
 000B76  D4A8 0006       1439       MVD   R4,(R2,SKW4)          SET SEEK CONTROL WORD NEW ARCH
 000B7A  D4A8 0016       1440       MVD   R4,(R2,RDW4)          SET READ HEAD,RECORD,CYL-N
 000B7E  D4A8 0026       1441       MVD   R4,(R2,WRW4)          SET WRITE HEAD,RECORD,CYL-N
 000B82  D4A8 0036       1442       MVD   R4,(R2,VFW4)          SET FOR VERIFY
 000B86  7C84 1000       1443       RBTWI FOUR,R4               GET CYL ADDR
 000B8A  768A            1444       SW    R6,R4                 GET NUMBER SECTORS TO MOVE
 000B8C  1102            1445       JP    SE20
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

000B8E  0308              1450        ABI   EIGHT,R3              SET REVERSE SEEK
000B90  7486              1451        CMR   R4                    GET POS MOVEMENT
000B92                    1452 SE20   EQU   *
000B92  3341              1453        SLL   EIGHT,R3              SHIFT DIRECTION AND HEAD PROPER
000B94  7381              1454        OW    R3,R4                 POSITION-OR IN AMOUNT
000B96  A481              1455        MVWS  R4,(R2,SKW2)          SET SEEK CONTROL WORD
000B98  5700              1456        BXS   (R7)                  RETURN TO CALLING RTN
                          1458 ********************************************************************
                          1459 *                                                                  *
                          1460 *     NAME    OUT/OUTIN           (SVC  0/1)                       *
                          1461 *                                                                  *
                          1462 *     PURPOSE THIS ROUTINE IS ENTERED WHEN AN OUT, OR OUTIN        *
                          1463 *             SVC IS ISSUED. IT WILL DISPLAY THE WORD IMMEDIATELY  *
                          1464 *             PRECEDING THE USER MESSAGE IN THE CONSOLE LED'S.     *
                          1465 *             IF THE SVC WAS OUTIN IT WILL ACCEPT DATA KEYED IN    *
                          1466 *             THROUGH THE CONSOLE AND RETURN IT TO THE USER.       *
                          1467 *                                                                  *
                          1468 *     METHOD                                                       *
                          1469 *                                                                  *
                          1470 ********************************************************************
000B9A                    1471 CONSO  EQU   *
000B9A  6201              1472        EN    SM
000B9C  6808 179C         1473        MVW   PRTSW,R0
000BA0  18FC              1474        JNZ   CONSO
000BA2  6301              1475        DIS   SM                    DISABLE INTERRUPTS
000BA4  806B 1793 0016    1476        CB    OUT1,(R1,QSVC)        SEE IF OUT/IN SVC
000BAA  1805              1477        JNE   OU01                  B-NO
000BAC  8028 0308 1798    1478        MVB   HEXFF,INPRC           SET THE OUT/IN INPROC IND
000BB2  6F0D 17F4         1479        MVW   R7,SAVE7              SAVE R7 FOR IN/OUT SVC
000BB6                    1480 OU01   EQU   *
000BB6  73E7              1481        IR    R3,R7                 DATA ADR TO R3
000BB8  8B28 FFFE 179A    1482        MVW   (R3,M2),GRPT          SAVE
000BBE                    1483 OU10   EQU   *
000BBE  CBC0              1484        MVW   (R3),R3               GET DATA BUFFER ADDR
000BC0  6B0D 17BC         1485        MVW   R3,RPSV               SAVE THE ADR
000BC4  03FE              1486        ABI   M2,R3                 GET THE CODE
000BC6  E4C0              1487        MVWS  (R3),R4               GET WORD TO DISPLAY
000BC8  7890              1488        SECON R4                    SET LIGHTS WITH DATA IN XR4
000BCA  0302              1489        ABI   TWO,R3                BUMP POINTER
000BCC  4724 0234         1490        MVA   INDIC,R7              ADR OF DCP INDICATORS
000BD0  4F07              1491        TBT   (R7,ALTDV)            IS ALT OUT ASSIGNED
000BD2  6A10 14F2         1492        BON   ACENT*                B-YES
000BD6  4F06              1493        TBT   (R7,STOP)             STOP AFTER MSG ON
000BD8  1004              1494        JOFF  CONS1                 B-NO
000BDA  4724 179A         1495        MVA   GRPT,R7
000BDE  4F09              1496        TBT   (R7,NINE)
000BE0  1204              1497        JON   CONS2                 WAIT
000BE2                    1498 CONS1  EQU   *
000BE2  806B 1793 0016    1499        CB    OUT1,(R1,QSVC)        SEE IF IN/OUT SVC
000B28  1865              1500        JNE   DUMMY                 IF NOT RETURN TO CALLER
000BEA                    1501 CONS2  EQU   *
000BEA  D260 000A         1502        MVD   (R1,QR2),R2           RESTORE THESE REGS
000BEE  D460 009E         1503        MVD   (R1,QR4),R4           RESTORE THESE REGS
000BF2  D660 0012         1504        MVD   (R1,QR6),R6           RESTORE THESE REGS
000BF6  D060 0006         1505        MVD   (R1,QR0),R0           RESTORE THESE REGS
000BFA  0F00              1506        MVBI  ZERO,R7               GO TO LEVEL ZERO TO SET
000BFC  6004              1507        SVC   CHNGE                  OVERLAY IAR FOR LEVEL ZERO
000BFE  0F03              1508        MVBI  THREE,R7              RETURN TO LEVEL THREE
000C00  6004              1509        SVC   CHNGE                  TO CONTINUE
000C02  6201              1510        EN    SM                    ENABLE FOR INTERRUPTS
000C04  5064              1511        J     CHNG1                 BRANCH
                          1513 ********************************************************************
                          1514 *                                                                  *
                          1515 *     THIS ROUTINE IS ENTERED WHEN A CONSOLE INTERUPT OCCURS.      *
                          1516 *                                                                  *
                          1517 ********************************************************************
000C06                    1518 CONEP  EQU   *
000C06  6301              1519        DIS   SM                    DISABLE INTERUPTS
000C08  7859              1520        CPCL  R2                    GET CURRENT LEVEL
000C0A  6A0D 02AC         1521        MVW   R2,CONLV              SAVE IT IN CONSOLE LSB
000C0E  7878              1522        CPCON R3                    READ DATA ENTERED BY CONSOLE
000C10  6B0D 051C         1523        MVW   R3,CNDAT              SAVE DATA READ
000C14  7B64 FF00         1524        RBTWI HFF00,R3              REMOVE UNUSED BITS
000C18  4020 001E 0C52    1525        MVA   CN20,CONSI            CHANGE ENTRY ADDRESS AND
000C1E  4020 001C 0278    1526        MVA   PTWLB,CONPT            LSB POINTER FOR CONSOLE INTERRUPT
000C24  7304              1527        MVW   R3,R0                 CWUNT TO R0
000C26  C322 066D         1528        RBTB  MKF0,R3               SAVE
000C2A  C328 051A         1529        MVB   R3,CMND                COMMAND
000C2E  3022              1530        SRL   FOUR,R0               POSITION COUNT
000C30  F30E              1531        CBI   FORTN,R3              MULTI WORD COMMAND
000C32  1E07              1532        JLGT  CN10                  BR/YES - GO REQUEST DATA
000C34  0802              1533        MVBI  TWO,R0                SET COUNT TO TWO
000C36  F30D              1534        CBI   THRTN,R3              TWO WORD COMMAND
000C38  1004              1535        JE    CN10                  BR/YES - GO REQUEST DATA
000C3A  0801              1536        MVBI  ONE,R0                SET COUNT TO ONE
000C3C  F308              1537        CBI   EIGHT,R3              ONE WORD COMMAND
000C3E  1E01              1538        JLGT  CN10                  BR/YES - GO REQUEST DATA
000C40  0800              1539        MVBI  ZERO,R0               SET COUNT TO ZERO
000C42                    1540 CN10   EQU   *
000C42  C028 051B         1541        MVB   R0,CNCT               SAVE COUNT
000C46  1013              1542        JZ    CN30                  BR/ALL DATA ENTERED-VERIFY INPUT
000C48                    1543 CN11   EQU   *
000C48  4424 3414         1544        MVWI  ENTCD,R4              SET CONSOLE LEDS TO X'3814'
000C4C                    1545 CN12   EQU   *
000C4C  7890              1546        SECON R4                    ENTER MORE DATA
                          1547 *
000C4E  6802 07C0         1548        B     SCHED                 RETURN TO SCHEDULER
                          1549 *
000C52                    1550 CN20   EQU   *
000C52  6301              1551        DIS   SM                    DISABLE INTERUPTS
000C54  7878              1552        CPCON R3                    READ DATA ENTERED BY CONSOLE
000C56  6B0D 051C         1553        MVW   R3,CNDAT              SAVE DATA READ
000C5A  4724 051E         1554        MVA   CNVTX,R7              ADDRESS OF CONVERT TABLE
000C5E  6011              1555        SVC   HTOE                  CONVERT INPUT TO EBCDIC
000C60  4029 0522 0004    1556        AWI   FOUR,CNVTZ            INCREMENT OUTPUT ADDRESS
000C66  C020 051B         1557        MVB   CNCT,R0               GET WORD COUNT
000C6A  00FF              1558        ABI   M1,R0                 DECREMENT WORD COUNT
000C6C  50EA              1559        J     CN10                  GO REQUEST DATA
000C6E                    1560 CN30   EQU   *
000C6E  802C 06FA 0522    1561        MVB   HEX00,CNVTZ*          PLACE END OF DATA CHARACTER
000C74  4020 001E 0C80    1562        MVA   CN40,CONSI            CHANGE ENTRY ADDRESS FOR CONSOLE
                          1563 *                                   INTERRUPT
000C7A  4424 3413         1564        MVWI  VFYCD,R4              SET CONSOLE LEDS TO X'3813'
000C7E  50E6              1565        J     CN12                  VERIFY INPUT
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

000C80                    1566 CN40   EQU   *
000C80  6301              1567        DIS   SM                    DISABLE INTERUPTS
000C82  7878              1568        CPCON R3                    READ DATA ENTERED BY CONSOLE
000C84  4020 001E 0C06    1569        MVA   CONEP,CONSI            RESTORE ENTRY ADDRESS AND
000C8A  4020 001C 0296    1570        MVA   CONLB,CONPT            LSB POINTER FOR CONSOLE INTERRUPT
000C90  4224 150C         1571        MVA   PRTBU,R2              ADDRESS OF INPUT DATA
000C94  6A0D 0522         1572        MVW   R2,CNVTZ              RESTORE DATA ADDRESS
000C98  0CFF              1573        MVBI  M1,R4                 SET CONSOLE LEDS TO X'FFFF'
000C9A  4724 0234         1574        MVA   INDIC,R7              ADR OF DCP IND
000C9E  4F49              1575        TBTS  (R7,CONDV)            SET THE IND
000CA0  CB24 051C         1576        CW    CNDAT,R3              DATA UNCHANGED
000CA4  18D1              1577        JNE   CN11                  BR/NO - RUBOUT
000CA6  7890              1578        SECON R4                    WRITE TO LEDS
000CA8                    1579 CN50   EQU   *
000CA8  C825 179C         1580        MVWZ  PRTSW,R0              ZERO PRINT SWITCH
000CAC  0F02              1581        MVBI  TWO,R7                SET UP TO INSURE EXIT IS
000CAE  6004              1582        SVC   CHNGE                  ON LEVEL TWO
                          1583 *
000CB0  6802 11A2         1584        B     OPCM                  GO PROCESS COMMAND
                          1585 *
                          1587 ********************************************************************
                          1588 *                                                                  *
                          1589 *     NAME    DUMMY               (RESERVED SVC'S  3/24)           *
                          1590 *                                                                  *
                          1591 *     PURPOSE RETURNS CONTROL TO PROGRAM AT NSI.                   *
                          1592 *                                                                  *
                          1593 *     METHOD  BRANCH TO SVC RETURN.                                *
                          1594 *                                                                  *
                          1595 ********************************************************************
000CB4                    1596 DUMMY  EQU   *
000CB4  6802 097A         1597        B     SVCRT                 SVC RETURN
                          1599 ************************************************************
                          1600 *
                          1601 *     NAME    IDLE                (SVC 2)
                          1602 *
                          1603 *     PURPOSE SVC ROUTINE TO ALLOW THE USER TO DELAY A
                          1604 *             PERIOD OF 250 USEC.
                          1605 *
                          1606 *     METHOD  GO INTO PROGRAM LOOP FOR A MIN OF 40 MILI SEC
                          1607 *
                          1608 ************************************************************
000CB8                    1609 DELAY  EQU   *
000CB8  4724 0040         1610        MVWI  SIXT4,R7              COUNT FOR DELAY
000CBC  BFFF              1611        JCT   *,R7                  DELAY
000CBE  50FA              1612        J     DUMMY                 SVC RETURN
                          1614 ************************************************************
                          1615 *
                          1616 *     NAME    CHNGE               (SVC 4)
                          1617 *
                          1618 *     PURPOSE THIS SVC ALLOWS A DIAGNOSTIC PROGRAM TO RESUME
                          1619 *             RUNNING FOLLOWING THE COMPLETION OF THE SVC ON
                          1620 *             ANY INTERUPT LEVEL HE DESIRES.
                          1621 *
                          1622 *     METHOD
                          1623 *
                          1624 ************************************************************
000CC0                    1625 CHNG   EQU   *
000CC0  E74A              1626        MVWS  (R1,QR7),R7           GET LEVEL TO RETURN ON
000CC2  12F8              1627        JN    DUMMY                 BR IF NEG LEVEL
000CC4  F703              1628        CBI   NINTL,R7              SEE IF HIGHER THAN HIGHEST
                          1629 *                                  LEVEL INSTALLED
000CC6  11F6              1630        JP    DUMMY                 IF SO BR
000CC8                    1631 CHNG0  EQU   *
000CC8  690D 0010         1632        MVW   R1,SVCPT              RESTORE POINTER
000CCC  5F46              1633        SELB  R7,(R1)               RETURN WITH LEVEL CHANGED
000CCE                    1634 CHNG1  EQU   *
000CCE  6802 07F2         1635        B     SCHD2                 BRANCH
                          1637 ************************************************************
                          1638 *
                          1639 *     NAME    EXIT                (SVC 6)
                          1640 *
                          1641 *     PURPOSE EXIT CURRENT LEVEL AND NOT BE SCHEDULED FOR A RECALL.
                          1642 *
                          1643 *     METHOD
                          1644 *
                          1645 ************************************************************
000CD2                    1646 EXITA  EQU   *
000CD2  690D 0010         1647        MVW   R1,SVCPT              RESET THE POINTER
000CD6  01E2              1648        ABI   M30,R1                ADJUST R1
000CD8  6201              1649        EN    SM                    ENABLE SUMMARY MASK
000CDA  50F9              1650        J     CHNG1                 BRANCH
                          1652 ************************************************************
                          1653 *
                          1654 *     NAME    TERM                (SVC 7)
                          1655 *
                          1656 *     PURPOSE TERMINATE DIAGNOSTIC PROGRAM
                          1657 *
                          1658 *     METHOD
                          1659 *
                          1660 ************************************************************
000CDC                    1661 TERMA  EQU   *
000CDC  4020 0010 02AE    1662        MVA   SVCLB,SVCPT           RESTORE THE SVC POINTER
000CE2  4724 1800         1663        MVA   PID,R7                ADR OF PROGRAM I.D.
000CE6  070E              1664        ABI   OPWRD,R7              DISPL TO OPTION WORD
000CE8  4F80              1665        TBTR  (R7,TPGSW)            IS THE TERM PGM ON
000CEA  1209              1666        JON   TERMB                 J-YES
000CEC  4020 180A 3400    1667        MVWI  RECD1,RTNE            INDICATE ECP SUPERVISOR
000CF2  CF25 180C         1668        MVWZ  CKPT,R7               ZERO CHECK POINT
000CF6  4224 06E6         1669        MVA   PRPR,R2               IND NO DIAG SPECIFIED
000CFA  4324 1800         1670        MVA   PID,R3                PROG RESIDENT AREA
000CFE                    1671 TERMB  EQU   *
000CFE  6F03 0836         1672        BAL   UDTID,R7              TRY TO ASSIGN A DEVICE
000D02  4900              1673        TBT   (R1,UNCRT)            IS UNCONDITIONAL RETURN ON
000D04  6A00 126E         1674        BON   BPP2                  GO BEGIN THE PGM AGAIN
000D08  4920              1675        TBT   (R1,PDTAS)            WAS AN ADR ASSIGNED
000D0A  6A00 126E         1676        BON   BPP2                  YES--GO BEGIN AGAIN
000D0E                    1677 TERMC  EQU   *
000D0E  4724 06E8         1678        MVA   PRPRM,R7              ADR OF PRINT PARAM
000D12  6000              1679        SVC   OUT                   GO PRINT MESSAGE
000D14  C725 1797         1680        MVBZ  EXTR1,R7              CLEAR TABLE INDICATOR
000D18  4724 0234         1681        MVA   INDIC,R7              ADR OF DCP INDICATORS
000D1C  4F84              1682        TBTR  (R7,LODED)            RESET LOADED BIT
000D1E  6802 0828         1683        B     RETRN                 RETURN TO SCHEDULER
                          1685 ************************************************************
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           1686 *
                           1687 *      NAME    OIO ROUTINE  (SVC 8/9/10/11/12/13/14/15/16/17/18/21)
                           1688 *
                           1689 *      PURPOSE THE FOLLOWING ROUTINE IS THE ENTRY POINT FOR THE
                           1690 *              RESET, RID, START, STCSS, PREP, READ0, READ1, RSTAT,
                           1691 *              WRT0, WRT1, CTRL AND HIO SVC ROUTINE.  THIS
                           1692 *              ROUTINE BUILDS THE IDCB AND SET UP THE DCB IF
                           1693 *              USED AND THEN ISSUES THE IO INSTRUCTION.
                           1694 *
                           1695 *      METHOD  ALL SVC'S ENTER AT THE SAME POINT AND DECODE THE
                           1696 *              PARAMETERS THAT ARE IN COMMON AND THEN JUMP AHEAD
                           1697 *              TO DO THEIR OWN INDIVIDUAL FUNCTION.
                           1698 *
                           1699 ************************************************************
000D22                     1700 OIO    EQU   *
000D22 73E7                1701        IR    R3,R7                    CHANGE THE REGS
000D24 6B0D 17F0           1702        MVW   R3,SAV                   SAVE FOR LATER
000D28 E040                1703        MVWS  (R1,QIAR),R0             GET SVC ADDR + 2
000D2A 00FE                1704        ABI   M2,R0                    SVC ADDR
000D2C A0C4                1705        MVWS  R0,(R3,EIGHT)            PLACE SVC ADDR IN DIAGNOSTIC PROGRAM
                           1706 *                                     PARA LIST
000D2E 680D 0566           1707        MVW   R0,LSSVC                 SAVE LAST SVC
000D32 D5E0 0004           1708        MVD   (R3,FOUR),R5             SAVE PARA 3 AND 4
000D36 C7F0 0000           1709        MVB   (R3)*,R7                 GET DEV ADDR
000D3A D3C0                1710        MVD   (R3),R3                  SAVE PARA 1 AND 2
000D3C                     1711 OI10   EQU   *
000D3C A74C                1712        MVWS  R7,(R1,QAV1)             SAVE DEV ADDR IN SLOT BUILDING
000D3E C360 0016           1713        MVB   (R1,QSVC),R3             GET SVC NUMBER
000D42 8368 0506 0018      1714        MVB   (R3,COMD-RESET),(R1,QAV1) MOVE COMMAND INTO IDCB
000D48 F309                1715        CBI   RID,R3                   SEE IF RESET OR READ ID
000D4A 1111                1716        JP    OI40                     IF NOT BR
000D4C                     1717 OI20   EQU   *
000D4C E042                1718        MVWS  (R1,QLSR),R0             GET DIAGNOSTIC PROGRAM LSR
000D4E 4264 0018           1719        MVA   (R1,QAV1),R2             SAVE THE IDCB ADR
000D52 684C 0000           1720        IO    (R2)                     ISSUE I/O
000D56 700E                1721        CPLSR R0                       SAVE INDICATORS
000D58 6F04 0D5E           1722        BCC   SEVEN,OI25               BR IF I/O OK
000D5C A440                1723        MVWS  R4,(R1,QIAR)             SET ERROR RET ADDR
000D5E                     1724 OI25   EQU   *
000D5E E44D                1725        MVWS  (R1,QAV2),R4             2ND WORD IDCB
000D60 6B08 17F0           1726        MVW   SAV,R3                   RESTORE THE REG
000D64 A4C5                1727        MVWS  R4,(R3,TEN)              MOVE INTO PARA LIST
000D66                     1728 OI27   EQU   *
000D66 7803 0010           1729        OWI   SMBIT,R0
000D6A A042                1730        MVWS  R0,(R1,QLSR)             SET DIAGNOSTIC PROGRAM LSR
000D6C                     1731 OI28   EQU   *
000D6C 50A3                1732        J     DUMMY                    SVC RETURN
000D6E                     1733 OI40   EQU   *
000D6E F315                1734        CBI   HIO,R3                   HALT I/O SVC
000D70 1804                1735        JNE   OI43                     J-NO
000D72 9068 0390 0018      1736        MVD   HLTIO,(R1,QAV1)          ADR OF IDCB
000D78 50E9                1737        J     OI20                     ISSUE THE I/O
000D7A                     1738 OI43   EQU   *
000D7A F30B                1739        CBI   STCSS,R3                 START CYCLE STEAL OR CYCLE
000D7C 1107                1740        JP    OI70                     STEAL STATUS-IF NOT BR
000D7E 1004                1741        JE    OI45                     BR IF START CYCLE STEAL STATUS
000D80 7EC4 FF00           1742        RBTWI HFF00,R6                 ISOLATE MODIFIER
000D84 C669 0018           1743        OB    R6,(R1,QAV1)             SET IN IDCB
000D88                     1744 OI45   EQU   *
000D88 A54D                1745        MVWS  R5,(R1,QAV2)             SAVE THE DCB ADR
000D8A 50E0                1746        J     OI20                     GO ISSUE I/O
000D8C                     1747 OI70   EQU   *
000D8C F30C                1748        CBI   PREP,R3                  SEE IF PREPARE
000D8E 1805                1749        JNE   OI80                     IF NOT BR
000D90 350E                1750        SRLD  ONE,R5                   SHIFT I BIT TO XR6
000D92 351A                1751        SRL   THREE,R5                 SHIFT OUT UNUSED BITS
000D94 350D                1752        SLLD  ONE,R5                   SHIFT I BIT BACK IN XR5
000D96 A54D                1753        MVWS  R5,(R1,QAV2)             SET IN IDCB
000D98 50D9                1754        J     OI20                     GO ISSUE IO
000D9A                     1755 OI80   EQU   *
000D9A F30F                1756        CBI   RSTAT,R3                 SEE IF READ0, READ1 OR RSTAT
000D9C 1105                1757        JP    OI90                     IF NOT JUMP
000D9E                     1758 OI85   EQU   *
000D9E 7DA4 FF00           1759        RBTWI HFF00,R5                 ISOLATE MODIFIER
000DA2 C569 0018           1760        OB    R5,(R1,QAV1)             SET IN IDCB
000DA6 50D2                1761        J     OI20                     GO ISSUE I/O
000DA8                     1762 OI90   EQU   *
000DA8 A54D                1763        MVWS  R5,(R1,QAV2)             MOVE DATA WORD TO IDCB
000DAA 76A4                1764        MVW   R6,R5                    MOVE MODIFIER TO XR5
000DAC 50F8                1765        J     OI85                     PLACE IN IDCB
                           1767 ************************************************************
                           1768 *
                           1769 *      NAME    RCIB                   (SVC 19)
                           1770 *
                           1771 *      PURPOSE THIS SVC RELEASES THE DIAGNOSTIC PROGRAM FROM ANY
                           1772 *              RESPONSIBILITY IN HANDLING INTERUPTS FOR THE
                           1773 *              DEVICE SPECIFIED BY XR7.
                           1774 *
                           1775 *      METHOD  THE DEVICE TABLE IS SCANNED FOR THE DEVICE ADDR
                           1776 *              IN XR7.  IF FOUND AND THE DEVICE WAS ASSIGNED TO
                           1777 *              THE DIAGNOSTIC PROGRAM REQUESTING THE RELEASE, A
                           1778 *              RESET I/O AND A PREPARE I/O WITH I BIT OFF IS
                           1779 *              ISSUED TO THAT DEVICE AND ANY DCB BLOCKS ARE FREED
                           1780 *              THE SLOT IN THE DEVICE TABLE IS ZEROED.
                           1781 *
                           1782 ************************************************************
000DAE                     1783 RCIB1  EQU   *
000DAE 4324 1800           1784        MVA   PID,R3                   START OF DIAG PGM
000DB2 E2C4                1785        MVWS  (R3,HDVTB),R2            DEV TABLE START
000DB4 C420 1796           1786        MVB   CICNT,R4                 ANY DEVICES CONNECTED
000DB8 10D9                1787        JZ    OI28                     J/NO
000DBA 0202                1788        ABI   TWO,R2                   BUMP PAST CNTRL CHAR
000DBC E34A                1789        MVWS  (R1,QR7),R3              ADR OF ICB
000DBE 4024 05AC           1790        MVA   DVTAB,R0                 SAVE AREA FOR CICB ADR
000DC2                     1791 RCIB3  EQU   *
000DC2 C384                1792        CB    (R2),R3                  IS THIS THE DEV TO RELEASE
000DC4 1005                1793        JE    RCIB4                    J-YES--THIS IS IT
000DC6                     1794 RICB6  EQU   *
000DC6 7A41 000A           1795        AWI   TEN,R2                   BUMP TO NEXT DEV
000DCA 7801 0002           1796        AWI   TWO,R0                   BUMP TABLE
000DCE 50F9                1797        J     RCIB3                    J-CHECK THE NEXT ONE
000DD0                     1798 RCIB4  EQU   *
000DD0 4A10                1799        TBT   (R2,SIXTN)
000DD2 10F9                1800        JOFF  RICB6
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000DD4 4A94                1801        TBTR  (R2,CICBT)
000DD6 1006                1802        JOFF  RCIB5
000DD8 4000 0000           1803        MVWI  ZERO,(R0)                SAVE ICB POINTER
000DDC 7C82 0001           1804        SWI   ONE,R4                   REDUCE COUNT BY ONE
000DE0 C428 1796           1805        MVB   R4,CICNT                 PUT THE COUNT BACK
000DE4                     1806 RCIB5  EQU   *
000DE4 C328 0387           1807        MVB   R3,DIPR                  MOVE DEVICE ADDR INTO PREPARE
000DE8 680C 0386           1808        IO    DIPRE                    RESET I BIT
000DEC 50BF                1809        J     OI28                     GO RETURN
                           1811 ************************************************************
                           1812 *
                           1813 *      NAME    CICB                   (SVC 20)
                           1814 *
                           1815 *      PURPOSE RETURN ZERO RESULT INDICATOR
                           1816 *
                           1817 *      METHOD  MOVE ZERO TO CONDITION CODE
                           1818 *
                           1819 ************************************************************
000DEE                     1820 CICB1  EQU   *
000DEE 4324 1800           1821        MVA   PID,R3                   START OF DIAG PGM
000DF2 E2C4                1822        MVWS  (R3,HDVTB),R2            DEV TABLE START
000DF4 0202                1823        ABI   TWO,R2                   BUMP PAST CNTRL CHAR
000DF6 E34A                1824        MVWS  (R1,QR7),R3              ADR OF ICB
000DF8 4424 05AC           1825        MVA   DVTAB,R4                 SAVE ARE FOR CICB ADR
000DFC                     1826 CICB2  EQU   *
000DFC 83B3 0000           1827        CB    (R3)*,(R2)               IS THIS THE DEV TO CONNECT
000E00 1005                1828        JE    CICB4                    J-YES--THIS IS IT
000E02                     1829 CICB3  EQU   *
000E02 7A41 000A           1830        AWI   TEN,R2                   BUMP TO NEXT DEV
000E06 7C81 0002           1831        AWI   TWO,R4                   BUMP TABLE
000E0A 50F8                1832        J     CICB2                    J-CHECK THE NEXT ONE
000E0C                     1833 CICB4  EQU   *
000E0C 4A10                1834        TBT   (R2,SIXTN)
000E0E 10F9                1835        JOFF  CICB3
000E10 6B8D 0000           1836        MVW   R3,(R4)                  SAVE ICB POINTER
000E14 4A54                1837        TBTS  (R2,CICBT)               T/ON THE IND
000E16 1205                1838        JON   CICB6                    BRANCH IF ALREADY CONNECTED
000E18 C220 1796           1839        MVB   CICNT,R2                 PUT THE COUNT IN A REG
000E1C 0201                1840        ABI   ONE,R2                   BUMP COUNT BY ONE
000E1E C228 1796           1841        MVB   R2,CICNT                 PUT THE COUNT BACK
000E22                     1842 CICB6  EQU   *
000E22 0F01                1843        MVBI  ONE,R7                   SET ZERO CODE
000E24 3759                1844        SLL   ELEVN,R7                 POSITION FOR ZERO RESULTS
000E26 E442                1845        MVWS  (R1,QLSR),R4             GET LSR
000E28 7C84 1800           1846        RBTWI NEGZR,R4                 RESET NEG AND ZERO INDICATOR
000E2C 7781                1847        OW    R7,R4                    SET INDICATORS FOR RET TO PROGRAM
000E2E A442                1848        MVWS  R4,(R1,QLSR)             SET DIAGNOSTIC PROGRAM LSR
000E30 509D                1849        J     OI28                     RETURN
                           1851 ************************************************************
                           1852 *
                           1853 *      NAME    REQSD                  (SVC 22)
                           1854 *
                           1855 *      PURPOSE THIS SVC IS USED BY A FLOPPY DISKETTE DIAG PGM
                           1856 *              TO REQUEST USE OF THE DCP DISKETTE.
                           1857 *
                           1858 *      METHOD  CONTROL IS RETURNED TO THE DIAGNOSTIC PROGRAM
                           1859 *              AND THE DIAGNOSTIC PROGRAM MAY USE IT AS A NORMAL
                           1860 *              DEVICE TO EXERCISE.  CYLINDER 1-3 AND 74-76 ARE
                           1861 *              ALLOCATTED FOR DISKETTE EXERCISER USE. NO OTHER AREA
                           1862 *              MAY BE MODIFIED BY THE DISKETTE DIAGNOSTIC.
                           1863 *
                           1864 *      CALLING SEQUENCE
                           1865 *
                           1866 *      MVA   PARA,R7                  ADDRESS PARA LIST
                           1867 *      SVC   REQSD                    SVC TO GAIN CONTROL DCP DISKETTE
                           1868 *
                           1869 *PARA  DC    A(DEVAD)                 BYTE ADDR OF DISKETTE DEV ADDR
                           1870 *      DC    A(0)                     CYLINDER HEAD PRESENTLY AT-SET.
                           1871 *                                     SET BY DCP UPON RET.
                           1872 *
                           1873 ************************************************************
000E32                     1874 REQD1  EQU   *
000E32 7764                1875        MVW   R7,R3                    GET ADR OF DISKETTE DEVICE ADDR
000E34 873B 0000 0233      1876        CB    (R7)*,DKAD               SEE IF REQUESTING DCP DISKETTE
000E3A 1898                1877        JNE   OI28                     IF NOT BR
000E3C 88EB 0396 0002      1878        MVW   PCYLA,(R3,TWO)           SET CYL NOW ON IN DIAGNOSTIC PROGRAM
000E42 4020 0246 10F2      1879        MVA   ST01,DKINT               SET DISKETTE INT TO GO TO DIAG PROG
000E48 5091                1880        J     OI28                     GO RETURN
                           1882 ************************************************************
                           1883 *
                           1884 *      NAME    RELSD                  (SVC 23)
                           1885 *
                           1886 *      PURPOSE THIS SVC IS USED BY A FLOPPY DISKETTE PROGRAM TO
                           1887 *              RELEASE CONTROL OF THE DCP DISKETTE. IT MUST FOLLOW
                           1888 *              A REQSD SVC.
                           1889 *      METHOD  WHEN THE DIAGNOSTIC PROGRAM HAS COMPLETED A SHORT
                           1890 *              TEST ON THE DCP DISKETTE, HE MUST RELEASE
                           1891 *              CONTROL FOR THE DCP TO USE.
                           1892 *
                           1893 *      CALLING SEQUENCE
                           1894 *
                           1895 *      MVA   PARA,R7                  ADDR PARA LIST
                           1896 *      SVC   RELSD                    SVC TO RELEASE DCP DISKETTE
                           1897 *
                           1898 *PARA  DC    A(DEVAD)                 BYTE ADDR OF DISKETTE DEV ADDR
                           1899 *      DC    A(CYL)                   CYLINDER DIAGNOSTIC PROGRAM LEFT THE
                           1900 *                                     HEAD AT.
                           1901 *
                           1902 *      THE PARA LIST FOR THE RELSD AND THE REQSD SVC SHOULD BE THE
                           1903 *      SAME PARA LIST.  THIS IS ADVISABLE IF THE DISKETTE REQUESTING
                           1904 *      IS NOT THE DCP DISKETTE. IN THAT CASE THESE TWO SVC ARE NO-OPED
                           1905 *      IF THE TWO PARA LIST ARE THE SAME, THE DIAGNOSTIC PROGRAM WILL BE
                           1906 *      SETTING ITS OWN CYLINDER LEFT AT.
                           1907 *
                           1908 ************************************************************
000E4A                     1909 RELD1  EQU   *
000E4A 73E7                1910        IR    R3,R7                    CHANGE REGISTERS
000E4C E4C1                1911        MVWS  (R3,TWO),R4              GET WHERE HEAD PRESENTLY AT
000E4E 833B 0000 0233      1912        CB    (R3)*,DKAD               SEE IF RELEASING DCP DISKETTE
000E54 188B                1913        JNE   OI28                     IF NOT GO RETURN
000E56 4020 0246 0B16      1914        MVA   DSKIT,DKINT              RESTORE DCP INT ADR
000E5C                     1915 REL10  EQU   *
000E5C 6C0D 0396           1916        MVW   R4,PCYLA                 SET CYL HEAD NOW ON
000E60                     1917 REL11  EQU   *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000E60  5085              1918        J     OI28                  RETURN
                          1920 ***************************************************************
                          1921 *
                          1922 *      NAME    HTOE/HTOA             SVC 26/28)
                          1923 *
                          1924 *      PURPOSE SVC ROUTINE TO CONVERT A STRING OF HEX BYTESCII)
                          1925 *              TO ASCII (HTOA) OR EBCDIC (HTOE) CHARACTERS.
                          1926 *
                          1927 *      METHOD  HTOA/HTOE-
                          1928 *              REGISTER 7 POINTS TO THE CONTROL BLOCK.
                          1929 *
                          1930 *       CALLING SEQUENCE
                          1931 *                 XR7 POINTS TO LABEL
                          1932 *
                          1933 *        SVC   HTOE OR HTOA
                          1934 *
                          1935 *LABEL DC    A(COUNT)              NUMBER OF BYTES OF HEX DATA
                          1936 *       DC    A(DADDR)              DATA ADDRESS (HEX)
                          1937 *       DC    A(BADDR)              BUFFER ADDRESS (ASCII OR EBCDIC)
                          1938 *
                          1939 ***************************************************************
000E62                    1940 HTE   EQU   *
000E62  4724 06A8         1941       MVA   EBCDI,R7              ADDR OF EBCDIC TABLE
000E66  5002              1942       J     HTE1                  CONTINUE
000E68                    1943 HTA   EQU   *
000E68  4724 066E         1944       MVA   ASC11,R7              ADDR OF ASCII TABLE
000E6C                    1945 HTE1  EQU   *
000E6C  71A4              1946       MVW   R1,R5                 SAVE CONTENTS R1
000E6E  E04A              1947       MVWS  (R1,QR7),R0           ADDR OF CONTROL BLOCK
000E70  E600              1948       MVWS  (R0,ZERO),R6          BYTES OF DATA
000E72  E101              1949       MVWS  (R0,TWO),R1           ADDR OF DATA-SOURCE
000E74  E002              1950       MVWS  (R0,FOUR),R0          ADDR OF BUFFER-SINK
000E76                    1951 HTE2  EQU   *
000E76  C350              1952       MVB   (R1)+,R3              BYTE OF DATA
000E78  724A              1953       SW    R2,R2                 ZERO REG
000E7A  3341              1954       SLL   EIGHT,R3              POSITION DATA
000E7C  3225              1955       SLLD  FOUR,R2               POSITION DATA
000E7E  3362              1956       SRL   TWELV,R3              POSITION DATA
000E80  7748              1957       AW    R7,R2                 FIRST CHARACTER ADDR
000E82  7768              1958       AW    R7,R3                 SECOND CHARACTER ADDR
000E84  8204              1959       MVB   (R2),(R0)+            MOVE 1ST CHAR TO BUFFER
000E86  8304              1960       MVB   (R3),(R0)+            MOVE 2ND CHAR TO BUFFER
000E88  BEF6              1961       JCT   HTE2,R6               NEXT HEX BYTE
000E8A  7524              1962       MVW   R5,R1                 RESTORE CONTENTS R1
000E8C                    1963 HTERT EQU   *
000E8C  50E9              1964       J     REL11                 SVC RETURN
                          1965 ***************************************************************
                          1966 *
                          1967 *      NAME    ETOH/ATOH/ETOA/ATOE  (SVC 25/27/29/30)
                          1968 *
                          1969 *      PURPOSE SVC ROUTINE TO CONVERT A STRING OF ASCII (ATOH)
                          1970 *              OR EBCDIC (ETOH) CHARACTERS TO HEX, OR ASCII
                          1971 *              CHARACTERS TO EBCDIC (ATOE) OR EBCDIC CHARACTERS
                          1972 *              TO ASCII (ETOA).
                          1973 *
                          1974 *      METHOD  REGISTER 7 POINTS TO THE CONTROL BLOCK.
                          1975 *
                          1976 *      CALLING SEQUENCE
                          1977 *              XR7 POINTS TO LABEL
                          1978 *
                          1979 *       SVC    ETOH OR ATOH OR ETOA OR ATOE
                          1980 *
                          1981 *LABEL DC    A(COUNT)              NUMBER OF CHARACTERS
                          1982 *       DC    A(DADDR)              DATA ADDRESS-SOURCE
                          1983 *       DC    A(BADDR)              BUFFER ADDRESS-SINK
                          1984 *
                          1985 ***************************************************************
000E8E                    1986
000E8E  4020 038A 06A8    1987 ETH   EQU   *
000E94  5003              1988       MVA   EBCDI,WORK            ADDR OF EBCDIC TABLE
000E96                    1989       J     ETH1                  CONTINUE
000E96  4020 038A 066E    1990 ATH   EQU   *
000E9C                    1991       MVA   ASC11,WORK            ADDR OF ASCII TABLE
000E9C  4020 038C 065C    1992 ETH1  EQU   *
000EA2  4020 038E 0010    1993       MVA   HEXTA,WORK1           ADDR OF HEX TABLE
000EA8  402C 0234 0001    1994       MVWI  SIXTN,WORK2           LENGTH OF TABLE
000EAE  5013              1995       OW1   ONE,INDIC            INDICATE CONVERT TO HEX
000EB0                    1996       J     ETA2                  CONTINUE
000EB0  4020 038A 06A8    1997 ETA   EQU   *
000EB6  4020 038C 066E    1998       MVA   EBCDI,WORK            ADDR OF EBCDIC TABLE
000EBC  5006              1999       MVA   ASC11,WORK1           ADDR OF ASCII TABLE
000EBE                    2000       J     ETA1                  CONTINUE
000EBE  4020 038A 066E    2001 ATE   EQU   *
000EC4  4020 038C 06A8    2002       MVA   ASC11,WORK            ADDR OF ASCII TABLE
000ECA                    2003       MVA   EBCDI,WORK1           ADDR OF EBCDIC TABLE
000ECA  4020 038E 0039    2004 ETA1  EQU   *
000ED0  402D 0234 0001    2005       MVWI  FIFT7,WORK2           LENGTH OF TABLE
000ED6                    2006       RBTWI ONE,INDIC             INDICATE CONVERT TO NON-HEX
000ED6  71A4              2007 ETA2  EQU   *
000ED8  E04A              2008       MVW   R1,R5                 SAVE CONTENTS R1
000EDA  E600              2009       MVWS  (R1,QR7),R0           ADDR OF CONTROL BLOCK
000EDC  E101              2010       MVWS  (R0,ZERO),R6          BYTES OF DATA
000EDE  E002              2011       MVWS  (R0,TWO),R1           ADDR OF DATA-SOURCE
000EE0                    2012       MVWS  (R0,FOUR),R0          ADDR OF BUFFER-SINK
000EE0  4424 0100         2013 ETA3  EQU   *
000EE4                    2014       MVWI  TWO56,R4              SET REGISTER
000EE4  6B08 038A         2015 ETA4  EQU   *
000EE8  6A08 038C         2016       MVW   WORK,R3               CONVERT-FROM TABLE
000EEC  6F08 038E         2017       MVW   WORK1,R2                        TO TABLE
000EF0                    2018       MVW   WORK2,R7              LENGTH OF TABLE
000EF0  8353              2019 ETA5  EQU   *
000EF2  1003              2020       CB    (R3)+,(R1)            Q/IS THIS THE CHARACTER
000EF4  7A41 0001         2021       JE    ETA6                  YES/GO USE IT
000EF8                    2022       AWI   ONE,R2                NO/SET UP FOR NEXT
000EF8  BFFB              2023       JCT   ETA5,R7               TRY NEXT
000EFA                    2024 ETA6  EQU   *
000EFA  C486              2025       AB    (R2),R4               ADD IN CONVERTED DATA
000EFC  7921 0001         2026       AWI   ONE,R1                INCREMENT DATA ADDRESS
000F00  402B 0234 0001    2027       TWI   ONE,INDIC            Q/CONVERTING TO HEX
000F06  1007              2028       JZ    ETA7                  NO/NOT HEX
000F08  7C07 0100         2029       TWI   TWO56,R4              Q/LEFT HALF BYTE
000F0C  1004              2030       JZ    ETA7                  NO/RIGHT HALF BYTE
000F0E  3421              2031       SLL   FOUR,R4               SHIFT DATA
000F10  BEE9              2032       JCT   ETA4,R6               NEXT BYTE
000F12  C418              2033       MVB   R4,(R0)+              SAVE LEFT HALF BYTE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000F14  5002              2034       J     ETA8                  FINISHED
000F16                    2035 ETA7  EQU   *
000F16  C418              2036       MVB   R4,(R0)+              SAVE CONVERTED DATA
000F18  BEE3              2037       JCT   ETA3,R6               NEXT BYTE
000F1A                    2038 ETA8  EQU   *
000F1A  7524              2039       MVW   R5,R1                 RESTORE CONTENTS R1
000F1C                    2040 ETA9  EQU   *
000F1C  50A1              2041       J     REL11                 SVC RETURN
                          2042 ***************************************************************
                          2043 *
                          2044 *      NAME    IREAD                (SVC 31)
                          2045 *
                          2046 *      PURPOSE TO READ MDI MAPS AS REQUESTED BY THE MDI
                          2047 *              SUPERVISOR.
                          2048 *
                          2049 *      METHOD  REGISTER 7 POINTS TO A CONTROL BLOCK.
                          2050 *
                          2051 ***************************************************************
000F1E                    2052
000F1E  72E7              2053 IREAD EQU   *
000F20  D128 17F0         2054       IR    R2,R7                 CHANGE REGS
000F24  4724 0234         2055       MVD   R1,SAV                SAVE THE CRITICAL REGS
000F28  80A7 055B         2056       MVA   INDIC,R7              DCP INDICATORS
000F2C  1801              2057       CB    ECHAR,(R2)+           T.U. I.D. REQ
000F2E  4F41              2058       JNE   IRAD0                 B-YES
000F30                    2059       TBTS  (R7,ADDTR)            SET IND FOR UTILITY REQ
000F30  4F4A              2060 IRAD0 EQU   *
000F32  6A0D 17EE         2061       TBTS  (R7,IRD)              SET THE INDICATOR
000F36  8A28 0004 17F8    2062       MVW   R2,FNDPG              ADR OF DATA SET TO FIND
000F3C  C1A5 0004         2063       MVW   (R2,FOUR),LDADD       SAVE LOAD ADDRESS
000F40  6802 1298         2064       MVBZ  (R2,FOUR),R1          INSURE A 0 AFTER THE NAME
000F44                    2065       B     LP06                  GO LOAD THE T.U.
000F44  D120 17F0         2066 IRAD1 EQU   *
000F48  0205              2067       MVD   SAV,R1                RESTORE REG'S
000F4A  6D2D 0010         2068       ABI   FIVE,R2               UPDATE PAST NAME
000F4E  6B0D 150C         2069       MVW   R5,(R1,QR5)           SAVE CONDITION
000F52  4324 150C         2070       MVW   R3,PRTBU              NEXT AVAIL STG ADR
000F56  0D02              2071       MVA   PRTBU,R3              ADR OF DATA
000F58                    2072       MVBI  TWO,R5                BYTES TO MOVE
000F58  8394              2073 IRAD2 EQU   *
000F5A  BDFE              2074       MVB   (R3)+,(R2)+           MOVE THE ADR
000F5C  50DF              2075       JCT   IRAD2,R5              TO THE SAVE AREA
                          2076       J     ETA9                  RETURN
                          2077 ***************************************************************
                          2078 *
                          2079 *      NAME    IWRIT                (SVC 32)
                          2080 *
                          2081 *      PURPOSE TO WRITE DATA SETS FOR THE UTILITY PROGRAMS
                          2082 *      METHOD  REGISTER 7 POINTS TO A CONTROL BLOCK.
                          2083 *
                          2084 ***************************************************************
000F5E                    2085
000F5E  690D 17F0         2086 IWRIT EQU   *
000F62  8938 0014 17EE    2087       MVW   R1,SAV                SAVE R1
000F68  4724 0234         2088       MVW   (R1,QR7)*,FNDPG       ADR OF NAME OF DATA SET TO FIND
000F6C  4F4E              2089       MVA   INDIC,R7              ADR OF DCP INDICATORS
000F6E  4020 05AA 0F78    2090       TBTS  (R7,CNRUN)            IND CONFIG TABLE REQ
000F74  6802 1298         2091       MVA   IWR10,CNFRT           RETURN ADR
000F78                    2092       B     LP06                  GO GET THE TABLE
000F78  6A08 17F0         2093 IWR10 EQU   *
000F7C  E38A              2094       MVW   SAV,R2                GET THE INITIAL POINTER
000F7E  0302              2095       MVWS  (R2,QR7),R3           ADR OF CONTROL BLOCK
000F80  D2C0              2096       ABI   TWO,R3                ADR OF NEW TABLE
000F82                    2097       MVD   (R3),R2               PUT ADR IN R2
000F82  000C              2098 IWR15 EQU   *
000F84                    2099       ABI   TWELV,R0              BUMP TO THE
000F84  CD10              2100 IWR17 EQU   *
000F86                    2101       MVW   (R0)+,R5              WORD COUNT OF THIS SECTOR
000F86  8A14              2102 IWR20 EQU   *
000F88  03FF              2103       MVW   (R2)+,(R0)+           MOVE IN THE NEW TABLE
000F8A  1001              2104       ABI   M1,R3                 WORD COUNT FOR FULL TABLE
000F8C  BDFC              2105       JZ    IWR30                 WHEN WORD COUNT IS EXHAUSTED QUIT
000F8E                    2106       JCT   IWR20,R5              KEEP IT MOVING
000F8E  6F03 0AB0         2107 IWR30 EQU   *
000F92  75A7              2108       BAL   DSKWR,R7              GO WRITE THIS SECTOR
000F94  6801 133E         2109       IR    R5,R5                 ANY ERRORS
000F98  7367              2110       BNZ   LP49                  B-IF ERROR--TO PRINT MSG
000F9A  100E              2111       IR    R3,R3                 TEST FOR ZERO BYTE COUNT
000F9C  D460 0018         2112       JZ    IWR40                 J-BYTE COUNT EXHAUSTED
000FA0  0401              2113       MVD   (R1,QAV1),R4          PREPARE
000FA2  05FF              2114       ABI   ONE,R4                TO GET THE
000FA4  1009              2115       ABI   M1,R5                 NEXT SECTOR
000FA6  D468 0018         2116       JZ    IWR40                 J-TO END IF THATS ALL
000FAA  6F03 0AAA         2117       MVD   R4,(R1,QAV1)          SAVE THE NEW COMPUTATIONS
000FAE  75A7              2118       BAL   DSKRD,R7              GO GET THE NEXT SECTOR
000FB0  6801 133E         2119       IR    R5,R5                 ANY PROBLEMS
000FB4  0002              2120       BNZ   LP49                  B-YES--GO PRINT THE MSG
000FB6  50E6              2121       ABI   TWO,R0                BUMP THE POINTER
000FB8                    2122       J     IWR17                 GO REWRITE THIS SECTOR
000FB8  6908 17F0         2123 IWR40 EQU   *
000FBC  50AF              2124       MVW   SAV,R1                RESTORE R1
                          2125       J     ETA9                  RETURN TO CALLING PROGRAM
                          2126 ***************************************************************
                          2127 *                                                             *
                          2128 *              COMMON ERROR PRINT ROUTINE FOR ALL EXERCISORS  *
                          2129 *                                                             *
                          2130 ***************************************************************
000FBE                    2131
000FBE  6F0D 10F0         2132 $PRNT EQU   *
000FC2  6F08 179C         2133       MVW   R7,$PRT2+TWO          SAVE LINK REGISTED
000FC6  18FD              2134 $PRT3 MVW   PRTSW,P7              LOAD PRINT SWITCH
000FC8  7027              2135       JNZ   $PRT3                 BRANCH IF BUSY
000FCA  9408 1800         2136       IR    R0,R1                 FLIP REGISTERS
000FCE  9428 000A 180A    2137       MVD   (R4),PID              MOVE PROGRAM ID
000FD4  6E0D 0580         2138       MVD   (R4,TEN),RTNE         MOVE PROG RNTE AND CHECKPOINT
000FD8  4524 0003         2139       MVW   R6,SAVEPNT            SAVE R6
000FDC  E042              2140       MVWI  THREE,R5              LOAD COUNT REG
000FDE  4424 0008         2141       MVWS  (R1,FOUR),R0          LOAD ADDRESS OF FIRST LINE
000FE2                    2142       MVWI  EIGHT,R4              LOAD COUNT REG
000FE2  680D 0586         2143 MVMSG EQU   *
000FE6  6E0D 0584         2144       MVW   R0,PHTOE2             MOVE ADDRESS INTO CONTROL BLOCK
000FEA                    2145       MVW   R6,PHTCE1             MOVE ADDRESS INTO CONTROL BLOCK
000FEA  6F08 179C         2146 $HANG EQU   *
000FEE  18FD              2147       MVW   PRTSW,R7              LOAD PRINT SWITCH
000FF0  8828 07BC 056C    2148       JNZ   $HANG                 HANG IF BUSY
000FF6  4724 0582         2149       MVW   PRGN8,$NOHD           DON'T STOP FOR PROG. CON.
                          2150       MVA   PHTOE,R7              LOAD ADDRESS OF CONTROL BLOCK
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000FFA  601A                2151         SVC   HTOE                 ISSUE SVC
000FFC  7801 0005           2152         AWI   FIVE,R0              INCREMENT ADDRESS POINTER
001000  7EC1 0002           2153         AWI   TWO,R6               INCREMENT ADDRESS POINTER
001004  BCEE                2154         JCT   MVMSG,R4             BRANCH FOR COUNT
001006  4424 0008           2155         MVWI  EIGHT,R4             REINIT COUNT REG
00100A  7801 002C           2156         AWI   FRTY4,R0             POINT AT NEXT LINE
00100E  BDE9                2157         JCT   MVMSG,R5             BRANCH FOR COUNT
001010  4724 056E           2158         MVA   $OUT,R7              LOAD ADDRESS OF CONTROL BLOCK
001014  8908 056E           2159         MVW   (R1),$OUT            LOAD ADDRESS OF MESSAGE
001018  6000                2160         SVC   OUT                  ISSUE SVC
00101A  4020 056C 0000      2161         MVWI  ZERO,$NOHD           INDICATE PRINT OF HEADER
001020  4624 0006           2162         MVWI  SIX,R6               LOAD COUNT REGISTER
001024  E541                2163         MVWS  (R1,TWO),R5          LOAD ADDRESS OF MESSAGE
001026                      2164 $PRT1   EQU   *
001026  4724 056E           2165         MVA   $OUT,R7              LOAD ADDRESS OF CONTROL BLOCK
00102A  6D0D 056E           2166         MVW   R5,$OUT              LOAD ADDRESS OF MESSAGE
00102E  6000                2167         SVC   OUT                  ISSUE SVC
001030  8828 0738 056C      2168         MVW   ERMS2,$NOHD          INDICATE NO PRINT OF HEADER
001036  7DA1 002A           2169         AWI   FRTY2,R5             POINT AT NEXT LINE
00103A  BEF5                2170         JCT   $PRT1,R6             BRANCH FOR COUNT
00103C  6A08 0580           2171         MVW   SAVEPNT,R2           RELOAD OLD R6
001040  7A41 001A           2172         AWI   TWEN6,R2             ADD DISPLACEMENT TO DCB CHAIN ADDRESS
001044  CE85                2173         MVWZ  (R2),R6              LOAD ADDRESS AND ZERO
001046  76C7                2174         IR    R6,R6                CHECK FOR ZERO
001048  1013                2175         JZ    $PRTE                BRANCH IF YES
00104A  E044                2176         MVWS  (R1,EIGHT),R0        LOAD ADDRESS OF DCB FORMAT
00104C  4424 0008           2177         MVWI  EIGHT,R4             LOAD COUNT REG
001050                      2178 MVCHN   EQU   *
001050  680D 0586           2179         MVW   R0,PHTOE2            LOAD ADDRESS INTO CONTROL BLOCK
001054  6E0D 0584           2180         MVW   R6,PHTOE1            LOAD ADDRESS INTO CONTROL BLOCK
001058  4724 0582           2181         MVA   PHTOE,R7             LOAD ADDRESS OF CONTROL BLOCK
00105C  601A                2182         SVC   HTOE                 ISSUE SVC
00105E  7801 0005           2183         AWI   FIVE,R0              INCREMENT ADDRESS REG
001062  7EC1 0002           2184         AWI   TWO,R6               INCREMENT ADDRESS REG
001066  BCF4                2185         JCT   MVCHN,R4             BRANCH FOR COUNT
001068  4624 0002           2186         MVWI  TWO,R6               LOAD COUNT REG
00106C  E543                2187         MVWS  (R1,SIX),R5          LOAD ADDRESS OF FIRST MSG
00106E  50DB                2188         J     $PRT1                BRANCH
001070                      2189 $PRTE   EQU   *
001070  6B0D 058A           2190         MVW   R3,QHTOE1            LOAD ADDRESS OF FROM DATA
001074  40E9 0006 0001      2191         AWI   ONE,(R3,SIX)         BUMP ERROR COUNTER BY ONE
00107A  8928 000E 058C      2192         MVW   (R1,PORTN),QHTOE2    LOAD ADDRESS OF TO AREA
001080  4724 0588           2193         MVA   QHTOE,R7             LOAD ADDRESS OF TO CONTROL BLOCK
001084  601A                2194         SVC   HTOE                 ISSUE SVC
001086  6B08 058C           2195         MVW   QHTOE2,R3            LOAD ADDRESS OF EBCEDIC DATA
00108A  40E0 0008 4040      2196         MVWI  DBLBLNK,(R3,EIGHT)   BLANK OUT BETWEEN DATA
001090  8928 000C 056E      2197         MVW   (R1,TWELV),$OUT      LOAD ADDRESS OF MSG
001096  4724 056E           2198         MVA   $OUT,R7              LOAD ADDRESS OF CONTROL BLOCK
00109A  8828 06FA 056C      2199         MVW   HEX00,$NOHD          INDICATE STOP FOR PROG CON
0010A0  6B08 0580           2200         MVW   SAVEPNT,R3           LOAD START ADD OF DATA
0010A4  6000                2201         SVC   OUT                  ISSUE SVC
0010A6  4724 0234           2202         MVA   INDIC,R7             LOAD ECP INDICATOR ADD
0010AA  4F02                2203         TBT   (R7,STERC)           IS STOP ERROR COUNTING ON
0010AC  121D                2204         JON   $PRT                 BRANCH YES
0010AE  4020 0582 0001      2205         MVWI  ONE,PHTOE            LOAD COUNT FOR CONVERT
0010B4  7B62 000A           2206         SWI   TEN,R3               SUB TEN
0010B8  CBC0                2207         MVW   (R3),R3              LOAD DEV ADDRESS
0010BA  7B62 0002           2208         SWI   TWO,R3               SUB TWO
0010BE  40CE 0001           2209         SWI   ONE,(R3)             SUB ONE FROM TOTAL
0010C2  1812                2210         JNZ   $PRT                 BRANCH IF NOT ZERO
0010C4  6B08 0580           2211         MVW   SAVEPNT,R3           LOAD OLD R6
0010C8  7B62 0004           2212         SWI   FOUR,R3              SUB FOUR
0010CC  40CC 1000           2213         OWI   FOURK,(R3)           TURN ON TERMINATE BIT
0010D0  8928 000A 056E      2214         MVW   (R1,TEN),$OUT        LOAD ADDRESS OF MSG
0010D6  4724 056E           2215         MVA   $OUT,R7              LOAD ADDRESS OF CONTROL BLOCK
0010DA  7921 000A           2216         AWI   TEN,R1               BUMP POINTER
0010DE  886C 1802 0000      2217         MVW   PID+TWO,(R1)*        MOVE EBC DEV ADDRESS
0010E4  CB40                2218         MVW   (R1),R3              LOAD INDICATOR REG FOR PROG CON
0010E6  6000                2219         SVC   OUT                  ISSUE SVC
0010E8                      2220 $PRT    EQU   *
0010E8  4020 0582 0002      2221         MVWI  TWO,PHTOE            LOAD SVC COUNT FOR HEX TO EBC
0010EE  6802 0000           2222 $PRT2   B     0                    RETURN
                            2223 ********************************************************************
                            2224 *
                            2225 *      NAME    STRIT
                            2226 *
                            2227 *      PURPOSE THIS ROUTINE HANDLES INTERUPTS FROM ALL DEVICES
                            2228 *              NOT ASSIGNED TO THE DCP AND PASSES
                            2229 *              CONTROL TO THE PROGRAM ASSIGNED THAT DEVICE.
                            2230 *
                            2231 *      METHOD  XR7 AND THE INDICATORS SET BY THE INTERUPT ARE
                            2232 *              PASSED TO THE DIAGNOSTIC PROGRAM WHICH THE DEVICE
                            2233 *              INTERUPTING IS ASSIGNED TO.  IF IT IS A STRAY
                            2234 *              INTERUPT, THE DEVICE IS RESET. CONTROL IS THEN
                            2235 *              RETURNED TO THE DIAGNOSTIC PROGRAM INTERUPTED.
                            2236 *
                            2237 *
                            2238 ********************************************************************
0010F2                      2239 ST01    EQU   *
0010F2  700E                2240         CPLSR R0                   GET INDICATORS SET BY INT
0010F4  6301                2241         DIS   SM                   DISABLE INTERUPTS
0010F6  4124 02EA           2242         MVA   STLSB,R1             ADDR OF A QUE BLOCK TO USE TO
                            2243 *                                  BUILD LSB TO BR TO DIAGNOSTIC
                            2244 *                                  PROGRAM WITH
0010FA  A74A                2245         MVWS  R7,(R1,QR7)          SAVE ISB AND DEVICE ADDR
0010FC  C022 0308           2246         RBTB  HEXFF,R0             RESET LOW ORDER 8 BITS OF LSR
                            2247 *                                  BUILDING
001100  4324 1800           2248         MVA   PID,R3               PROG START
001104  E3C4                2249         MVWS  (R3,HDVTB),R3        DEV TABLE START
001106  CDD0                2250         MVW   (R3)*,R5             NUM OF DEV IN TABLE
001108  4224 05AC           2251         MVA   DVTAB,R2             SAVED CICB POINTERS
00110C                      2252 ST05    EQU   *
00110C  C7C4                2253         CB    (R3),R7              IS THIS THE DEVICE
00110E  101E                2254         JE    ST20                 J-YES
001110                      2255 ST06    EQU   *
001110  0202                2256         ABI   TWO,R2               BUMP CICB POINTER
001112  030A                2257         ABI   TEN,R3               BUMP TABLE POINTER
001114  BDFB                2258         JCT   ST05,R5              J-CHECK THEM ALL
001116                      2259 ST05A   EQU   *
001116  C520 0563           2260         MVB   STPLG,R5
00111A  1815                2261         JNZ   ST10
00111C  6D08 179C           2262         MVW   PRTSW,R5
001120  1812                2263         JNZ   ST10
001122  C728 0527           2264         MVB   R7,SIRS
001126  8928 0014 0556      2265         MVW   (R1,QR7),UIOMS       GET THE ISB
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00112C  E04A                2266         MVWS  (R1,QR7),R0          MOVE IT INTO R0
00112E  4724 0540           2267         MVA   UNEXP,R7             CONTROL BLOCK FOR CONVERT
001132  601A                2268         SVC   HTOE                 GO CONVERT
001134  8028 0308 0563      2269         MVB   HEXFF,STPLG
00113A  4724 07A4           2270         MVA   UNEIO,R7             GET THE MSG ADR
00113E  6000                2271         SVC   OUT                  GO OUT PUT THE MSG
001140  680C 0526           2272         IO    SIPST                IDCR-ISSUE RESET
001144  6021                2273         SVC   WAIT
001146                      2274 ST10    EQU   *
001146  6201                2275         EN    SM                   ENABLE INTERUPTS
001148  6802 07F2           2276         B     SCHD2                BRANCH
00114C                      2277 ST20    EQU   *
00114C  4B10                2278         TBT   (R3,SIXTN)
00114E  10E0                2279         JOFF  ST06
001150  4B14                2280         TBT   (R3,CICBT)
001152  10E1                2281         JOFF  ST05A
001154  7801 00D0           2282         AWI   TW008,R0             SET IN PROCESS FLAG BIT
001158  A042                2283         MVWS  R0,(R1,QLSR)         SAVE LSR BUILT
00115A  CA80                2284         MVW   (R2),R2              UPDATE TO CICB
00115C  8868 0566 0012      2285         MVW   LSSVC,(R1,QR6)       TO THIS DEV IN DIAGNOSTIC PROB XR6
001162  306A                2286         SRL   THRTN,R0             ISOLATE INT COND CODE
001164                      2287 ST30    EQU   *
001164  E781                2288         MVWS  (R2,OAG),R7          GET DIAGNOSTIC PROGRAM RET ADDR IF
                            2289 *                                  COND CODE EQUALS EXPECTED
                            2290 *                                  COND CODE
001166  C0A4 0007           2291         CB    (R2,OCC),R0          COND CODE SAME AS EXPECTED
00116A  1001                2292         JE    ST40                 IF SO BR
00116C  E782                2293         MVWS  (R2,OAB),R7          GET ERROR RETURN ADDR
00116E                      2294 ST40    EQU   *
00116E  A740                2295         MVWS  R7,(R1,QIAR)         SET RETURN ADDR OF PROGRAM
001170  7879                2296         CPCL  R3                   GET LEVEL INTERRUPTED ON
001172  A348                2297         MVWS  R3,(R1,QR5)          SAVE THE CURRENT LEVEL
001174  5F46                2298         SELB  R3,(R1)              GO TO DIAGNOSTIC PROGRAM HANDLING INT
                            2300 ********************************************************************
                            2301 *                                                                  *
                            2302 *      NAME    OPCMD                                               *
                            2303 *                                                                  *
                            2304 *      PURPOSE DECODE THE OPERATOR REQUEST AND BRANCH TO THE       *
                            2305 *              PROPER ROUTINE TO HANDLE IT.                        *
                            2306 *                                                                  *
                            2307 *      METHOD  R2 = ADDRESS OF THE BUFFER PASSED BY THE INPUT      *
                            2308 *              SERVICE ROUTINE.                                    *
                            2309 *                                                                  *
                            2310 *              ON BRANCHING TO THE SPECIFIED ROUTINE,              *
                            2311 *              R2 WILL POINT TO THE 1ST NON-SPACE CHARACTER        *
                            2312 *              PAST THE OPTION WORD.                               *
                            2313 *                                                                  *
                            2314 ********************************************************************
001176                      2315 OPCMD   EQU   *
001176  821B 06E1           2316         CB    (R2)+,EBCBK          FIND 1ST NON-SPACE CHAR AFTER
00117A  1004                2317         JE    OPCMD                LOOP TILL FOUND
00117C  02FF                2318         ABI   M1,R2                GET ADDR NON-SPACE CHAR
00117E  C180                2319         MVB   (R2),R1              COMMAND
001180  0810                2320         MVBI  SIXTN,R0             NUMBER OF COMMANDS
001182  0900                2321         MVBI  ZERO,R1              ZERO REG FOR POINTER
001184                      2322 OPCM1   EQU   *
001184  81A3 06A8           2323         CB    (R1,EBCDI),(R2)      FIND EBCDIC COMMAND
001188  1004                2324         JE    OPCM2                BR/THIS IS THE ONE
00118A  0101                2325         ABI   ONE,R1               INCREMENT POINTER
00118C  B8FB                2326         JCT   OPCM1,R0             CHECK THE NEXT ONE
00118E  6802 0A78           2327         B     FN26                 INV REQ MESSAGE
001192                      2328 OPCM2   EQU   *
001192  8128 065C 051A      2329         MVB   (R1,HEXTA),CMND      GET THE COMMAND IN HEX
001198  0201                2330         ABI   ONE,R2               STEP PAST THE COMMAND
00119A                      2331 OPCM3   EQU   *
00119A  821B 06E1           2332         CB    (R2)+,EBCBK          FIND 1ST NON-SPACE CHAR AFTER
00119E  10FD                2333         JE    OPCM3                LOOP TILL FOUND
0011A0  02FF                2334         ABI   M1,R2                GET ADDR NON-SPACE CHAR
0011A2                      2335 OPCM    EQU   *
0011A2  4324 1800           2336         MVA   PID,R3               ADDRESS OF PROGRAM START
0011A6  C120 051A           2337         MVB   CMND,R1              GET THE COMMAND
0011AA  3109                2338         SLL   ONE,R1               MULTIPLY BY TWO
                            2339 *
0011AC  6832 030C           2340         B     (R1,CMDTB)*          BRANCH TO PROPER ROUTINE
                            2341 *
                            2343 ********************************************************************
                            2344 *                                                                  *
                            2345 *      NAME    NORTN                                               *
                            2346 *                                                                  *
                            2347 *      PURPOSE RESPOND WITH NO TO PROBLEM PROGRAM                  *
                            2348 *                                                                  *
                            2349 *      METHOD  THE EBCDIC EQUAVELIENT OF 'N' IS PASSED             *
                            2350 *              TO THE PROBLEM PROGRAM AS A RESPONCE X'D5'.          *
                            2351 *                                                                  *
                            2352 *      CALLING SEQUENCE                                            *
                            2353 *                                                                  *
                            2354 *      0                                                           *
                            2355 *                                                                  *
                            2356 *      WHERE   0 IS THE NO COMMAND CODE                            *
                            2357 *                                                                  *
                            2358 ********************************************************************
0011B0                      2359 NORTN   EQU   *
0011B0  80A0 06BF           2360         MVB   NORES,(R2)           SET RESPONCE TO C'N'
0011B4                      2361 NORT1   EQU   *
0011B4  80A8 06FA 0001      2362         MVB   HEX00,(R2,ONE)       SET IN TERMINATE CHARACTER
0011BA  6802 13B2           2363         B     REPGM                GO TO PROGRAM RESPONCE
                            2365 ********************************************************************
                            2366 *                                                                  *
                            2367 *      NAME    YSRTN                                               *
                            2368 *                                                                  *
                            2369 *      PURPOSE RESPOND WITH YES TO PROBLEM PROGRAM                 *
                            2370 *                                                                  *
                            2371 *      METHOD  THE EBCDIC EQUAVELIENT OF 'Y' IS PASSED             *
                            2372 *              TO THE PROBLEM PROGRAM AS A RESPONCE X'E8'.          *
                            2373 *                                                                  *
                            2374 *      CALLING SEQUENCE                                            *
                            2375 *                                                                  *
                            2376 *      1                                                           *
                            2377 *                                                                  *
                            2378 *      WHERE   1 IS THE YES COMMAND CODE                           *
                            2379 *                                                                  *
                            2380 ********************************************************************
0011BE                      2381 YSRTN   EQU   *
0011BE  80A0 06CA           2382         MVB   YSRES,(R2)           SET RESPONCE TO C'Y'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
0011C2  50F8               2383       J     NORT1                  GO TO PROGRAM RESPONCE
                           2385 ***************************************************************************
                           2386 *                                                                         *
                           2387 *      NAME    RSPGM                                                      *
                           2388 *                                                                         *
                           2389 *      PURPOSE ALLOW THE OPERATOR TO RESUME A DIAGNOSTIC PROGRAM          *
                           2390 *              THAT HAS BEEN HALTED.                                      *
                           2391 *                                                                         *
                           2392 *      METHOD                                                             *
                           2393 *                                                                         *
                           2394 *      CALLING SEQUENCE                                                   *
                           2395 *                                                                         *
                           2396 *      6                                                                  *
                           2397 *                                                                         *
                           2398 *      WHERE   6  IS THE RESUME PROGRAM COMMAND CODE                      *
                           2399 *                                                                         *
                           2400 *                                                                         *
                           2401 ***************************************************************************
0011C4                     2402 RSPGM EQU   *
0011C4  6908 0010          2403       MVW   SVCPT,R1               RESET R1 TO POINT
0011C8  01E2               2404       ABI   M30,R1                 TO SVC LSB
0011CA  4724 0234          2405       MVA   INDIC,R7               ADR FOR DCP INDICATORS
0011CE  4F04               2406       TBT   (R7,LODED)             IS PGM LOADED IND ON
0011D0  6800 123A          2407       BOFF  BPPGM                  B-NO--PRINT MSG
0011D4  6802 097A          2408       B     SVCRT                  B-NO--RETURN BY SVC
                           2410 ***************************************************************************
                           2411 *                                                                         *
                           2412 *      NAME    COUNT                                                      *
                           2413 *                                                                         *
                           2414 *      PURPOSE ALLOW THE OPERATOR TO REQUEST A DUMP OF THE EXECUTION      *
                           2415 *              COUNT OF THE ACTIVE SYSTEM TEST EXERCISORS.                *
                           2416 *                                                                         *
                           2417 *      METHOD                                                             *
                           2418 *                                                                         *
                           2419 *      CALLING SEQUENCE                                                   *
                           2420 *                                                                         *
                           2421 *      8                                                                  *
                           2422 *                                                                         *
                           2423 *      WHERE   8  IS THE DUMP EXECUTION COUNT COMMAND CODE                *
                           2424 *                                                                         *
                           2425 *                                                                         *
                           2426 ***************************************************************************
0011D8                     2427 COUNT EQU   *
0011D8  4624 0CB8          2428       MVA   DELAY,R6               LOAD ADDRESS OF DELAY ROUTINE
0011DC  CE24 0330          2429       CW    SVCI,R6                IS IT EQUAL TO DUMMY ADDRESS
0011E0  1028               2430       JE    CNT2                   BRANCH IF YES (SYSTEM TEST INACTIVE)
0011E2  6D08 2104          2431       MVW   PROGACT,R5             LOAD NUMBER OF TEST PROG. ACTIVE
0011E6  1025               2432       JZ    CNT2                   BRANCH IF NO PROGRAMS ACTIVE
0011E8  6C08 2100          2433       MVW   ADDTABPT,R4            LOAD ADDRESS OF TAB OF START ADD.
0011EC                     2434 CNT1  EQU   *
0011EC  6B88 0000          2435       MVW   (R4),R3                LOAD PROGRAMS START ADDRESS
0011F0  9308 0410          2436       MVD   (R3),CNTNM             MOVE PROGRAM NAME
0011F4  4020 0414 4040     2437       MVWI  DBLBLNK,CNTAD          MOVE IN TWO BLANKS
0011FA  0342               2438       ABI   SIXTH6,R3              BUMP TO EXECUTION COUNT
0011FC  6E08 058A          2439       MVW   R3,CNTOE1              STORE ADDRESS OF CONTROL BLOCK
001200  4020 058C 0416    2440       MVA   CNTMG,CHTOE2           STORE TO ADDRESS IN CONTROL BLOCK
001206  4724 0588          2441       MVA   CHTOE,R7               LOAD ADDRESS OF CONTROL BLOCK
00120A  601A               2442       SVC   HTOE                   ISSUE SVC
00120C  4020 041E 4040     2443       MVWI  DBLBLNK,CNTMG+EIGHT    BLANK BETWEEN DATA ENTRIES
001212  4020 056E 0410     2444       MVA   CNTNM,$OUT             LOAD ADDRESS OF MESSAGE IN OUT BLOCK
001218  CF25 0426          2445       MVWZ  CNTZR,R7               ZERO TO INDICATE END OF MESSAGE
00121C  4724 056E          2446       MVA   $OUT,R7                LOAD ADDRESS OF CONTROL BLOCK
001220  8828 06E6 056C     2447       MVW   PRPR,$NOHD             INDICATE NO HEADER ONLY
001226  6000               2448       SVC   CUT                    ISSUE SVC
001228  8828 06FA 056C     2449       MVW   HEX00,$NOHD            SET UP AS BEFORE
00122E  0420               2450       ABI   THRY2,R4               BUMP TO NEXT ADDRESS
001230  BDDD               2451       JCT   CNT1,R5                BRANCH FOR COUNT
001232                     2452 CNT2  EQU   *
001232  4724 0234          2453       MVA   INDIC,R7               LOAD ADDRESS OF ECP INDICATORS
00123E  6802 1444          2454       B     ERRO1                  RETURN TO FINISH
                           2456 ***************************************************************
                           2457 *
                           2458 *      NAME    BPPGM
                           2459 *
                           2460 *      PURPOSE THIS ROUTINE IS USED TO LOAD AND START A PROGRAM.
                           2461 *
                           2462 *      METHOD  A REQUESTED PROGRAM IS LOADED INTO STORAGE AND
                           2463 *              A QUE BLOCK IS GENERATED AND PLACED ON LEVEL
                           2464 *              3 RETURN QUE.  THE PROGRAM WILL BE STARTED AT
                           2465 *              THE ADDRESS SPECIFIED IN THE DIAGNOSTIC PROGRAM'S
                           2466 *              INITIAL EXECUTION POINTER.
                           2467 *
                           2468 *      CALLING SEQUENCE
                           2469 *
                           2470 *      B 'NAME'
                           2471 *
                           2472 *      WHERE  B  IS THE COMMAND TO LOAD AND BEGIN THE PROGRAM
                           2473 *             NAME  IS THE FOUR HEX DIGIT PROGRAM ID
                           2474 *
                           2475 ***************************************************************
00123A                     2476 BPPGM EQU   *
00123A  4020 0010 02AE     2477       MVA   SVCLB,SVCPT            RESET LSB POINTER
001240  4724 0234          2478       MVA   INDIC,R7               ADR OF DCP INDICATORS
001244  80A3 06FA          2479       CB    HEX00,(R2)             IS THIS A REQ FOR A DIAG
001248  1003               2480       JE    BPPA                   BRANCH NO
00124A  8028 0308 05A9     2481       MVB   HEXFF,INTLD            T/ON IND TO TAKE THIS ONE
001250                     2482 BPPA  EQU   *
001250  4F04               2483       TBT   (R7,LODED)             IS A PGM LOADED
001252  1012               2484       JOFF  BPP3                   B-NO--GO LOAD
001254  80A3 06FA          2485       CB    HEX00,(R2)             WAS A DIAGNOSTIC SPECIFIED
001258  1007               2486       JE    BPP1                   J-NO--BEGIN THE ONE LOADED
00125A  4024 07A9          2487       MVA   PRGN1,R0               ADR FOR PROG NAME
00125E  7284               2488       MVW   R2,R4                  MOVE POINTER TO R4
001260  0D04               2489       MVBI  FOUR,R5                BYTE COUNT
001262                     2490 BPPG1 EQU   *
001262  8417               2491       CB    (R4)+,(R0)+            COMPARE THE NAMES
001264  180D               2492       JNE   LP01                   GO GET PGM
001266  BDFD               2493       JCT   BPPG1,R5
001268                     2494 BPP1  EQU   *
001268  4724 0760          2495       MVA   PARL5,R7               STARTED MESSAGE
00126C  6000               2496       SVC   OUT                    PRINT MESSAGE
00126E                     2497 BPP2  EQU   *
00126E  6201               2498       EN    SM                     ENABLE THE SUMMARY MASK
001270  0F03               2499       MVBI  THREE,R7               INIT R7 TO 3
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001272  6004               2500       SVC   CHNGE                  CHANGE TO LEVEL 3
001274  6872 0006          2501       B     (R3,HPSA)*             BRANCH TO START PROGRAM
001278  80A3 06FA          2502 BPP3  CB    HEX00,(R2)             WAS A DIAG SPECIFIED
00127C  6800 0822          2503       BE    RE50                   BRANCH NO
                           2505 ***************************************************************
                           2506 *
                           2507 *      PURPOSE THIS ROUTINE LOADS A PROGRAM INTO STG.
                           2508 *              IT DOES NOT START THE PROGRAM
                           2509 *
                           2510 *      METHOD  THE VTOC IS SEARCHED FOR THE NAME KEYED IN BY
                           2511 *              THE OPERATOR AND WHEN FOUND IT IS LOADED INTO
                           2512 *              THE LOCATION SPECIFIED IN THE HEADER.
                           2513 *
                           2514 ***************************************************************
001280                     2515 LP01  EQU   *
001280  4024 07A9          2516       MVA   PRGN1,R0               ADR FOR PROG NAME
001284  0F05               2517       MVBI  FIVE,R7                NUM OF BYTES TO MOVE
001286                     2518 LP05  EQU   *
001286  8214               2519       MVB   (R2)+,(R0)+            PUT DIAGNOSTIC NAME IN SAVE AREA
001288  1001               2520       JZ    LP005                  J-ON ZERO ENTRY
00128A  BFFD               2521       JCT   LP05,R7                CONTINUE FOR ALL THE NAME
00128C                     2522 LP005 EQU   *
00128C  00FF               2523       ABI   M1,R0                  BACK ONE BYTE
00128E  8020 06E1          2524       MVB   EBCBK,(R0)             REPLACE HEX00 WITH BLANK
001292  4020 17EE 07A9     2525       MVA   PPGN1,FNDPG            ADR OF DATA SET NAME TO FIND
001298                     2526 LP06  EQU   *
001298  4F88               2527       TBTR  (R7,NXTVT)             RESET NEXT BIT
00129A  4124 0278          2528       MVA   PTWLB,R1               QUE BLOCK ADR
00129E  6F03 0A2A          2529       BAL   FNDDS,R7               GO FIND IN VTOC
0012A2  75A7               2530       IR    R5,R5                  SET INDICATORS
0012A4  1009               2531       JZ    LP07                   BR IF FOUND
0012A6  6A04 133E          2532       BCC   TWO,LP49               DISKETTE ERROR
0012AA  4724 0234          2533       MVA   INDIC,R7               GET DCP INDICATORS
0012AE  4F81               2534       TBTR  (R7,ADDTR)             IS THE SVC REQ THIS
0012B0  4F8A               2535       TBTR  (R7,IRD)
0012B2  6A00 0F44          2536       BON   IRAD1                  B-YES
0012B6  5043               2537       J     LP49                   J-DECODE C.C.
0012B8                     2538 LP07  EQU   *
0012B8  E403               2539       MVWS  (R0,BOE),R4            SAVE 1ST SECTOR ADDR DATA SET
0012BA  E504               2540       MVWS  (R0,EOE),R5            SAVE END ADR +1
0012BC  74AA               2541       SW    R4,R5                  GET THE SECTOR NUMBER
0012BE                     2542 LP07A EQU   *
0012BE  D468 0018          2543       MVD   R4,(R1,QAV1)           SAVE
0012C2  4724 0234          2544       MVA   INDIC,R7               ADR OF DCP INDICATORS
0012C6  4F0E               2545       TBT   (R7,CNRUN)             IS THIS THE CONFIG TABLE
0012C8  1204               2546       JON   LP08                   J-YES
0012CA  9018 07A8          2547       MVD   (R0)+,PRGN             SAVE THE PROGRAM NAME
0012CE  8008 07AC          2548       MVB   (R0),PRGN+FOUR         FIVE BYTES
0012D2                     2549 LP08  EQU   *
0012D2  6F03 0AAA          2550       BAL   DSKRD,R7               GO READ SECTOR
0012D6  75A7               2551       IR    R5,R5                  SET INDICATORS
0012D8  1632               2552       JNZ   LP49                   BR IF DISKETTE ERROR
0012DA  4724 0234          2553       MVA   INDIC,R7               ADR OF DCP INDICATORS
0012DE  4F8E               2554       TBTR  (R7,CNRUN)             WAS THIS THE CONFIG TABLE
0012E0  6A10 05AA          2555       BON   CNFRT*                 B-YES
0012E4  4024 0418          2556       MVA   DBUF+VHDLG,R0          ADDR OF INFORMATION PAST HEADER
0012E8                     2557 LP09  EQU   *
0012E8  CB10               2558       MVW   (R0)+,R3               PROGRAM LOAD ADR
0012EA  4F01               2559       TBT   (R7,ADDTR)             IS THIS PROG TRANSLATED
0012EC  1002               2560       JOFF  LP091                  BRANCH NO
0012EE  6B0E 17F8          2561       AW    LDADD,R3               LOAD START ADDRESS OF PROG
0012F2                     2562 LP091 EQU   *
0012F2  CD10               2563       MVW   (R0)+,R5               LOAD R5 WITH WORD COUNT
0012F4  690D 17F6          2564       MVW   R1,SAVR1               SAVE R1
0012F8  4224 04FE          2565       MVA   DBUF+THDLG,R2          LOAD START OF TRANSLATE FLAG AREA
0012FC                     2566 LP092 EQU   *
0012FC  CC90               2567       MVW   (R2)+,R4               LOAD FLAGS INTO R4
0012FE  0910               2568       MVBI  SIXTN,R1               INCREMENT R1
001300                     2569 LP10  EQU   *
001300  CE10               2570       MVW   (R0)+,R6               LOAD WORD OF PROGRAM
001302  7487               2571       IR    R4,R4                  TEST R4 FOR RELOCATION BIT
001304  1A04               2572       JNN   LP11                   BRANCH IF OFF
001306  4F01               2573       TBT   (R7,ADDTR)             IS THIS PROG TRANSLATED
001308  1002               2574       JOFF  LP11                   BRANCH NO
00130A  6E0E 17F8          2575       AW    LDADD,R6               ADD RELOCATION FACTOR
00130E                     2576 LP11  EQU   *
00130E  CED8               2577       MVW   R6,(R3)+               STORE PROGRAM WORD
001310  BD01               2578       JCT   LP12,R5                BRANCH FOR COUNT
001312  5003               2579       J     LP13                   BRANCH WHEN FINISHED
001314                     2580 LP12  EQU   *
001314  3409               2581       SLL   1,R4                   SHIFT TO NEW FLAG BIT
001316  B9F4               2582       JCT   LP10,R1                BRANCH FOR 16 BITS
001318  50F1               2583       J     LP092                  RELOAD R4 WITH NEXT FLAG WORD
00131A                     2584 LP13  EQU   *
00131A  6908 17F6          2585       MVW   SAVR1,R1               RESTORE R1
00131E  D460 0018          2586       MVD   (R1,QAV1),R4           GET SECTOR ADDR AND NUMBER SECT
001322  0401               2587       ABI   ONE,R4                 UPDATE SECTOR ADDR
001324  05FF               2588       ABI   M1,R5                  SEE IF READ ALL SECTORS
001326  1019               2589       JZ    LP100                  IF SO BR
001328  D468 0018          2590       MVD   R4,(R1,QAV1)           SAVE
00132C  6F03 0AAA          2591       BAL   DSKRD,R7               GO READ NEXT SECTOR
001330  4724 0234          2592       MVA   INDIC,R7               ADR ECP INDICATORS
001334  75A7               2593       IR    R5,R5                  SET THE INDICATORS
001336  1803               2594       JNZ   LP49                   BR IF ERROR
001338  4024 040E          2595       MVA   DBUF,R0                ADR OF DISKETTE BUFFER
00133C  50D5               2596       J     LP09                   GO PROCESS SECTOR
00133E                     2597 LP49  EQU   *
00133E  4724 074E          2598       MVA   LPB,R7                 SET UP TO PRINT MSG 4
001342  F502               2599       CBI   TWO,R5                 SEE IF DISKETTE ERROR
001344  1005               2600       JE    LP55                   BR IF ERR
001346  4724 0234          2601       MVA   INDIC,R7               ADR OF DCP INDICATORS
00134A  4F8E               2602       TBTR  (R7,CNRUN)             IS THIS A CONFIG TABLE
00134C                     2603 LP50  EQU   *
00134C  4724 0758          2604       MVA   LPC,R7                 SET UP TO PRINT MSG 5
001350                     2605 LP55  EQU   *
001350  6000               2606       SVC   OUT
001352  502D               2607       J     LP120
001354                     2608 LP60  EQU   *
001354  4724 076A          2609       MVA   REMG1,R7               ADR OF DCP READY MSG
001358  50FB               2610       J     LP55
00135A                     2611 LP100 EQU   *
00135A  4624 0234          2612       MVA   INDIC,R6               ADR OF DCP INDICATORS
00135E  4B01               2613       TBT   (R6,ADDTR)             TEST RELOCATION INDICATOR
001360  100C               2614       JOFF  LP105                  BRANCH IF OFF
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 LOCTR   OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001362   8028 1802 07AB  2615         MVB   PID+2,PRGN3           MOVE FIRST BYTE OF ADDRESS
001368   8028 1803 07AC  2616         MVB   PID+3,PRGN4           MOVE SECOND BYTE OF ADDRESS
00136E   8028 07AD 07B4  2617         MVB   PRGN5,PRGN6           INSERT A BLANK
001374   4724 058E       2618         MVA   ADDHE,R7              LOAD ADDRESS OF CONTROL BLOCK
001378   601A            2619         SVC   HTOE                  ISSUE SVC
00137A                   2620 LP105   EQU   *
00137A   802B 055C 07A8  2621         CB    OCHAR,PRGN
001380   1003            2622         JE    LP107
001382   4724 07BE       2623         MVA   LPD,R7                SET UP TO PRINT MSG6
001386   6000            2624         SVC   OUT                   PRINT THE MSG
001388   8028 07BC 07B4  2625 LP107   MVB   PRGN8,PRGN6           RESTORE END OF MESSAGE INDICATOR
00138E   4624 0234       2626         MVA   INDIC,R6              ADR FOR DCP INDICATORS
001392   4E44            2627         TBTS  (R6,LODED)            T/ON LOADED BIT
001394   4E81            2628         TBTR  (R6,ADDTR)
001396   4E8A            2629         TBTR  (R6,IRD)              IS MDI MAP READ SVC
001398   6A00 0F44       2630         BON   IRAD1                 B-YES
00139C   C325 05A9       2631         MVBZ  INTLD,R3              CLEAR INITIAL LOAD IND
0013A0                   2632 LP106   EQU   *
0013A0   6F03 0836       2633         BAL   UDTID,R7              TRY TO ASSIGN A DEVICE
0013A4                   2634 LP110   EQU   *
0013A4   802B 051A 0519  2635         CB    CMND,OPTB             WAS THE COMND A ** B **
0013AA   6800 1268       2636         BE    BPP1                  B-YES
0013AE                   2637 LP120   EQU   *
0013AE   6802 0828       2638         B     RETRN                 PRINT ENTER MSG
                         2640 *****************************************************************
                         2641 *
                         2642 *     NAME    REPGM
                         2643 *
                         2644 *     PURPOSE THIS PROGRAM ALLOWS THE OPERATOR TO RESPOND TO
                         2645 *             A DIAGNOSTIC PROGRAM REQUEST FOR INFORMATION.  IT IS
                         2646 *             USED AS THE RESPONSE PORTION OF THE SVC OUTIN
                         2647 *             ROUTINE.
                         2648 *
                         2649 *     METHOD  ROUTINE WILL CONVERT THE DATA ASKED FOR BY THE
                         2650 *             DIAGNOSTIC PROGRAM TO THE FORMAT REQUESTED AND PLACE
                         2651 *             IT IN THE DIAGNOSTIC PROGRAM BUFFER AND RETURN TO
                         2652 *             THE DIAGNOSTIC PROGRAM.
                         2653 *
                         2654 *     CALLING SEQUENCE                                          *
                         2655 *                                                               *
                         2656 *     F XXXXXXXXX                                               *
                         2657 *                                                               *
                         2658 *     WHERE   F  IS THE RESPOND TO A PROGRAM COMMAND            *
                         2659 *             XXXX  IS THE DATA REQUESTED BY THE PROGRAM         *
                         2660 *                                                               *
                         2661 *****************************************************************
0013B2                   2662 REPGM   EQU   *
0013B2   C125 1798       2663         MVBZ  INPRC,R1              IS AN OUT/IN IN PROC
0013B6   1804            2664         JNZ   B01                   B-YES
0013B8   4724 17E6       2665         MVA   RPRL2,R7              MESSAGE ADR
0013BC   6000            2666         SVC   OUT
0013BE   50F7            2667         J     LP120                 RETURN
0013C0                   2668 B01     EQU   *
0013C0   6908 0010       2669         MVW   SVCPT,R1              RESET R1 TO POINT
0013C4   01E2            2670         ABI   M30,R1                AT SVC LSB
0013C6   D128 17F0       2671         MVD   R1,SAV                SAVE REGS TO BE USED
0013CA   72C4            2672         MVW   R2,R6                 SAVE BUFFER ADDR
0013CC   6B08 17F4       2673         MVW   SAVE7,R3              GET THE SVC POINTER
                         2674 *
                         2675 *     RETURN INPUT TO PROGRAM AS EBCDIC DATA
                         2676 *
0013D0                   2677 B05     EQU   *
0013D0   C0E0 0007       2678         MVB   (R3,SEVEN),R0         GET CONVERSION FACTOR
0013D4   180A            2679         JNZ   B40                   BR IF NOT EBCDIC
0013D6                   2680 B10     EQU   *
0013D6   E7C2            2681         MVWS  (R3,FOUR),R7          GET MAX NUMBER CHARS
0013D8                   2682 B11     EQU   *
0013D8   F740            2683         CBI   SIXT4,R7              SEE IF ASKING OVER 64 CHARS
0013DA   1901            2684         JNP   B12                   IF NOT BR
0013DC   0F40            2685         MVBI  SIXT4,R7              SET MAX AT 64
0013DE                   2686 B12     EQU   *
0013DE   E3C1            2687         MVWS  (R3,TWO),R3           GET BUFFER ADDR
0013E0   2E64            2688         MVFN  (R6),(R3)             MOVE RESPONSE INTO DIAGNOSTIC PROGRAM
0013E2                   2689 B13     EQU   *
0013E2   6908 17F0       2690         MVW   SAV,R1                RELOAD PEGISTER 1
0013E6   6802 097A       2691         B     SVCRT
                         2692 *
                         2693 *     RETURN INPUT TO PROGRAM AS HEX DATA
                         2694 *
0013EA                   2695 B40     EQU   *
0013EA   748A            2696         SW    R4,R4                 ZERO R4
0013EC                   2697 B41     EQU   *
0013EC   6D08 17F2       2698         MVW   SAV2,R5               RESET R5
0013F0   80A3 06FA       2699         CB    HEX00,(R2)            TERMINATION CHARACTER
0013F4   1004            2700         JE    B42                   YES/COMPLETE DATA
0013F6   80A7 06E1       2701         CB    EBCBK,(R2)+           FIELD DEFINITION CHARACTER
0013FA   18F8            2702         JNE   B41                   NO/CONTINUE TO LOOK FOR ONE
0013FC   02FF            2703         ABI   M1,R2                 POINT TO BLANK
0013FE                   2704 B42     EQU   *
0013FE   764A            2705         SW    R6,R2                 FIND BYTE COUNT
001400   F200            2706         CBI   ZERO,R2               DATA COUNT EQUAL ZERO
001402   1015            2707         JE    B44                   YES/COMPLETE
001404   6A0D 054C       2708         MVW   R2,REVT               PLACE COUNT IN CONTROL BLOCK
001408   7204            2709         MVW   R2,R0                   AND SAVE  FOR LATER
00140A   6E0D 054E       2710         MVW   R6,REVT1              DATA ADDRESS
00140E   74A8            2711         AW    R4,R5                 UPDATE BUFFER ADDRESS
001410   6D0D 0550       2712         MVW   R5,REVT2              BUFFER ADDRESS
001414   4724 054C       2713         MVA   REVT,R7               ADDRESS OF CONTROL BLOCK
001418   6019            2714         SVC   ETOH                  CONVERT TO HEX
00141A   7648            2715         AW    R6,R2                 ADJUST DATA ADDRESS
00141C                   2716 B43     EQU   *
00141C   80A7 06F1       2717         CB    EBCBK,(R2)+           CHARACTER A BLANK
001420   10FD            2718         JE    B43                   YES/SKIP TO NEXT NON-BLANK
001422   02FF            2719         ABI   M1,R2                 POINT TO FIRST NON-BLANK CHARACTER
001424   72C4            2720         MVW   R2,R6                 RESET R2
001426   0001            2721         ABI   ONE,R0                ADD ONE FOR ODD COUNTS
001428   300A            2722         SRL   ONE,R0                HALF CHAR COUNT=HEX BYTE COUNT
00142A   7088            2723         AW    R0,R4                 TOTAL HEX BYTE COUNT
00142C   50DF            2724         J     B41                   DO NEXT SET
00142E                   2725 B44     EQU   *
00142E   A44A            2726         MVWS  R4,(R1,QR7)           SET NUMBER OF BYTES FOR PROGRAM
001430   6E08 17F2       2727         MVW   SAV2,R6               BUFFER ADDRESS
001434   50D0            2728         J     B10                   MOVE HEX DATA TO DIAGNOSTIC
                         2730 *****************************************************************
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 LOCTR   OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                         2731 *
                         2732 *     NAME    STOP / RESUME ERROR COUNTING DURRING SYSTEM TEST
                         2733 *
                         2734 *     PURPOSE THIS PROGRAM ALLOWS THE OPERATOR TO STOP SYSTEM
                         2735 *             TEST FROM AUTOMATICALY TERMINATING A TEST AFTER
                         2736 *             FIVE ERRORS. IF THIS OPTION IS SELECTED SYSTEM TEST
                         2737 *             WILL CONTINUE TO LOG ERRORS UNTIL THE OPTION IS RESET
                         2738 *
                         2739 *     CALLING SEQUENCE                                          *
                         2740 *                                                               *
                         2741 *     STOP = 2 ----RESUME = 3                                   *
                         2742 *                                                               *
                         2743 *****************************************************************
001436   4724 0234       2744 ERRON   MVA   INDIC,R7               LOAD ECP INDICATOR ADDRESS
00143A   4F42            2745         TBTS  (R7,STERC)            SET OPTION
00143C   5003            2746         J     ERRO1                 BRANCH
00143E   4724 0234       2747 ERROF   MVA   INDIC,R7               LOAD ECP INDICATOR ADDRESS
001442   4F82            2748         TBTR  (R7,STERC)            RESET OPTION
001444                   2749 ERRO1   EQU   *
001444   4424 3400       2750         MVWI  RECD1,R4              LOAD LED CODE INTO R4
001448   7890            2751         SECON R4                    PUT CODE INTO LIGHTS
00144A   6802 07C0       2752         B     SCHED                 BRANCH TO CONTINUE
                         2754 *****************************************************************
                         2755 *     NAME    DUMP STORAGE
                         2756 *     PURPOSE THIS PROGRAM ALLOWS THE OPERATOR TO DUMP STORAGE
                         2757 *             WITHOUT AUTOMATICALY TERMINATING A TEST. THE FIRST
                         2758 *             WORD ENTERED MUST BE THE STARTING ADDRESS AND THE
                         2759 *             SECOND THE ENDING ADDRESS. THE START AND ENDING
                         2760 *             ADDRESSES WILL BE ROUNDED DOWN ON A HEX BOUNDRY.
                         2761 *     CALLING SEQUENCE
                         2762 *     DUMP = D FFFF TTTT --> OR D FFFFTTTT
                         2763 *****************************************************************
00144E   4020 14D6 1444  2764 DUMPS  MVA   ERRO1,DUMPY+TWO        CHANGE BRANCH ADDRESS OF EXIT
001454   6A0D 057C       2765 DUMPB  MVW   R2,DETH1                LOAD ADDRESS OF INPUT DATA
001458   822B 0004 06E1  2766         CB    (R2,FOUR),EBCBK       IS THERE A BLANK BETWEEN ADDRESSES
00145E   1805            2767         JNE   DUMPC                 BRANCH NO
001460   0F04            2768         MVBI  FOUR,R7               LOAD R7 WITH COUNT
001462   43A4 0005       2769         MVA   (R2,FIVE),R3          LOAD R3 WITH ADDRESS OF DATA
001466   0204            2770         ABI   FOUR,R2               BUMP TO ADDRESS
001468   2B44            2771         MVFN  (R3),(R2)             MOVE THE DATA
00146A   4724 057A       2772 DUMPC  MVA   DETOH,R7              LOAD ADDRESS OF CONTROL BLOCK
00146E   6019            2773         SVC   ETOH                  CHANGE INPUT DATA TO HEX
001470   402D 040E 000F  2774         RBTWI H000F,DMPS            ROUND THE START ADDRESS DOWN
001476   402D 0410 000F  2775         RBTWI H000F,DMPE            ROUND THE ENDING ADDRESS DOWN
00147C   C220 0040       2776         MVB   EBBK,R2               INIT R2 WITH A BLANK
001480   4724 003C       2777         MVWI  SIXTY,R7              INIT R7 WITH COUNT
001484   4424 0418       2778         MVA   DMPBL,R4              LOAD START ADDRESS
001488   2A8C            2779         FFN   R2,(R4)               INIT PRINT BUFFER
00148A   4020 0412 341D  2780         MVWI  DMPCD,DMPC            STORE COMMAND CODE
001490   4724 0574       2781 DUMP1  MVA   DHTOE,R7              LOAD CONTROL BLOCK ADDRESS
001494   601A            2782         SVC   HTOE                  ISSUE SVC
001496   4224 041C       2783         MVA   DMPDT,R2              LOAD ADDRESS OF TOO DATA
00149A   6C08 040E       2784         MVW   DMPS,R4               LOAD START ADDRESS OF DUMP AREA
00149E   4324 0008       2785         MVWI  EIGHT,R3              LOAD LOOP COUNT REGISTER
0014A2   6C0D 0584       2786 DUMP2  MVW   R4,PHTOE1              LOAD FROM ADDRESS INTO CONTROL BLOCK
0014A6   6A0D 0586       2787         MVW   R2,PHTOE2             LOAD TO ADDRESS INTO CONTROL BLOCK
0014AA   4724 0582       2788         MVA   PHTOE,R7              LOAD CONTROL BLOCK ADDRESS
0014AE   601A            2789         SVC   HTOE                  ISSUE SVC
0014B0   7C81 0002       2790         AWI   TWO,R4                BUMP R4
0014B4   7A41 0006       2791         AWI   SIX,R2                BUMP R2
0014B8   BBF4            2792         JCT   DUMP2,R3              BRANCH FOR COUNT
0014BA   4080 0000       2793         MVWI  ZERO,(R2)             LOAD END OF MESSAGE INDICATOR
0014BE   4724 0572       2794         MVA   OUTDP,R7              LOAD CONTROL BLOCK ADDRESS
0014C2   6000            2795         SVC   OUT                   ISSUE SVC
0014C4   802B 040E 0410  2796         CW    DMPS,DMPE             COMPARE START TO ENDING ADDRESS
0014CA   1604            2797         JLLE  DUMPY                 BRANCH IF FINISHED
0014CC   4029 040E 0010  2798         AWI   SIXTN,DMPS            BUMP DUMP START ADDRESS
0014D2   50DE            2799         J     DUMP1                 BRANCH TO CONTINUE
0014D4   6802 1444       2800 DUMPY  B     ERRO1                 BRANCH TO FINISH ROUTINE
0014D8   6802 0D0E       2801 DUMPX  B     TERMC                 BRANCH TO TERM IF FOR MCK/PCK/PTW
                         2803 *****************************************************************
                         2804 *****************************************************************
                         2805 **                                                             **
                         2806 ****          S T A R T   E C P   P A T C H   A R E A        ****
                         2807 **                                                             **
                         2808 *****************************************************************
                         2809 *****************************************************************
0014DC                   2810 ECPND   EQU   *
0014F0                   2811 ACST    EQU   SDCP+5360
0014DC   00000000000000  2812 PATCH   DC    (ACST-ECPND)X'00'     PATCH AREA
                         2813 *****************************************************************
                         2814 *****************************************************************
                         2815 **                                                             **
                         2816 ****          E N D   E C P   P A T C H   A R E A            ****
                         2817 **                                                             **
                         2818 *****************************************************************
                         2819 *****************************************************************
                         2821 *****************************************************************
                         2822 *
                         2823 *     THE FOLLOWING AREA CONTAINS THOSE CONSTANTS REQUIRED      *
                         2824 *     FOR THE ALTERNATE CONSOLE ROUTINE WHICH WILL BE READ      *
                         2825 *     INTO STORAGE AS OVERLAYS AT STORAGE ADDRESS X'14F0'.      *
                         2826 *     THE CONSTANTS IN THIS AREA MUST REMAIN IN THE SAME        *
                         2827 *     STORAGE LOCATIONS BECAUSE OF PROGRAM INTERFACES.          *
                         2828 *                                                               *
                         2829 *****************************************************************
                         2830         ORG   SDCP+5360             START ALTERNATE CONSOLE ADDRESS
0014F0   0000            2831 ACMSG  DC    A(*-*)                ADDRESS TO OUTPUT ENTER MESSAGE
0014F2   0000            2832 ACENT  DC    A(*-*)                      ALTERNATE CONSOLE RTN
0014F4   0000            2834 ACINT  DC    A(*-*)                      ALT CON INRPT RTN
                         2836 *****************************************************************
                         2837 *                                                               *
                         2838 *     THE FOLLOWING ARE THE IDCB'S USED BY THE ALTERNATE CONSOLE.*
                         2839 *     THE DEVICE ADDRESS WILL BE INSERTED AT INITIALIZATION TIME.*
                         2840 *                                                               *
                         2841 *****************************************************************
                         2842         ALIGN WORD
0014F6   5000            2843 WIDCB  DC    X'5000'               ALTERNATE CONSOLE WRITE
0014F8   0000            2844         DC    X'0000'
0014FA   5000            2845 CIDCB  DC    X'5000'               ALTERNATE CONSOLE SPECIAL
0014FC   000D            2846         DC    X'000D'
0014FE   6F00            2847 ACRES  DC    X'6F00'               ALTERNATE CONSOLE RESET
001500   0000            2848         DC    X'0000'
001502   1000            2849 RIDCB  DC    X'1000'               ALTERNATE CONSOLE READ
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001504  0000              2850         DC    X'0000'
001506  6000              2851 ACPRE   DC    X'6000'                ALTERNATE CONSOLF PREPARE-LEVEL 2
001508  0005              2852         DC    X'0005'
0014F9                    2853 WIDC3   EQU   WIDCB+THREE
001505                    2854 RIDC3   EQU   RIDCB+THREE
001507                    2855 ACPR1   EQU   ACPRE+ONE
                          2857 *       PRINT BUFFER
                          2858         ALIGN WORD
00150A  0D0A              2859 CRPRT   DC    X'0D0A'
00150C  40404040404040404 2860 PRTBU   DC    66C' '                 66 CHARACTER PRINT BUFFER
001517                    2861 PRTBF   EQU   PRTBU+ELEVN
001518                    2862 PRBUF   EQU   PRTBU+TWELV
                          2864 ********************************************************************************
                          2865 *                                                                              *
                          2866 *       NAME    ALTERNATE CONSOLE SUPPORT                                      *
                          2867 *                                                                              *
                          2868 *       PURPOSE THIS AREA WILL BE OVERLAYED AT INITIALIZATION WITH             *
                          2869 *               THE ALTERNATE CONSOLE SUPPORT ROUTINE.                         *
                          2870 *                                                                              *
                          2871 *       THE ALTERNATE CONSOLE ROUTINE WILL WORK IN CONJUNCTION                 *
                          2872 *       WITH THE PROGRAMMERS CONSOLE. ALTERNATE CONSOLE DEVICES                *
                          2873 *       SUPPORTED ARE THE TTY, DISPLAY STATION, AND PRINTER.                   *
                          2874 *                                                                              *
                          2875 ********************************************************************************
                          2877 ********************************************************************************
                          2878 *                                                                              *
                          2879 *       THE FOLLOWING AREA CONTAINS THOSE CONSTANTS REQUIRED                   *
                          2880 *       FOR THE ALTERNATE CONSOLE ROUTINE AND SHARED BY DCP.                   *
                          2881 *       THE CONSTANTS IN THIS AREA MUST REMAIN IN THE SAME                     *
                          2882 *       STORAGE LOCATIONS BECAUSE OF PROGRAM INTERFACES.                       *
                          2883 *                                                                              *
                          2884 ********************************************************************************
                          2885         ORG   SDCP+6016
001780  07C0              2886 ACSCH   DC    A(SCHED)               ADDRESS OF SCHEDULER ROUTINE
001782  0234              2887 ACIND   DC    A(INDIC)                       DCP INDICATORS
001784  0010              2888 ACSVP   DC    A(SVCPT)                       SVC INTRPT POINTER
001786  097A              2889 ACSVR   DC    A(SVCRT)                       SVC RETURN
001788  1176              2890 ACOPC   DC    A(OPCMD)                       OPERATOR COMMAND ROUTINE
00178A  0B9A              2891 ACCON   DC    A(CONSO)                       CONSOLE ROUTINE
00178C  0524              2892 ACSTR   DC    A(STRIT)                       STRAY INTERRUPT ROUTINE
00178E  0000              2893 ACVTR   DC    A(*-*)                         ALT CON VECTOR ADDR-INIT
001790  0000              2895 PRBA    DC    A(0)                   ALT CONCOLE CONTROL FLD 1
001792  01                2896 NLSW    DC    X'01'                  ALT CONSOLE CONTROL FLD 2
001793  01                2897 OUT1    DC    X'01'                  SVC OPERAND FOR OUTIN SVC
                          2899 ********************************************************************************
                          2900 *                                                                              *
                          2901 *       THE FOLLOWING ARE SWITCHES THAT MUST BE RESET TO ZERO                  *
                          2902 *       FOLLOWING A SYSTEM RESET AND START                                     *
                          2903 *                                                                              *
                          2904 ********************************************************************************
                          2905         ALIGN WORD
001794  00                2906 ACFCS   DC    X'00'                  ALT CONSOLE CONTROL FLD 3
001795  00                2907 ACIMS   DC    X'00'                  ALT CONSOLE CONTROL FLD 4
001796  00                2908 CICNT   DC    X'00'                  COUNT OF ACTIVE CICB'S
001797  00                2909 EXTR1   DC    X'00'                  END OF TABLE INDICATOR
001798  00                2910 INPRC   DC    X'00'                  IND OUT/IN IN PROCESS
00179A  0000              2911 GRPT    DC    A(0)                   ALT CONSOLE CONTROL FLD 5
00179B                    2912 GRPT1   EQU   GRPT+ONE
00179C  0000              2913 PRTSW   DC    A(0)                   ALTERNATE CONSOLE BUSY
00179E  0000              2914 ENTSW   DC    A(0)                   ALT CONSOLE CONTROL FLD 6
0017A0  0000              2915 ACWCT   DC    A(0)                   ALT CONSOLE CONTROL FLD 7
0017A2  0000              2916 DEAT    DC    A(0)                   ALT CONSOLE CONTROL FLD 8
0017A4  0000              2917 HRTA    DC    A(0)                   PRG CHK ADR FOR DIAG
0017A6                    2918 CNTBK   EQU   *
0017A6  0001              2920 INVT1   DC    A(ONE)                 BYTE COUNT
0017A8  150C              2921 INVT2   DC    A(PRTBU)               ADR OF DATA TO CONVERT
0017AA  150C              2922 INVT3   DC    A(PRTBU)               TARGET AREA
0017AC  0002              2924 HLTCV   DC    A(TWO)                 BYTE COUNT
0017AE  180A              2925         DC    A(RTNE)                ADR OF DATA TO CONVERT
0017B0  17D5              2926         DC    A(MSG8A)               TARGET AREA
0017B2  0002              2928 HALCV   DC    A(TWO)                 BYTE COUNT
0017B4  180C              2929         DC    A(CKPT)                ADR OF DATA TO CONVERT
0017B6  17DF              2930         DC    A(MSG9A)               TARGET AREA
0017B8  0000              2932 RPSV2   DC    A(0)                   TEMPORARY
0017BA  0000              2933 RPSV1   DC    A(0)                    SAVE
0017BC  0000              2934 RPSV    DC    A(0)                     AREAS
0017BE  0000              2936 IDCB    DC    A(*-*)                 ADDRESS OF LAST IDCB ISSUED BY DCP
0017C0  3410              2938         DC    A(RPCB2)               ERROR CODE
0017C2  D5D640D9C5D7D3E84 2939 RPG2    DC    C'NO REPLY EXP'
0017CE  0080              2940         DC    X'0080'                EOM AND DCP MSG CNTL FLD
0017D0  40D9E3D57E        2942 MSG8    DC    C' RTN='
0017D5  E7E7E7E740        2943 MSG8A   DC    C'XXXX '
0017DA  C3D2D7E37E        2944 MSG9    DC    C'CKPT='
0017DF  E7E7E7E740        2945 MSG9A   DC    C'XXXX '
0017E4  00C0              2946         DC    X'00C0'                EOM AND DCP MSG CNTL FLD
0017E6  17C2              2948 RPRL2   DC    A(RPG2)                ADDRESS OF MESSAGE
0017E8  0000              2950 INTAD   DC    A(*-*)                 ALT CONSOLE INT ADDR SAVE AREA
0017EA  07A8              2952 ACPRG   DC    A(PRGN)
0017EC  07AD              2953 ACPR5   DC    A(PRGN5)
0017EE  0000              2955 FNDPG   DC    A(*-*)                 ADDRESS OF PROGRAM TO BE FOUND
0017F0  0000              2957 SAV     DC    A(0)                   FOUR
0017F2  0000              2958 SAV2    DC    A(0)                    REGISTER
0017F4  0000              2959 SAVE7   DC    A(0)                     SAVE
0017F6  0000              2960 SAVR1   DC    A(0)                      AREAS
0017F8  0000              2962 LDADD   DC    A(0)                   RELOCATION BASE ADDRESS SAVE AREA
0017FA  3401              2964         DC    A(ACNG)                ERROR CODE
0017FC  00C0              2965 ACNG1   DC    X'00C0'                EOM AND DCP MSG CNTL FLD
0017FE  17FC              2967 ACNGM   DC    A(ACNG1)               ADDRESS OF MESSAGE
                          2969 ********************************************************************************
                          2970 *                                                                              *
                          2971 *       THE FOLLOWING ROUTINE IS ENTERED IMMEDIATELY AFTER LOADING             *
                          2972 *       THE ROUTINE DETFRMINES THE CORE SIZE, IF A TTY IS TO BE                *
                          2973 *       USED AND WHICH DISKETTE FILE IS ASSIGNED TO THE USER.                  *
                          2974 *       CONTROL IS THEN PASSED TO RESTR                                        *
                          2975 *                                                                              *
                          2976 ********************************************************************************
                          2977         ORG   SDCP+6144                ORIGIN FOR DIAGNOSTIC PROGRAM
                          2978 *                                       TO OVERLAY INITIALIZATION
                          2979 *                                       ROUTINE.
                          2980 *
                          2981 *       DUMMY PROGRAM HEADER
                          2982 *
001800  F3F4F0F0          2983 PID     DC    CL4'3400'              PROGRAM IDENTIFIER
001808                    2984 DEVPT   EQU   PID+EIGHT               DEVICE TABLE ADDRESS
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00180A                    2985 RTNE    EQU   PID+TEN                CURRENT ROUTINE NUMBER
00180C                    2986 CKPT    EQU   PID+TWELV               CURRENT CHECKPOINT NUMBER
                          2988 *
                          2989 *       EQUATES USED FOR INITIALIZATION
                          2990 *
003000                    2991 A3000   EQU   X'3000'                 ADDRESS OF PARITY PRINT OVERLAY
000005                    2992 ACIDN   EQU   5                       NUMBER OF ALTERNATE CONSOLE IDCB'S
000030                    2993 ADEVT   EQU   48                      STARTING DEVICE INTERRUPT VECTORS
000106                    2994 DSKID   EQU   X'0106'                 DISKETTE HARD WIRED READ ID
0000FF                    2995 DEVMK   EQU   Y'00FF'                 MASK OUT UNUSED DEVICE ADDR BITS
001E00                    2996 DSOVA   EQU   7680                    DISPLAY STATION SPECIAL OVERLAY
                          2997 *                                      STARTING ADDRESS
                          2998 *
                          2999 *       IDCB STORAGE AREA USED FOR INITIALIZATION
                          3000 *
001804  2000              3001 ACRID   DC    X'2000'                  ALTERNATE CONSOLE READ ID IDCB
001805                    3002 ACRI1   EQU   ACRID+ONE
001806  0000              3003 ACRI2   DC    X'0000'
001808  2000              3004 INDSK   DC    X'2000'                  DISKETTE READ ID IDCB
001809                    3005 INDS1   EQU   INDSK+ONE
00180A  0000              3006 INDS2   DC    X'0000'
                          3007 *
                          3008 *       ALTERNATE CONSOLE OVERLAY CONSTANTS
                          3009 *
                          3010         ALIGN WORD
                          3011 *       TTY
00180C  40                3012 ACOVL   DC    X'40'                    DEVICE TYPE
00180D  C3F3F8F0F1        3013         DC    C'C3801'                 OVERLAY NAME
001812  0000              3014         DC    A(*-*)                   NEXT AVAIL STORAGE
001814  0010              3015         DC    X'0010'                  READ ID ASSIGNED
                          3016 *       DISPLAY STATION
001816  44                3017         DC    X'44'                    DEVICE TYPE
001817  C3F3F8F0F2        3018         DC    C'C3802'                 OVERLAY NAME
00181C  0000              3019         DC    A(*-*)                   NEXT AVAIL STORAGE
00181E  0406              3020         DC    X'0406'                  READ ID ASSIGNED
                          3021 *       DISPLAY STATION
001820  45                3022 DS2TP   DC    X'45'                    DEVICE TYPE
001821  C3F3F8F0F2        3023         DC    C'C3802'                 OVERLAY NAME
001826  0000              3024         DC    A(*-*)                   NEXT AVAIL STORAGE
001828  040E              3025         DC    X'040E'                  READ ID ASSIGNED
                          3026 *       PRINTER
00182A  64                3027         DC    X'64'                    DEVICE TYPE
00182B  C3F3F8F0F3        3028         DC    C'C3803'                 OVERLAY NAME
001830  0000              3029         DC    A(*-*)                   NEXT AVAIL STORAGE
001832  0206              3030         DC    X'0206'                  READ ID ASSIGNED
                          3031 *       PRINTER
001834  68                3032         DC    X'68'                    DEVICE TYPE
001835  C3F3F8F0F3        3033         DC    C'C3803'                 OVERLAY NAME
00183A  0000              3034         DC    A(*-*)                   NEXT AVAIL STORAGE
00183C  0306              3035         DC    X'0306'                  READ ID ASSIGNED
                          3036 *       END OF TABLE
00183E  00                3037         DC    X'00'                    END INDICATOR
00183F  C3F3F8F0C3        3038 DS20V   DC    C'C3800C'                SPECIAL DISPLAY OVERLAY
001844  0000              3039         DC    A(*-*)                   NEXT AVAIL STORAGE
001846  0000              3040 ACSAV   DC    A(*-*)                   SAVE AREA ALT CON INTRPT PTR
                          3041 *
                          3042 *       TEST DISKETTE ADDRESS PASSED
                          3043 *
                          3044         ALIGN WORD
001848                    3045 INIT    EQU   *
001848  C020 0233         3046         MVB   DKAD,P0                  DISKETTE ADR
00184C  7806 00FF         3047         CWI   DEVMK,R0                 MAKE SURE ADD IS 0-255
001850  11FB              3048         JP    INIT                     IF NOT BR
001852  C028 1809         3049         MVB   R0,INDS1                 MOVE ADDR TO READ ID DISKETTE
001856  0B04              3050         MVBI  FOUR,R3                  NUMBER IDCB DISKETTE
001858  4124 03BD         3051         MVA   SEID1,R1                 ADDR 1ST IDCB
00185C                    3052 IN10    EQU   *
00185C  C048              3053         MVB   R0,(R1)                  MOVE DEVICE ADDR INTO IDCB
00185E  0104              3054         ABI   FOUR,R1                  UPDATE TO NEXT IDCB
001860  BBFD              3055         JCT   IN10,R3                  DO ALL IDCB
001862  4020 17BE 1808    3056         MVA   INDSK,IDCB               SAVE THE IDCB ADR
001868  680C 1808         3057         IO    INDSK                    DO READ ID DISKETTE
00186C  6F05 1848         3058         RNCC  SEVEN,INIT               RETRY IF ERROR
001870  402F 180A 0106    3059         CWI   DSKID,INDS2              SEE IF ID GOOD
001876  18E8              3060         JNE   INIT                     IF NOT BR
001878  3009              3061         SLL   ONE,R0                   EACH ADDR 2 BYTES
00187A  0030              3062         ABI   ADEVT,R0                 GET IN VECTOR ADDR
00187C  4000 0246         3063         MVA   DKINT,(R0)               MOVE IN DISKETTE INT VECTOR ADR
001880  4020 0246 0B16    3064         MVA   DSKIT,DKINT              MOVE IN DISKETTE INT ADR
001886  0900              3065         MVBI  ZERO,R1                  SET TO OK BLOCK
001888  6B08 1800         3066         MVW   PID,R3                   GET DCP SIZE
00188C                    3067 IN40    EQU   *
00188C  5924 06FA         3068         SESK  R1,HEX00                 SET DCP STORAGE KEY OF 0
001890  0101              3069         ABI   ONE,R1                   UPDATE CORE BLOCK ADDR
001892  BBFC              3070         JCT   IN40,R3
001894  0C00              3071         MVBI  ZERO,R4                  RESET CONSOLE LIGHTS TO ALL
001896  7890              3072         SECON R4                       OFF
001898  4024 07F4         3073         MVA   RESTR,R0                 RESET THE RESTART ADDR TO THE
00189C  680D 0002         3074         MVW   F0,SDCP2                 RESTART RTN
                          3075 *
                          3076 *       TEST FOR ALTERNATE CONSOLE SUPPORT AND TYPE
                          3077 *
0018A0  4020 17EE 055D    3078         MVA   CFGN1,FNDPG              ADR OF NAME OF DATA SET TO FIND
0018A6  4724 0234         3079         MVA   INDIC,R7                 ADR OF DCP INDICATORS
0018AA  4F4E              3080         TBTS  (R7,CNRUN)               IND CONFIG TABLE REQ
0018AC  4F84              3081         TBTR  (R7,LODED)               RESET THE LOADED BIT
0018AE  4020 05AA 18B8    3082         MVA   ALT00,CNFRT              RETURN ADR
0018B4  6802 1298         3083         B     LP06                     GO GET THE TABLE
0018B8                    3084 ALT00   EQU   *
0018B8  4124 041C         3085         MVA   DBUF+IHDLP,R1            MOVE PAST HEADER
0018BC  6828 0008         3086         MVW   (R1,CUDD6),R0            SEE IF A DEVICE WAS ASSIGNED
0018C0  6800 1980         3087         BZ    ALT30                    B-NO--NO ALT DEV
0018C4  4224 180C         3088         MVA   ACOVL,R2                 ADDRESS OF ALT CON OVLY INFO
0018C8  680D 0240         3089         MVW   R0,OPADR                 SAVE THE DATA
0018CC                    3090 ALT10   EQU   *
0018CC  C084              3091         CB    (R2),R0                  ALT CON DEVICE TYPE
0018CE  1004              3092         JE    ALT11                    BR/YES - CONTINUE TO CHK DEV
0018D0  020A              3093         ABI   TEN,R2                   NEXT ALT CON ENTRY
0018D2  C180              3094         MVB   (R2),P1                  LAST ENTRY
0018D4  18FB              3095         JNZ   ALT10                    BR/NO - TRY NEXT
0018D6  5056              3096         J     ALT31                    NO ALT CON SUPPORT
0018D8                    3097 ALT11   EQU   *
0018D8  3042              3098         SBL   EIGHT,R0                 POSITION THE DEVICE ADR
0018DA  C028 1805         3099         MVB   R0,ACRI1                 PLACE ADR IN READ ID IDCB
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT
0018DE  4020 17BE 1804     3100         MVA   ACRID,IDCB          SAVE THE IDCB ADR
0018E4  680C 1804          3101         IO    ACRID               READ ID
0018E8  6F05 1984          3102         BNCC  SEVEN,ALT31         BR IF ERROR
0018EC  8A2B 0008 1806     3103         CW    (R2,EIGHT),ACRI2    CORRECT READ ID RESPONSE
0018F2  1848               3104         JNE   ALT31               BR/NO - NO ALT CON SUPPORT
0018F4  47A0 0001          3105         MVA   (R2,ONE),R7         ADDRESS OF OVLY RTN NAME
0018F8  601F               3106         SVC   READI               READ IT
0018FA  7524               3107         MVW   R5,R1               OVERLAY RTN FOUND
0018FC  1843               3108         JNZ   ALT31               BR/NO-NO ALT CON
0018FE  0905               3109         MVBI  ACIDN,R1            GET NUMBER IDCB'S TO MOVE
001900  4224 14F6          3110         MVA   WIDCB,R2            ADDR IN-ADDR 1ST IDCB
001904                     3111 ALT20   EQU   *
001904  C0A8 0001          3112         MVB   R0,(R2,ONE)         MOVE IN ALT DEV ADDR IN IDCB
001908  0204               3113         ABI   FOUR,R2             UPDATE TO NEXT IDCB
00190A  B9FC               3114         JCT   ALT20,R1            IF NOT DONE LOOP
00190C  3009               3115         SLL   ONE,R0              EACH ADDR 2 BYTES
00190E  0030               3116         ABI   ADEVT,R0            GET ADDR ALT INT VECTOR
001910  680D 178E          3117         MVW   R0,ACVTR            SAVE VECTOR ADDRESS
001914  4000 14F4          3118         MVA   ACINT,(R0)          SET INT ADDR FOR ALT
001918  4020 17BE 1506     3119         MVA   ACPRE,IDCB          SAVE THE IDCB ADR
00191E  680C 1506          3120         IO    ACPRE               PREPARE THE ALT
001922  8828 14F4 1846     3121         MVW   ACINT,ACSAV         SAVE INTERRUPT ADDRESS
001928  4724 183F          3122         MVA   DS2OV,R7            ADDRESS OF OVLY RTN NAME
00192C  601F               3123         SVC   READI               READ IT
00192E  7524               3124         MVW   R5,R1               OVERLAY RTN FOUND
001930  1005               3125         JZ    ALT21               BR/YES - GO TO OVERLAY
001932  802B 0241 1820     3126         CB    OPTYP,DS2TP         DISPLAY STATION CONSOLE
001938  1025               3127         JE    ALT31               BR/YES - NO ALT CONSOLE
00193A  5003               3128         J     ALT22               BR/NO - GO SET UP ALT CONSOLE
00193C                     3129 ALT21   EQU   *
00193C  6F03 1E00          3130         BAL   DSOVA,R7            BRANCH TO DISPLAY OVERLAY
001940  5021               3131         J     ALT31               BR/ERROR RETURN - NO ALT CON
001942                     3132 ALT22   EQU   *
001942  4020 14F4 1958     3133         MVA   ALT23,ACINT         NEW INTERRUPT ADDRESS
001948  4020 17BE 14FA     3134         MVA   CIDCB,IDCB          SAVE IDCB ADDRESS
00194E  680C 14FA          3135         IO    CIDCB               PERFORM ONE OF THE FOLLOWING
                           3136 *                                  TTY      - CARRIGE RETURN
                           3137 *                                  DISP STAT - CLEAR SCREEN
                           3138 *                                  PRINTER   - SKIP
001952  6F04 07C0          3139         BCC   SEVEN,SCHED         BR/GOOD CC - WAIT FOR INTERRUPT
001956  5016               3140         J     ALT31               BR/NO ALT CONSOLE
001958                     3141 ALT23   EQU   *
001958  6B05 1984          3142         BNCC  THREE,ALT31         BR/BAD CC - NO ALT CON
00195C  0F03               3143         MVBI  THREE,R7            LEVEL TO CHANGE TO
00195E  6004               3144         SVC   CHNGE
001960  4020 14F4 1984     3145         MVA   ALT31,ACINT         NEW INT ADDRESS
001966  4724 1000          3146         MVWI  FOURK,R7            WAIT COUNT
00196A  6201               3147         EN    SM                  ENABLE THE SUMMARY MASK
00196C                     3148 ALT24   EQU   *
00196C  6002               3149         SVC   IDLE
00196E  BFFE               3150         JCT   ALT24,R7            WAIT FOR A SPURIOUS INT
001970  8828 1846 14F4     3151         MVW   ACSAV,ACINT         RESTORE INTERRUPT ADDRESS
001976  4724 0234          3152         MVA   INDIC,R7            ADR OF DCP INDICATORS
00197A  4F47               3153         TBTS  (R7,ALTDV)          IND ALT DEV ASSIGNED
00197C  4F86               3154         TBTR  (R7,STOP)           RESET STOP INDICATOR
00197E  501F               3155         J     ALT40               CONTINUE
001980                     3156 ALT30   EQU   *
001980  C825 0240          3157         MVWZ  OPADR,R0            RESET ALTERNATE ASSIGNMENT
001984                     3158 ALT31   EQU   *
001984  6301               3159         DIS   SM                  DISABLE THE SYSTEM MASKS
001986  4724 0234          3160         MVA   INDIC,R7            ADR OF DCP INDICATORS
00198A  4F44               3161         TBTS  (R7,LODED)          SET THE LOADED INDICATOR
00198C  4F87               3162         TBTR  (R7,ALTDV)          RESET ALTER DEVICE
00198E  C825 0240          3163         MVWZ  OPADR,R0            WAS AN ALTER IN TABLE
001992  1015               3164         JZ    ALT40               J-NO
001994  3042               3165         SRL   EIGHT,R0            SHIFT ADR TO BITS 8-15
001996  C028 0387          3166         MVB   R0,DIPR             MOVE ADR TO UN-PREP
00199A  4020 17BE 0386     3167         MVA   DIPRE,IDCB          IDCB ADR
0019A0  680C 0386          3168         IO    DIPRE               UN-PREP THE ALT
0019A4  4020 17BE 14FE     3169         MVA   ACRES,IDCB          IDCB ADDRESS
0019AA  680C 14FE          3170         IO    ACRES               RESET THE ALTERNATE DEVICE
0019AE  7024               3171         MVW   R0,R1               GET DEVICE ADDRESS
0019B0  3109               3172         SLL   ONE,R1              EACH ADDR 2 BYTES
0019B2  0130               3173         ABI   ADEVT,R1            ADD STARTING VECTOR ADDRESS
0019B4  4040 0524          3174         MVA   STRIT,(R1)          VECTOR FOR STRAY INTERRUPT
0019B8  4724 17FE          3175         MVA   ACNGM,R7            ADDRESS OF ALTERNATE BAD CODE
0019BC  6000               3176         SVC   OUT                 PUT IT IN THE LEDS
0019BE                     3177 ALT40   EQU   *
0019BE  6301               3178         DIS   SM                  DISABLE MASKS
0019C0  4724 19ED          3179         MVA   ALT44,R7            LOAD ADDRESS OF CONTROL BLOCK
0019C4  601F               3180         SVC   READI               READ IN OVERLAY
0019C6  75A7               3181         IR    R5,R5               CHECK CONDITION CODE
0019C8  1805               3182         JNZ   ALT43               BRANCH TO CONTINUE IF ERROR
0019CA  6D03 3000          3183         BAL   A3000,R5            BRANCH TO EXEC OVERLAY
0019CE  4724 0234          3184         MVA   INDIC,R7            ADDRESS OF DCP INDICATORS
0019D2  4F84               3185         TBTR  (R7,LODED)          RESET PROGRAM LOADED INDICATOR
0019D4  0864               3186 ALT43   MVBI  STPCD,R0            GET THE STOP CODE
0019D6  4424 19F4          3187         MVA   ALT45,R4            GET THE END OF DCP
0019DA  6F08 0230          3188         MVW   LASAD,R7            LAST ADDRESSABLE WORD
0019DE  7FE3 3FFE          3189         OWI   H3FFE,R7            INIT LAST ADDRESS
0019E2  74EA               3190         SW    R4,R7               BYTE COUNT
0019E4  0702               3191         ABI   TWO,R7              ADD TWO TO OBTAIN TRUE LENGTH
0019E6  288C               3192         FFN   R0,(R4)             SET THE REST OF STG TO STOP CODE
0019E8  6802 07F4          3193         B     RESTR               GO TO RESTART ROUTINE
0019EC  00                 3194         DC    X'00'               DUMMY BYTE
0019ED  D6F3F4F0F1         3195 ALT44   DC    C'03401'            NAME OF OVERLAY FOR PARITY PRINT
0019F2  0000               3196         DC    A(*-*)              *
0019F4                     3197 ALT45   EQU   *                   ADDRESS OF END OF ECP
001848                     3198         END   INIT                ADDR OF INITIALIZATION RTN
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CROSS-REFERENCE LISTING


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DECLARED  NAME     ATTRIBUTES AND REFERENCES
    0     .R0.       ABSOLUTE.  HEX VALUE(00000000)
                      912   916   935   951  1004  1012  1024  1116  1284
                     1292  1293  1307  1315  1329  1359  1429  1473  1505
                     1527  1530  1533  1536  1539  1541  1557  1558  1580
                     1703  1704  1705  1707  1718  1721  1729  1730  1790
                     1796  1803  1947  1948  1949  1950  1950  1959  1960
                     2009  2010  2011  2012  2012  2033  2036  2099  2101
                     2101  2103  2103  2121  2136  2141  2144  2152  2156
                     2176  2179  2183  2240  2246  2266  2282  2283  2286
                     2291  2320  2326  2487  2491  2516  2519  2523  2524
                     2539  2540  2547  2548  2556  2558  2558  2563  2563
                     2570  2570  2595  2678  2709  2721  2722  2723  3046
                     3047  3049  3053  3061  3062  3063  3073  3074  3086
                     3089  3091  3098  3099  3112  3115  3116  3117  3118
                     3157  3163  3165  3166  3171  3186  3192
    0     .R1.       ABSOLUTE.  HEX VALUE(00000001)
                      894   895   896   913   915   934   935   939   947
                      950   952   953   955   994   996   997  1002  1007
                     1013  1023  1026  1044  1046  1054  1055  1058  1075
                     1076  1077  1101  1110  1113  1117  1118  1119  1136
                     1157  1158  1274  1324  1476  1499  1502  1503  1504
                     1505  1626  1632  1633  1647  1648  1673  1675  1703
                     1712  1713  1714  1718  1719  1723  1725  1730  1736
                     1743  1745  1753  1760  1763  1789  1824  1845  1848
                     1946  1947  1949  1952  1962  2008  2009  2011  2020
                     2026  2039  2055  2064  2067  2069  2087  2088  2113
                     2117  2124  2136  2141  2159  2163  2176  2187  2192
                     2197  2214  2216  2217  2218  2218  2218  2242  2245
                     2265  2266  2283  2285  2295  2297  2298  2319  2321
                     2323  2325  2329  2337  2338  2340  2403  2404  2528
                     2543  2564  2568  2582  2585  2586  2590  2663  2669
                     2670  2671  2690  2726  3051  3053  3054  3065  3068
                     3069  3085  3086  3094  3107  3109  3114  3124  3171
                     3172  3173  3174
    0     .R2.       ABSOLUTE.  HEX VALUE(00000002)
                      895   896   915   917   919   948   955   957   959
                      961   977   994   995   998  1000  1005  1025  1076
                     1077  1118  1159  1288  1289  1293  1294  1297  1300
                     1301  1303  1305  1331  1425  1443  1444  1445  1446
                     1455  1502  1520  1521  1571  1572  1669  1719  1720
                     1785  1788  1792  1795  1799  1801  1822  1823  1827
                     1830  1834  1837  1839  1840  1841  1953  1953  1955
                     1957  1959  2017  2022  2025  2054  2057  2062  2063
                     2064  2068  2074  2094  2095  2097  2103  2171  2172
                     2173  2251  2256  2284  2284  2284  2284  2288  2291
                     2293  2316  2318  2319  2323  2330  2332  2334  2360
                     2362  2382  2479  2485  2488  2502  2519  2565  2567
                     2567  2672  2699  2701  2703  2705  2706  2708  2709
                     2715  2717  2719  2763  2765  2766  2769  2770  2771
                     2776  2779  2783  2787  2791  2793  3088  3091  3093
                     3094  3103  3105  3110  3112  3113
    0     .R3.       ABSOLUTE.  HEX VALUE(00000003)
                      880   920   933   934   969  1055  1056  1057  1068
                     1070  1072  1117  1277  1286  1297  1307  1308  1316
                     1427  1450  1453  1454  1481  1482  1484  1484  1484
                     1484  1485  1486  1487  1489  1522  1523  1524  1527
                     1528  1529  1531  1534  1537  1552  1553  1568  1576
                     1670  1701  1702  1705  1708  1709  1710  1710  1713
                     1714  1715  1726  1727  1734  1739  1748  1756  1784
                     1785  1789  1792  1807  1821  1822  1824  1827  1836
                     1875  1878  1910  1911  1912  1952  1954  1956  1958
                     1960  2016  2020  2070  2071  2074  2095  2096  2097
                     2104  2111  2111  2190  2191  2195  2196  2200  2206
                     2207  2207  2207  2207  2208  2209  2211  2212  2213
                     2218  2248  2249  2249  2250  2250  2253  2257  2278
                     2280  2296  2297  2298  2336  2435  2436  2438  2439
                     2501  2553  2561  2577  2577  2631  2673  2678  2681
                     2687  2687  2688  2769  2771  2785  2792  3050  3055
                     3066  3070
    0     .R4.       ABSOLUTE.  HEX VALUE(00000004)
                      964  1014  1015  1045  1046  1048  1049  1053  1054
                     1057  1056  1060  1062  1063  1276  1318  1319  1428
                     1431  1434  1438  1439  1442  1443  1444  1445  1446
                     1447  1448  1451  1454  1455  1487  1488  1503  1544
                     1546  1564  1573  1578  1723  1725  1727  1786  1804
                     1805  1825  1831  1836  1836  1845  1846  1847  1847
                     1848  1911  1916  2014  2025  2029  2031  2033  2036
                     2113  2114  2117  2137  2138  2142  2154  2155  2177
                     2185  2433  2435  2435  2435  2450  2488  2491  2539
                     2541  2543  2567  2571  2571  2581  2586  2587  2590
                     2696  2696  2711  2723  2726  2750  2751  2778  2779
                     2784  2786  2790  3071  3072  3187  3190  3192
    0     .R5.       ABSOLUTE.  HEX VALUE(00000005)
                      926  1016  1280  1280  1284  1295  1299  1321  1323
                     1323  1326  1333  1343  1357  1361  1436  1440  1708
                     1745  1750  1751  1752  1753  1759  1760  1763  1764
                     1946  1962  2008  2039  2069  2072  2075  2101  2106
                     2109  2109  2115  2119  2119  2140  2157  2163  2166
                     2169  2187  2250  2258  2260  2262  2431  2451  2489
                     2493  2530  2530  2540  2541  2551  2551  2563  2578
                     2588  2593  2593  2599  2698  2711  2712  3107  3124
                     3181  3181  3183
    0     .R6.       ABSOLUTE.  HEX VALUE(00000006)
                      891   892   938   979   980   984   986  1155  1292
                     1363  1368  1372  1381  1404  1426  1448  1504  1742
                     1743  1764  1948  1961  2010  2032  2037  2139  2145
                     2153  2162  2170  2173  2174  2174  2180  2184  2186
                     2428  2429  2570  2575  2577  2612  2613  2626  2627
                     2628  2629  2672  2688  2705  2710  2715  2720  2727
    0     .R7.       ABSOLUTE.  HEX VALUE(00000007)
                      888   889   910   911   923   927   928   936   942
                      943   966   967   971   973   982   993  1018  1019
                     1105  1106  1108  1111  1114  1120  1150  1152  1274
                     1279  1282  1311  1317  1367  1379  1384  1456  1479
                     1481  1490  1491  1493  1495  1496  1506  1508  1554
                     1574  1575  1581  1610  1611  1626  1628  1633  1663
                     1664  1665  1668  1672  1678  1680  1681  1682  1701
                     1709  1712  1843  1844  1847  1875  1876  1910  1941
                     1944  1957  1958  2018  2023  2054  2056  2059  2061
                     2089  2090  2108  2118  2133  2134  2147  2150  2158
                     2165  2181  2193  2198  2202  2203  2215  2245  2253
                     2264  2267  2270  2288  2293  2295  2405  2406  2441
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		2445 2446 2453 2478 2483 2495 2499 2517 2521 2527 2529 2533 2534 2535 2544 2545 2550 2553 2554 2559 2573 2591 2592 2598 2601 2602 2604 2609 2618 2623 2633 2665 2681 2683 2685 2713 2744 2745 2747 2748 2768 2772 2777 2781 2788 2794 3079 3080 3081 3105 3122 3130 3143 3146 3150 3152 3153 3154 3160 3161 3162 3175 3179 3184 3185 3188 3189 3190 3191
2146	$HANG	ADDRESS. HEX LOCATION(00000FEA) IN CSECT(S3400) LENGTH(1) 2148
707	$NOHD	ADDRESS. HEX LOCATION(0000056C) IN CSECT(S3400) LENGTH(2) 2149 2161 2168 2199 2447 2449
708	$OUT	ADDRESS. HEX LOCATION(0000056E) IN CSECT(S3400) LENGTH(2) 2158 2159 2165 2166 2197 2198 2214 2215 2444 2446
2132	$PRNT	ADDRESS. HEX LOCATION(00000FBE) IN CSECT(S3400) LENGTH(1) 415
2220	$PRT	ADDRESS. HEX LOCATION(000010E8) IN CSECT(S3400) LENGTH(1) 2204 2210
2189	$PRTE	ADDRESS. HEX LOCATION(00001070) IN CSECT(S3400) LENGTH(1) 2175
2164	$PRT1	ADDRESS. HEX LOCATION(00001026) IN CSECT(S3400) LENGTH(1) 2170 2188
2222	$PRT2	ADDRESS. HEX LOCATION(000010EE) IN CSECT(S3400) LENGTH(4) 2133
2134	$PRT3	ADDRESS. HEX LOCATION(00000FC2) IN CSECT(S3400) LENGTH(4) 2135
2832	ACENT	ADDRESS. HEX LOCATION(000014F2) IN CSECT(S3400) LENGTH(2) 1492
2906	ACFCS	ADDRESS. HEX LOCATION(00001794) IN CSECT(S3400) LENGTH(1) 912 913
2992	ACIDN	ABSOLUTE. HEX VALUE(00000005) 3109
2834	ACINT	ADDRESS. HEX LOCATION(000014F4) IN CSECT(S3400) LENGTH(2) 3118 3121 3133 3145 3151
2831	ACMSG	ADDRESS. HEX LOCATION(000014F0) IN CSECT(S3400) LENGTH(2) 929
228	ACNG	ABSOLUTE. HEX VALUE(00003401) 2964
2967	ACNGM	ADDRESS. HEX LOCATION(000017FE) IN CSECT(S3400) LENGTH(2) 3175
2965	ACNG1	ADDRESS. HEX LOCATION(000017FC) IN CSECT(S3400) LENGTH(2) 2967
3012	ACOVL	ADDRESS. HEX LOCATION(0000180C) IN CSECT(S3400) LENGTH(1) 3088
2851	ACPRE	ADDRESS. HEX LOCATION(00001506) IN CSECT(S3400) LENGTH(2) 2855 3119 3120
2847	ACRES	ADDRESS. HEX LOCATION(000014FE) IN CSECT(S3400) LENGTH(2) 3169 3170
3001	ACRID	ADDRESS. HEX LOCATION(00001804) IN CSECT(S3400) LENGTH(2) 3002 3100 3101
3002	ACRI1	ADDRESS. HEX LOCATION(00001805) IN CSECT(S3400) LENGTH(1) 3099
3003	ACRI2	ADDRESS. HEX LOCATION(00001806) IN CSECT(S3400) LENGTH(2) 3103
3040	ACSAV	ADDRESS. HEX LOCATION(00001846) IN CSECT(S3400) LENGTH(2) 3121 3151
2811	ACST	ADDRESS. HEX LOCATION(000014F0) IN CSECT(S3400) LENGTH(1) 2812
2893	ACVTR	ADDRESS. HEX LOCATION(0000178E) IN CSECT(S3400) LENGTH(2) 968 990 991 3117
724	ADDHE	ADDRESS. HEX LOCATION(0000058E) IN CSECT(S3400) LENGTH(2) 2618
128	ADDTABPT	ABSOLUTE. HEX VALUE(00002100) 2433
103	ADDTR	ABSOLUTE. HEX VALUE(00000001) 2059 2534 2559 2573 2613 2628
2993	ADEVT	ABSOLUTE. HEX VALUE(00000030) 3062 3116 3173
840	ALCON	ADDRESS. HEX LOCATION(0000077C) IN CSECT(S3400) LENGTH(2) 982
234	ALTCN	ABSOLUTE. HEX VALUE(00003407) 836
108	ALTDV	ABSOLUTE. HEX VALUE(00000007) 928 967 980 984 1491 3153 3162
837	ALTPC	ADDRESS. HEX LOCATION(0000076E) IN CSECT(S3400) LENGTH(12) 840
747	ALTSG	ADDRESS. HEX LOCATION(000005A8) IN CSECT(S3400) LENGTH(1) 964 985
704	ALTSM	ADDRESS. HEX LOCATION(00000564) IN CSECT(S3400) LENGTH(1) 969 988
3084	ALT00	ADDRESS. HEX LOCATION(000018B8) IN CSECT(S3400) LENGTH(1) 3082
3090	ALT10	ADDRESS. HEX LOCATION(000018CC) IN CSECT(S3400) LENGTH(1) 3095
3097	ALT11	ADDRESS. HEX LOCATION(000018D8) IN CSECT(S3400) LENGTH(1) 3092
3111	ALT20	ADDRESS. HEX LOCATION(00001904) IN CSECT(S3400) LENGTH(1) 3114
3129	ALT21	ADDRESS. HEX LOCATION(0000193C) IN CSECT(S3400) LENGTH(1) 3125
3132	ALT22	ADDRESS. HEX LOCATION(00001942) IN CSECT(S3400) LENGTH(1) 3128
3141	ALT23	ADDRESS. HEX LOCATION(00001958) IN CSECT(S3400) LENGTH(1) 3133
3148	ALT24	ADDRESS. HEX LOCATION(0000196C) IN CSECT(S3400) LENGTH(1) 3150
3156	ALT30	ADDRESS. HEX LOCATION(00001980) IN CSECT(S3400) LENGTH(1) 3087
3158	ALT31	ADDRESS. HEX LOCATION(00001984) IN CSECT(S3400) LENGTH(1) 3096 3102 3104 3108 3127 3131 3140 3142 3145
3177	ALT40	ADDRESS. HEX LOCATION(000019BE) IN CSECT(S3400) LENGTH(1) 3155 3164
3186	ALT43	ADDRESS. HEX LOCATION(000019D4) IN CSECT(S3400) LENGTH(2) 3182
3195	ALT44	ADDRESS. HEX LOCATION(000019ED) IN CSECT(S3400) LENGTH(5) 3179
3197	ALT45	ADDRESS. HEX LOCATION(000019F4) IN CSECT(S3400) LENGTH(1) 3187
761	ASCDT	ADDRESS. HEX LOCATION(0000065A) IN CSECT(S3400) LENGTH(2) 759

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
765	ASC11	ADDRESS. HEX LOCATION(0000066E) IN CSECT(S3400) LENGTH(36) 1944 1991 1999 2002
2001	ATE	ADDRESS. HEX LOCATION(00000EBE) IN CSECT(S3400) LENGTH(1) 494
1990	ATH	ADDRESS. HEX LOCATION(00000E96) IN CSECT(S3400) LENGTH(1) 491
2991	A3000	ABSOLUTE. HEX VALUE(00003000) 3183
192	BOE	ABSOLUTE. HEX VALUE(00000006) 2539
237	BPCD5	ABSOLUTE. HEX VALUE(0000340A) 824
825	BPG5	ADDRESS. HEX LOCATION(0000075C) IN CSECT(S3400) LENGTH(2) 828
2482	BPPA	ADDRESS. HEX LOCATION(00001250) IN CSECT(S3400) LENGTH(1) 2480
2476	BPPGM	ADDRESS. HEX LOCATION(0000123A) IN CSECT(S3400) LENGTH(1) 449 921 2407
2490	BPPG1	ADDRESS. HEX LOCATION(00001262) IN CSECT(S3400) LENGTH(1) 2493
2494	BPP1	ADDRESS. HEX LOCATION(00001268) IN CSECT(S3400) LENGTH(1) 2486 2636
2497	BPP2	ADDRESS. HEX LOCATION(0000126E) IN CSECT(S3400) LENGTH(1) 1674 1676
2502	BPP3	ADDRESS. HEX LOCATION(00001278) IN CSECT(S3400) LENGTH(4) 2484
2668	B01	ADDRESS. HEX LOCATION(000013C0) IN CSECT(S3400) LENGTH(1) 2664
2680	B10	ADDRESS. HEX LOCATION(000013D6) IN CSECT(S3400) LENGTH(1) 2728
2686	B12	ADDRESS. HEX LOCATION(000013DE) IN CSECT(S3400) LENGTH(1) 2684
2695	B40	ADDRESS. HEX LOCATION(000013EA) IN CSECT(S3400) LENGTH(1) 2679
2697	B41	ADDRESS. HEX LOCATION(000013EC) IN CSECT(S3400) LENGTH(1) 2702 2724
2704	B42	ADDRESS. HEX LOCATION(000013FE) IN CSECT(S3400) LENGTH(1) 2700
2716	B43	ADDRESS. HEX LOCATION(0000141C) IN CSECT(S3400) LENGTH(1) 2718
2725	B44	ADDRESS. HEX LOCATION(0000142E) IN CSECT(S3400) LENGTH(1) 2707
548	CALIB	ADDRESS. HEX LOCATION(000003C4) IN CSECT(S3400) LENGTH(2) 1404
702	CFGN1	ADDRESS. HEX LOCATION(0000055D) IN CSECT(S3400) LENGTH(6) 941 3078
214	CHDLG	ABSOLUTE. HEX VALUE(00000004) 1025
1625	CHNG	ADDRESS. HEX LOCATION(00000CC0) IN CSECT(S3400) LENGTH(1) 468
64	CHNGE	ABSOLUTE. HEX VALUE(00000004) 1507 1509 1582 2500 3144
1634	CHNG1	ADDRESS. HEX LOCATION(00000CCE) IN CSECT(S3400) LENGTH(1) 1511 1650
269	CICBT	ABSOLUTE. HEX VALUE(00000014) 1801 1837 2280
1820	CICB1	ADDRESS. HEX LOCATION(00000DEE) IN CSECT(S3400) LENGTH(1) 484
1826	CICB2	ADDRESS. HEX LOCATION(00000DFC) IN CSECT(S3400) LENGTH(1) 1832
1829	CICB3	ADDRESS. HEX LOCATION(00000E02) IN CSECT(S3400) LENGTH(1) 1835
1833	CICB4	ADDRESS. HEX LOCATION(00000E0C) IN CSECT(S3400) LENGTH(1) 1828
1842	CICB6	ADDRESS. HEX LOCATION(00000E22) IN CSECT(S3400) LENGTH(1) 1838
2908	CICNT	ADDRESS. HEX LOCATION(00001796) IN CSECT(S3400) LENGTH(1) 1786 1805 1839 1841
2845	CIDCB	ADDRESS. HEX LOCATION(000014FA) IN CSECT(S3400) LENGTH(2) 3134 3135
275	CKDAD	ABSOLUTE. HEX VALUE(00000002) 939
2986	CKPT	ADDRESS. HEX LOCATION(0000180C) IN CSECT(S3400) LENGTH(1) 671 1119 1668 2929
670	CKPTC	ADDRESS. HEX LOCATION(0000052E) IN CSECT(S3400) LENGTH(2) 1108
449	CMDB	ADDRESS. HEX LOCATION(00000322) IN CSECT(S3400) LENGTH(2) 410
437	CMDTB	ADDRESS. HEX LOCATION(0000030C) IN CSECT(S3400) LENGTH(1) 2340
445	CMD7	ADDRESS. HEX LOCATION(0000031A) IN CSECT(S3400) LENGTH(2) 408
447	CMD9	ADDRESS. HEX LOCATION(0000031E) IN CSECT(S3400) LENGTH(2) 409
652	CMND	ADDRESS. HEX LOCATION(0000051A) IN CSECT(S3400) LENGTH(1) 1529 2329 2337 2635
653	CNCT	ADDRESS. HEX LOCATION(0000051B) IN CSECT(S3400) LENGTH(1) 1541 1557
654	CNDAT	ADDRESS. HEX LOCATION(0000051C) IN CSECT(S3400) LENGTH(2) 657 1523 1553 1576
749	CNFRT	ADDRESS. HEX LOCATION(000005AA) IN CSECT(S3400) LENGTH(2) 944 1020 2091 2555 3082
112	CNRUN	ABSOLUTE. HEX VALUE(0000000E) 943 1019 1305 2090 2545 2554 2602 3080
627	CNTAD	ADDRESS. HEX LOCATION(00000414) IN CSECT(S3400) LENGTH(1) 2437
2918	CNTBK	ADDRESS. HEX LOCATION(000017A6) IN CSECT(S3400) LENGTH(1) 912
628	CNTMG	ADDRESS. HEX LOCATION(00000416) IN CSECT(S3400) LENGTH(1) 2440 2443
626	CNTNM	ADDRESS. HEX LOCATION(00000410) IN CSECT(S3400) LENGTH(1) 627 628 629 2436 2444
629	CNTZR	ADDRESS. HEX LOCATION(00000426) IN CSECT(S3400) LENGTH(1) 2445
2434	CNT1	ADDRESS. HEX LOCATION(000011EC) IN CSECT(S3400) LENGTH(1) 2451
2452	CNT2	ADDRESS. HEX LOCATION(00001232) IN CSECT(S3400) LENGTH(1) 2430 2432
656	CNVTX	ADDRESS. HEX LOCATION(0000051E) IN CSECT(S3400) LENGTH(2) 1554
658	CNVTZ	ADDRESS. HEX LOCATION(00000522) IN CSECT(S3400) LENGTH(2)

DECLARED NAME ATTRIBUTES AND REFERENCES

1556 1561 1572
1540 CN10 ADDRESS. HEX LOCATION(00000C42) IN CSECT(S3400) LENGTH(1)
1532 1535 1538 1559
1543 CN11 ADDRESS. HEX LOCATION(00000C48) IN CSECT(S3400) LENGTH(1)
1577
1545 CN12 ADDRESS. HEX LOCATION(00000C4C) IN CSECT(S3400) LENGTH(1)
1565
1550 CN20 ADDRESS. HEX LOCATION(00000C52) IN CSECT(S3400) LENGTH(1)
1525
1560 CN30 ADDRESS. HEX LOCATION(00000C6E) IN CSECT(S3400) LENGTH(1)
1542
1566 CN40 ADDRESS. HEX LOCATION(00000C80) IN CSECT(S3400) LENGTH(1)
1562
638 COMD ADDRESS. HEX LOCATION(0000050E) IN CSECT(S3400) LENGTH(1)
1714
110 CONDV ABSOLUTE. HEX VALUE(00000009)
889 911 1575
1518 CONEP ADDRESS. HEX LOCATION(00000C06) IN CSECT(S3400) LENGTH(1)
359 908 1569
425 CONLB ADDRESS. HEX LOCATION(00000296) IN CSECT(S3400) LENGTH(2)
358 892 894 909 1570
426 CONLV ADDRESS. HEX LOCATION(000002AC) IN CSECT(S3400) LENGTH(2)
1521
358 CONPT ADDRESS. HEX LOCATION(0000001C) IN CSECT(S3400) LENGTH(2)
909 1526 1570
359 CONSI ADDRESS. HEX LOCATION(0000001E) IN CSECT(S3400) LENGTH(2)
908 1525 1562 1569
1471 CONSO ADDRESS. HEX LOCATION(00000B9A) IN CSECT(S3400) LENGTH(1)
464 465 1474 2891
1498 CONS1 ADDRESS. HEX LOCATION(00000BE2) IN CSECT(S3400) LENGTH(1)
1494
1501 CONS2 ADDRESS. HEX LOCATION(00000BEA) IN CSECT(S3400) LENGTH(1)
1497
2427 COUNT ADDRESS. HEX LOCATION(000011D8) IN CSECT(S3400) LENGTH(1)
446
373 CPUMD ADDRESS. HEX LOCATION(00000232) IN CSECT(S3400) LENGTH(2)
374
291 CUDD6 ABSOLUTE. HEX VALUE(00000008)
3086
123 DBLBLNK ABSOLUTE. HEX VALUE(00004040)
2196 2437 2443
624 DBUF ADDRESS. HEX LOCATION(0000040E) IN CSECT(S3400) LENGTH(2)
397 577 594 626 630 631 632 633 634
635 948 1025 1359 2556 2565 2595 3085
699 DCHAR ADDRESS. HEX LOCATION(0000055A) IN CSECT(S3400) LENGTH(1)
1308 1329
211 DCPCY ABSOLUTE. HEX VALUE(0000000A)
533
831 DCPWM ADDRESS. HEX LOCATION(00000764) IN CSECT(S3400) LENGTH(4)
834
1609 DELAY ADDRESS. HEX LOCATION(00000CB8) IN CSECT(S3400) LENGTH(1)
466 497 2428
715 DETH1 ADDRESS. HEX LOCATION(0000057C) IN CSECT(S3400) LENGTH(2)
2765
714 DETOH ADDRESS. HEX LOCATION(0000057A) IN CSECT(S3400) LENGTH(2)
2772
2995 DEVMK ABSOLUTE. HEX VALUE(000000FF)
3047
711 DHTOE ADDRESS. HEX LOCATION(00000574) IN CSECT(S3400) LENGTH(2)
2781
521 DIPR ADDRESS. HEX LOCATION(00000387) IN CSECT(S3400) LENGTH(1)
1807 3166
520 DIPRE ADDRESS. HEX LOCATION(00000386) IN CSECT(S3400) LENGTH(2)
521 1808 3167 3168
517 DIRST ADDRESS. HEX LOCATION(00000382) IN CSECT(S3400) LENGTH(2)
518
374 DKAD ADDRESS. HEX LOCATION(00000233) IN CSECT(S3400) LENGTH(1)
1876 1912 3046
542 DKHL ADDRESS. HEX LOCATION(000003BA) IN CSECT(S3400) LENGTH(2)
738 739
403 DKINT ADDRESS. HEX LOCATION(00000246) IN CSECT(S3400) LENGTH(2)
1388 1405 1409 1879 1914 3063 3064
534 DKLL ADDRESS. HEX LOCATION(00000398) IN CSECT(S3400) LENGTH(2)
740
546 DKRST ADDRESS. HEX LOCATION(000003C0) IN CSECT(S3400) LENGTH(2)
1376
532 DKRTY ADDRESS. HEX LOCATION(00000394) IN CSECT(S3400) LENGTH(2)
1360 1370
540 DKR4 ADDRESS. HEX LOCATION(000003B6) IN CSECT(S3400) LENGTH(2)
1428
541 DKR5 ADDRESS. HEX LOCATION(000003B8) IN CSECT(S3400) LENGTH(2)
1387 1399
738 DKSV ADDRESS. HEX LOCATION(000005A2) IN CSECT(S3400) LENGTH(2)
1362 1363 1401
739 DKSV2 ADDRESS. HEX LOCATION(000005A4) IN CSECT(S3400) LENGTH(2)
1362
1400 DK04 ADDRESS. HEX LOCATION(00000B20) IN CSECT(S3400) LENGTH(1)
1389
1402 DK10 ADDRESS. HEX LOCATION(00000B24) IN CSECT(S3400) LENGTH(1)
1398
1407 DK12 ADDRESS. HEX LOCATION(00000B34) IN CSECT(S3400) LENGTH(1)
1405
430 DMONE ADDRESS. HEX LOCATION(00000308) IN CSECT(S3400) LENGTH(2)
432 433 1045
634 DMPBL ADDRESS. HEX LOCATION(00000418) IN CSECT(S3400) LENGTH(1)
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632 DMPC ADDRESS. HEX LOCATION(00000412) IN CSECT(S3400) LENGTH(1)
2780
246 DMPCD ABSOLUTE. HEX VALUE(0000341D)
2780
635 DMPDT ADDRESS. HEX LOCATION(0000041C) IN CSECT(S3400) LENGTH(1)
2783
631 DMPE ADDRESS. HEX LOCATION(00000410) IN CSECT(S3400) LENGTH(1)
2775 2796
633 DMPES ADDRESS. HEX LOCATION(00000414) IN CSECT(S3400) LENGTH(1)
710 713
630 DMPS ADDRESS. HEX LOCATION(0000040E) IN CSECT(S3400) LENGTH(2)
712 716 2774 2784 2796 2798
735 DRSV ADDRESS. HEX LOCATION(0000059C) IN CSECT(S3400) LENGTH(2)
937 938 1010
736 DRSVA ADDRESS. HEX LOCATION(0000059E) IN CSECT(S3400) LENGTH(2)

DECLARED NAME ATTRIBUTES AND REFERENCES

937
514 DRSVH ADDRESS. HEX LOCATION(00000380) IN CSECT(S3400) LENGTH(2)
735 736
506 DRSVL ADDRESS. HEX LOCATION(00000370) IN CSECT(S3400) LENGTH(2)
737
509 DRSV1 ADDRESS. HEX LOCATION(00000376) IN CSECT(S3400) LENGTH(2)
950
2994 DSKID ABSOLUTE. HEX VALUE(00000106)
3059
1397 DSKIT ADDRESS. HEX LOCATION(00000B16) IN CSECT(S3400) LENGTH(1)
403 1388 1409 1914 3064
550 DSKPR ADDRESS. HEX LOCATION(000003C8) IN CSECT(S3400) LENGTH(2)
1364 1377
1342 DSKRD ADDRESS. HEX LOCATION(00000AAA) IN CSECT(S3400) LENGTH(1)
395 1279 2118 2550 2591
1356 DSKWR ADDRESS. HEX LOCATION(00000AB0) IN CSECT(S3400) LENGTH(1)
396 2108
1358 DSK10 ADDRESS. HEX LOCATION(00000AB4) IN CSECT(S3400) LENGTH(1)
1344
1366 DSK20 ADDRESS. HEX LOCATION(00000AD6) IN CSECT(S3400) LENGTH(1)
1411
2996 DSOVA ABSOLUTE. HEX VALUE(00001E00)
3130
196 DSTYP ABSOLUTE. HEX VALUE(0000000C)
1308
3038 DS2OV ADDRESS. HEX LOCATION(0000183F) IN CSECT(S3400) LENGTH(5)
3122
3022 DS2TP ADDRESS. HEX LOCATION(00001820) IN CSECT(S3400) LENGTH(1)
3126
1596 DUMMY ADDRESS. HEX LOCATION(00000CB4) IN CSECT(S3400) LENGTH(1)
467 469 488 1500 1612 1627 1630 1732
2765 DUMPB ADDRESS. HEX LOCATION(00001454) IN CSECT(S3400) LENGTH(4)
1161
2772 DUMPC ADDRESS. HEX LOCATION(0000146A) IN CSECT(S3400) LENGTH(4)
2767
2764 DUMPS ADDRESS. HEX LOCATION(0000144E) IN CSECT(S3400) LENGTH(6)
451
2801 DUMPX ADDRESS. HEX LOCATION(000014D8) IN CSECT(S3400) LENGTH(4)
407 1160
2800 DUMPY ADDRESS. HEX LOCATION(000014D4) IN CSECT(S3400) LENGTH(4)
1160 2764 2797
2781 DUMP1 ADDRESS. HEX LOCATION(00001490) IN CSECT(S3400) LENGTH(4)
2799
2786 DUMP2 ADDRESS. HEX LOCATION(000014A2) IN CSECT(S3400) LENGTH(4)
2792
750 DVTAB ADDRESS. HEX LOCATION(000005AC) IN CSECT(S3400) LENGTH(2)
413 1790 1825 2251
121 EBBK ABSOLUTE. HEX VALUE(00000040)
2776
770 EBCBK ADDRESS. HEX LOCATION(000006E1) IN CSECT(S3400) LENGTH(1)
1286 2316 2332 2524 2701 2717 2766
768 EBCDI ADDRESS. HEX LOCATION(000006A8) IN CSECT(S3400) LENGTH(36)
771 772 1941 1988 1998 2003 2323
700 ECHAR ADDRESS. HEX LOCATION(0000055B) IN CSECT(S3400) LENGTH(1)
2057
2810 ECPND ADDRESS. HEX LOCATION(000014DC) IN CSECT(S3400) LENGTH(1)
2812
139 EIGHT ABSOLUTE. HEX VALUE(00000008)
1450 1453 1537 1705 1954 2142 2155 2176 2177
2196 2443 2785 2984 3098 3103 3165
142 ELEVN ABSOLUTE. HEX VALUE(0000000B)
1844 2861
243 ENTCD ABSOLUTE. HEX VALUE(00003414)
1544
194 EOE ABSOLUTE. HEX VALUE(00000008)
1292 2540
807 ERMS1 ADDRESS. HEX LOCATION(00000730) IN CSECT(S3400) LENGTH(8)
810
808 ERMS2 ADDRESS. HEX LOCATION(00000738) IN CSECT(S3400) LENGTH(2)
2168
2747 ERROF ADDRESS. HEX LOCATION(0000143E) IN CSECT(S3400) LENGTH(4)
441
2744 ERRON ADDRESS. HEX LOCATION(00001436) IN CSECT(S3400) LENGTH(4)
440
2749 ERRO1 ADDRESS. HEX LOCATION(00001444) IN CSECT(S3400) LENGTH(1)
2454 2746 2764 2800
1997 ETA ADDRESS. HEX LOCATION(00000EB0) IN CSECT(S3400) LENGTH(1)
493
2004 ETA1 ADDRESS. HEX LOCATION(00000ECA) IN CSECT(S3400) LENGTH(1)
2000
2007 ETA2 ADDRESS. HEX LOCATION(00000ED6) IN CSECT(S3400) LENGTH(1)
1996
2013 ETA3 ADDRESS. HEX LOCATION(00000EE0) IN CSECT(S3400) LENGTH(1)
2037
2015 ETA4 ADDRESS. HEX LOCATION(00000EE4) IN CSECT(S3400) LENGTH(1)
2032
2019 ETA5 ADDRESS. HEX LOCATION(00000EF0) IN CSECT(S3400) LENGTH(1)
2023
2024 ETA6 ADDRESS. HEX LOCATION(00000EFA) IN CSECT(S3400) LENGTH(1)
2021
2035 ETA7 ADDRESS. HEX LOCATION(00000F16) IN CSECT(S3400) LENGTH(1)
2028 2030
2038 ETA8 ADDRESS. HEX LOCATION(00000F1A) IN CSECT(S3400) LENGTH(1)
2034
2040 ETA9 ADDRESS. HEX LOCATION(00000F1C) IN CSECT(S3400) LENGTH(1)
2076 2125
1987 ETH ADDRESS. HEX LOCATION(00000E8E) IN CSECT(S3400) LENGTH(1)
489
1992 ETH1 ADDRESS. HEX LOCATION(00000E9C) IN CSECT(S3400) LENGTH(1)
1989
85 ETOH ABSOLUTE. HEX VALUE(00000019)
2714 2773
208 EVTOC ABSOLUTE. HEX VALUE(00000168)
1319
1646 EXITA ADDRESS. HEX LOCATION(00000CD2) IN CSECT(S3400) LENGTH(1)
470
266 EXPN1 ABSOLUTE. HEX VALUE(00000011)
1002 1026
2909 EXTP1 ADDRESS. HEX LOCATION(00001797) IN CSECT(S3400) LENGTH(1)
1680
727 FAKDP ADDRESS. HEX LOCATION(00000594) IN CSECT(S3400) LENGTH(8)

CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                   1159
     161  FIFT7     ABSOLUTE. HEX VALUE(00000039)
                   2005
     136  FIVE      ABSOLUTE. HEX VALUE(00000005)
                    865  2068  2152  2183  2517  2769
    1273  FNDDS     ADDRESS. HEX LOCATION(00000A2A) IN CSECT(S3400   ) LENGTH(1)
                    394  2529
    2955  FNDPG     ADDRESS. HEX LOCATION(000017EE) IN CSECT(S3400   ) LENGTH(2)
                    398   941  1277  1316  2062  2088  2525  3078
    1278  FN10      ADDRESS. HEX LOCATION(00000A34) IN CSECT(S3400   ) LENGTH(1)
                   1320
    1283  FN20      ADDRESS. HEX LOCATION(00000A3E) IN CSECT(S3400   ) LENGTH(1)
                   1317
    1296  FN25      ADDRESS. HEX LOCATION(00000A58) IN CSECT(S3400   ) LENGTH(1)
                   1299
    1310  FN26      ADDRESS. HEX LOCATION(00000A78) IN CSECT(S3400   ) LENGTH(1)
                    442   443   445   447   448   450   452  2327
    1314  FN30      ADDRESS. HEX LOCATION(00000A82) IN CSECT(S3400   ) LENGTH(1)
                   1298  1330
    1322  FN40      ADDRESS. HEX LOCATION(00000A94) IN CSECT(S3400   ) LENGTH(1)
                   1281  1327  1334
    1325  FN50      ADDRESS. HEX LOCATION(00000A9A) IN CSECT(S3400   ) LENGTH(1)
                   1285
    1328  FN60      ADDRESS. HEX LOCATION(00000A9E) IN CSECT(S3400   ) LENGTH(1)
                   1287  1290
    1332  FN70      ADDRESS. HEX LOCATION(00000AA6) IN CSECT(S3400   ) LENGTH(1)
                   1302  1304  1306  1309
     145  FORTN     ABSOLUTE. HEX VALUE(0000000E)
                   1531  2192
     135  FOUR      ABSOLUTE. HEX VALUE(00000004)
                    864  1295  1321  1403  1530  1556  1708  1950  1955
                   2012  2031  2063  2064  2141  2212  2489  2548  2681
                   2766  2768  2770  3050  3054  3113
     170  FOURK     ABSOLUTE. HEX VALUE(00001000)
                   1447  2213  3146
     158  FRTY2     ABSOLUTE. HEX VALUE(0000002A)
                   2169
     159  FRTY4     ABSOLUTE. HEX VALUE(0000002C)
                   2156
    2911  GRPT      ADDRESS. HEX LOCATION(0000179A) IN CSECT(S3400   ) LENGTH(2)
                   1482  1495  2912
     265  HDVTB     ABSOLUTE. HEX VALUE(00000008)
                    934  1785  1822  2249
     432  HEXFF     ADDRESS. HEX LOCATION(00000308) IN CSECT(S3400   ) LENGTH(2)
                    985   988  1478  2246  2269  2481
     763  HEXTA     ADDRESS. HEX LOCATION(0000065C) IN CSECT(S3400   ) LENGTH(17)
                   1993  2329
     788  HEX00     ADDRESS. HEX LOCATION(000006FA) IN CSECT(S3400   ) LENGTH(2)
                   1561  2199  2362  2449  2479  2485  2502  2699  3068
     173  HFF00     ABSOLUTE. HEX VALUE(0000FF00)
                   1524  1742  1759
      81  HIO       ABSOLUTE. HEX VALUE(00000015)
                   1734
     529  HLTIO     ADDRESS. HEX LOCATION(00000390) IN CSECT(S3400   ) LENGTH(2)
                   1154  1736
     263  HPSA      ABSOLUTE. HEX VALUE(00000006)
                   2501
    1943  HTA       ADDRESS. HEX LOCATION(00000E68) IN CSECT(S3400   ) LENGTH(1)
                    492
    1940  HTE       ADDRESS. HEX LOCATION(00000E62) IN CSECT(S3400   ) LENGTH(1)
                    490
    1945  HTE1      ADDRESS. HEX LOCATION(00000E6C) IN CSECT(S3400   ) LENGTH(1)
                   1942
    1951  HTE2      ADDRESS. HEX LOCATION(00000E76) IN CSECT(S3400   ) LENGTH(1)
                   1961
      86  HTOE      ABSOLUTE. HEX VALUE(0000001A)
                   1107  1109  1112  1115  1555  2151  2182  2194  2268
                   2442  2619  2782  2789
     174  H000F     ABSOLUTE. HEX VALUE(0000000F)
                   2774  2775
     172  H3FFE     ABSOLUTE. HEX VALUE(00003FFE)
                   3189
     678  IARCV     ADDRESS. HEX LOCATION(0000053A) IN CSECT(S3400   ) LENGTH(2)
                   1114
    2936  IDCB      ADDRESS. HEX LOCATION(000017BE) IN CSECT(S3400   ) LENGTH(2)
                   3056  3100  3119  3134  3167  3169
      62  IDLE      ABSOLUTE. HEX VALUE(00000002)
                   3149
     217  IHDLP     ABSOLUTE. HEX VALUE(0000000E)
                   3085
     810  INCMD     ADDRESS. HEX LOCATION(0000073A) IN CSECT(S3400   ) LENGTH(2)
                   1311
     377  INDIC     ADDRESS. HEX LOCATION(00000234) IN CSECT(S3400   ) LENGTH(2)
                    888   910   927   942   966   979  1018  1288  1300
                   1490  1574  1681  1995  2006  2027  2056  2089  2202
                   2405  2453  2478  2533  2544  2553  2592  2601  2612
                   2626  2744  2747  2887  3079  3152  3160  3184
    3004  INDSK     ADDRESS. HEX LOCATION(00001808) IN CSECT(S3400   ) LENGTH(2)
                   3005  3056  3057
    3005  INDS1     ADDRESS. HEX LOCATION(00001809) IN CSECT(S3400   ) LENGTH(1)
                   3049
    3006  INDS2     ADDRESS. HEX LOCATION(0000180A) IN CSECT(S3400   ) LENGTH(2)
                   3059
    3045  INIT      ADDRESS. HEX LOCATION(00001848) IN CSECT(S3400   ) LENGTH(1)
                    343  3048  3058  3060  3198
    2910  INPRC     ADDRESS. HEX LOCATION(00001798) IN CSECT(S3400   ) LENGTH(1)
                   1478  2663
    2950  INTAD     ADDRESS. HEX LOCATION(000017E8) IN CSECT(S3400   ) LENGTH(2)
                    968   990
     748  INTLD     ADDRESS. HEX LOCATION(000005A9) IN CSECT(S3400   ) LENGTH(1)
                    917  2481  2631
     233  INVCD     ABSOLUTE. HEX VALUE(00003406)
                    806
    3052  IN10      ADDRESS. HEX LOCATION(0000185C) IN CSECT(S3400   ) LENGTH(1)
                   3055
    3067  IN40      ADDRESS. HEX LOCATION(0000188C) IN CSECT(S3400   ) LENGTH(1)
                   3070
    2060  IRAD0     ADDRESS. HEX LOCATION(00000F30) IN CSECT(S3400   ) LENGTH(1)
                   2058
    2066  IRAD1     ADDRESS. HEX LOCATION(00000F44) IN CSECT(S3400   ) LENGTH(1)
                   2536  2630
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
    2073  IRAD2     ADDRESS. HEX LOCATION(00000F58) IN CSECT(S3400   ) LENGTH(1)
                   2075
     111  IRD       ABSOLUTE. HEX VALUE(0000000A)
                   1303  2061  2535  2629
    2053  IREAD     ADDRESS. HEX LOCATION(00000F1E) IN CSECT(S3400   ) LENGTH(1)
                    495
     463  ISVCP     ADDRESS. HEX LOCATION(0000032C) IN CSECT(S3400   ) LENGTH(1)
                   1063
    1369  IS10      ADDRESS. HEX LOCATION(00000ADE) IN CSECT(S3400   ) LENGTH(1)
                   1406
    1373  IS12      ADDRESS. HEX LOCATION(00000AEA) IN CSECT(S3400   ) LENGTH(1)
                   1382
    1380  IS22      ADDRESS. HEX LOCATION(00000AFC) IN CSECT(S3400   ) LENGTH(1)
                   1385
    1386  IS25      ADDRESS. HEX LOCATION(00000B08) IN CSECT(S3400   ) LENGTH(1)
                   1365  1371  1378  1408
    2086  IWRIT     ADDRESS. HEX LOCATION(00000F5E) IN CSECT(S3400   ) LENGTH(1)
                    496
    2093  IWR10     ADDRESS. HEX LOCATION(00000F78) IN CSECT(S3400   ) LENGTH(1)
                   2091
    2100  IWR17     ADDRESS. HEX LOCATION(00000F84) IN CSECT(S3400   ) LENGTH(1)
                   2122
    2102  IWR20     ADDRESS. HEX LOCATION(00000F86) IN CSECT(S3400   ) LENGTH(1)
                   2106
    2107  IWR30     ADDRESS. HEX LOCATION(00000F8E) IN CSECT(S3400   ) LENGTH(1)
                   2105
    2123  IWR40     ADDRESS. HEX LOCATION(00000FB8) IN CSECT(S3400   ) LENGTH(1)
                   2112  2116
     372  LASAD     ADDRESS. HEX LOCATION(00000230) IN CSECT(S3400   ) LENGTH(2)
                   3188
    2962  LDADD     ADDRESS. HEX LOCATION(000017F8) IN CSECT(S3400   ) LENGTH(2)
                    725  2063  2561  2575
     106  LODED     ABSOLUTE. HEX VALUE(00000004)
                   1682  2406  2483  2627  3081  3161  3185
     816  LPB       ADDRESS. HEX LOCATION(0000074E) IN CSECT(S3400   ) LENGTH(2)
                   2598
     822  LPC       ADDRESS. HEX LOCATION(00000758) IN CSECT(S3400   ) LENGTH(2)
                   2604
     238  LPCD4     ABSOLUTE. HEX VALUE(0000340B)
                    812
     239  LPCD5     ABSOLUTE. HEX VALUE(0000340C)
                    818
     240  LPCD6     ABSOLUTE. HEX VALUE(0000340D)
                    855
     867  LPD       ADDRESS. HEX LOCATION(000007BE) IN CSECT(S3400   ) LENGTH(2)
                   2623
     813  LPG4      ADDRESS. HEX LOCATION(0000073E) IN CSECT(S3400   ) LENGTH(14)
                    816
     819  LPG5      ADDRESS. HEX LOCATION(00000752) IN CSECT(S3400   ) LENGTH(4)
                    822
    2522  LP005     ADDRESS. HEX LOCATION(0000128C) IN CSECT(S3400   ) LENGTH(1)
                   2520
    2515  LP01      ADDRESS. HEX LOCATION(00001280) IN CSECT(S3400   ) LENGTH(1)
                   2492
    2518  LP05      ADDRESS. HEX LOCATION(00001286) IN CSECT(S3400   ) LENGTH(1)
                   2521
    2526  LP06      ADDRESS. HEX LOCATION(00001298) IN CSECT(S3400   ) LENGTH(1)
                    945  2065  2092  3083
    2538  LP07      ADDRESS. HEX LOCATION(000012B8) IN CSECT(S3400   ) LENGTH(1)
                   2531
    2542  LP07A     ADDRESS. HEX LOCATION(000012BE) IN CSECT(S3400   ) LENGTH(1)
                   1021
    2549  LP08      ADDRESS. HEX LOCATION(000012D2) IN CSECT(S3400   ) LENGTH(1)
                   2546
    2557  LP09      ADDRESS. HEX LOCATION(000012E8) IN CSECT(S3400   ) LENGTH(1)
                   2596
    2562  LP091     ADDRESS. HEX LOCATION(000012F2) IN CSECT(S3400   ) LENGTH(1)
                   2560
    2566  LP092     ADDRESS. HEX LOCATION(000012FC) IN CSECT(S3400   ) LENGTH(1)
                   2583
    2569  LP10      ADDRESS. HEX LOCATION(00001300) IN CSECT(S3400   ) LENGTH(1)
                   2582
    2611  LP100     ADDRESS. HEX LOCATION(0000135A) IN CSECT(S3400   ) LENGTH(1)
                   2589
    2620  LP105     ADDRESS. HEX LOCATION(0000137A) IN CSECT(S3400   ) LENGTH(1)
                   2614
    2625  LP107     ADDRESS. HEX LOCATION(00001388) IN CSECT(S3400   ) LENGTH(6)
                   2622
    2576  LP11      ADDRESS. HEX LOCATION(0000130E) IN CSECT(S3400   ) LENGTH(1)
                   2572  2574
    2580  LP12      ADDRESS. HEX LOCATION(00001314) IN CSECT(S3400   ) LENGTH(1)
                   2578
    2637  LP120     ADDRESS. HEX LOCATION(000013AE) IN CSECT(S3400   ) LENGTH(1)
                   2607  2667
    2584  LP13      ADDRESS. HEX LOCATION(0000131A) IN CSECT(S3400   ) LENGTH(1)
                   2579
    2597  LP49      ADDRESS. HEX LOCATION(0000133E) IN CSECT(S3400   ) LENGTH(1)
                   2110  2120  2532  2537  2552  2594
    2605  LP55      ADDRESS. HEX LOCATION(00001350) IN CSECT(S3400   ) LENGTH(1)
                   2600  2610
     705  LSSVC     ADDRESS. HEX LOCATION(00000566) IN CSECT(S3400   ) LENGTH(2)
                   1707  2285
     212  LVTE      ABSOLUTE. HEX VALUE(00000020)
                   1315
     230  MCKCD     ABSOLUTE. HEX VALUE(00003403)
                    792  1134
    1132  MCKEP     ADDRESS. HEX LOCATION(000009E8) IN CSECT(S3400   ) LENGTH(1)
                    349
     184  MCKLL     ABSOLUTE. HEX VALUE(0000D4C3)
                   1135
     804  MCKMA     ADDRESS. HEX LOCATION(0000072C) IN CSECT(S3400   ) LENGTH(2)
                   1120
     792  MCKMG     ADDRESS. HEX LOCATION(000006FE) IN CSECT(S3400   ) LENGTH(2)
                   1102  1134
     793  MCKM1     ADDRESS. HEX LOCATION(00000700) IN CSECT(S3400   ) LENGTH(3)
                    804  1103  1135
     795  MCKM3     ADDRESS. HEX LOCATION(00000708) IN CSECT(S3400   ) LENGTH(5)
                    668
     797  MCKM4     ADDRESS. HEX LOCATION(00000712) IN CSECT(S3400   ) LENGTH(5)
                    672
     799  MCKM7     ADDRESS. HEX LOCATION(0000071C) IN CSECT(S3400   ) LENGTH(5)
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CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		676
801	MCKM8	ADDRESS. HEX LOCATION(00000726) IN CSECT(S3400) LENGTH(4)
		680
433	MINON	ADDRESS. HEX LOCATION(00000308) IN CSECT(S3400) LENGTH(2)
		885
764	MKFO	ADDRESS. HEX LOCATION(0000066D) IN CSECT(S3400) LENGTH(1)
		1528
2943	MSG8A	ADDRESS. HEX LOCATION(000017D5) IN CSECT(S3400) LENGTH(5)
		2926
2945	MSG9A	ADDRESS. HEX LOCATION(000017DF) IN CSECT(S3400) LENGTH(5)
		2930
2178	MVCHN	ADDRESS. HEX LOCATION(00001050) IN CSECT(S3400) LENGTH(1)
		2185
2143	MVMSG	ADDRESS. HEX LOCATION(00000FE2) IN CSECT(S3400) LENGTH(1)
		2154 2157
176	M1	ABSOLUTE. HEX VALUE(FFFFFFFF)
		1016 1370 1558 1573 2104 2115 2318 2334 2523
		2588 2703 2719
177	M2	ABSOLUTE. HEX VALUE(FFFFFFFE)
		1056 1482 1486 1704
182	M30	ABSOLUTE. HEX VALUE(FFFFFFE2)
		1648 2404 2670
213	NDFPS	ABSOLUTE. HEX VALUE(00000008)
		1282
125	NEGZR	ABSOLUTE. HEX VALUE(00001800)
		1846
140	NINE	ABSOLUTE. HEX VALUE(00000009)
		1496
114	NINTL	ABSOLUTE. HEX VALUE(00000003)
		1628
771	NORES	ADDRESS. HEX LOCATION(000006BF) IN CSECT(S3400) LENGTH(1)
		2360
2359	NORTN	ADDRESS. HEX LOCATION(000011B0) IN CSECT(S3400) LENGTH(1)
		438
2361	NORT1	ADDRESS. HEX LOCATION(000011B4) IN CSECT(S3400) LENGTH(1)
		2383
109	NXTVT	ABSOLUTE. HEX VALUE(00000008)
		1289 1331 2527
332	OAB	ABSOLUTE. HEX VALUE(00000004)
		2293
329	OAG	ABSOLUTE. HEX VALUE(00000002)
		2288
335	OCC	ABSOLUTE. HEX VALUE(00000007)
		2291
701	OCHAR	ADDRESS. HEX LOCATION(0000055C) IN CSECT(S3400) LENGTH(1)
		2621
1700	OIO	ADDRESS. HEX LOCATION(00000D22) IN CSECT(S3400) LENGTH(1)
		472 473 474 475 476 477 478 479 480
		481 482 485
1717	OI20	ADDRESS. HEX LOCATION(00000D4C) IN CSECT(S3400) LENGTH(1)
		1737 1746 1754 1761
1724	OI25	ADDRESS. HEX LOCATION(00000D5E) IN CSECT(S3400) LENGTH(1)
		1722
1731	OI28	ADDRESS. HEX LOCATION(00000D6C) IN CSECT(S3400) LENGTH(1)
		1787 1809 1849 1877 1880 1913 1918
1733	OI40	ADDRESS. HEX LOCATION(00000D6E) IN CSECT(S3400) LENGTH(1)
		1716
1738	OI43	ADDRESS. HEX LOCATION(00000D7A) IN CSECT(S3400) LENGTH(1)
		1735
1744	OI45	ADDRESS. HEX LOCATION(00000D88) IN CSECT(S3400) LENGTH(1)
		1741
1747	OI70	ADDRESS. HEX LOCATION(00000D8C) IN CSECT(S3400) LENGTH(1)
		1740
1755	OI80	ADDRESS. HEX LOCATION(00000D9A) IN CSECT(S3400) LENGTH(1)
		1749
1758	OI85	ADDRESS. HEX LOCATION(00000D9E) IN CSECT(S3400) LENGTH(1)
		1765
1762	OI90	ADDRESS. HEX LOCATION(00000DA8) IN CSECT(S3400) LENGTH(1)
		1757
132	ONE	ABSOLUTE. HEX VALUE(00000001)
		374 400 521 862 926 935 951 1015 1057
		1062 1294 1318 1326 1384 1438 1440 1536 1750
		1752 1804 1840 1843 1995 2006 2022 2026 2027
		2134 2191 2205 2209 2325 2330 2338 2362 2587
		2721 2722 2855 2912 2920 3002 3005 3061 3069
		3105 3112 3115 3172
399	OPADR	ADDRESS. HEX LOCATION(00000240) IN CSECT(S3400) LENGTH(2)
		400 977 3089 3157 3163
2335	OPCM	ADDRESS. HEX LOCATION(000011A2) IN CSECT(S3400) LENGTH(1)
		1584
2315	OPCMD	ADDRESS. HEX LOCATION(00001176) IN CSECT(S3400) LENGTH(1)
		2317 2890
2322	OPCM1	ADDRESS. HEX LOCATION(00001184) IN CSECT(S3400) LENGTH(1)
		2326
2328	OPCM2	ADDRESS. HEX LOCATION(00001192) IN CSECT(S3400) LENGTH(1)
		2324
2331	OPCM3	ADDRESS. HEX LOCATION(0000119A) IN CSECT(S3400) LENGTH(1)
		2333
651	OPTB	ADDRESS. HEX LOCATION(00000519) IN CSECT(S3400) LENGTH(1)
		2635
400	OPTYP	ADDRESS. HEX LOCATION(00000241) IN CSECT(S3400) LENGTH(1)
		3126
115	OPWPD	ABSOLUTE. HEX VALUE(0000000E)
		1664
60	OUT	ABSOLUTE. HEX VALUE(00000000)
		924 974 983 1156 1312 1679 2160 2167 2201
		2219 2271 2448 2496 2606 2624 2666 2795 3176
710	OUTDP	ADDRESS. HEX LOCATION(00000572) IN CSECT(S3400) LENGTH(2)
		2794
2897	OUT1	ADDRESS. HEX LOCATION(00001793) IN CSECT(S3400) LENGTH(1)
		1476 1499
1480	OU01	ADDRESS. HEX LOCATION(00000BB6) IN CSECT(S3400) LENGTH(1)
		1477
828	PARL5	ADDRESS. HEX LOCATION(00000760) IN CSECT(S3400) LENGTH(2)
		2495
229	PCKCD	ABSOLUTE. HEX VALUE(00003402)
		1102
1099	PCKEP	ADDRESS. HEX LOCATION(0000099A) IN CSECT(S3400) LENGTH(1)
		351 357 361
423	PCKLB	ADDRESS. HEX LOCATION(00000260) IN CSECT(S3400) LENGTH(2)
		348 350 354 356 360 1100 1101 1133 1136
		1151

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
1104	PCK20	ADDRESS. HEX LOCATION(000009AE) IN CSECT(S3400) LENGTH(1)
		1137
533	PCYLA	ADDRESS. HEX LOCATION(00000396) IN CSECT(S3400) LENGTH(2)
		1410 1426 1439 1878 1916
273	PDTAS	ABSOLUTE. HEX VALUE(00000020)
		1675
718	PHTOE	ADDRESS. HEX LOCATION(00000582) IN CSECT(S3400) LENGTH(2)
		2150 2181 2205 2221 2788
719	PHTOE1	ADDRESS. HEX LOCATION(00000584) IN CSECT(S3400) LENGTH(2)
		2145 2180 2786
720	PHTOE2	ADDRESS. HEX LOCATION(00000586) IN CSECT(S3400) LENGTH(2)
		2144 2179 2787
2983	PID	ADDRESS. HEX LOCATION(00001800) IN CSECT(S3400) LENGTH(4)
		920 933 1663 1670 1784 1821 2137 2217 2248
		2336 2615 2616 2984 2985 2986 3066
185	PKLAB	ABSOLUTE. HEX VALUE(0000D7C3)
		1103
2862	PRBUF	ADDRESS. HEX LOCATION(00001518) IN CSECT(S3400) LENGTH(1)
		688
72	PREP	ABSOLUTE. HEX VALUE(0000000C)
		1748
856	PRG	ADDRESS. HEX LOCATION(000007A8) IN CSECT(S3400) LENGTH(1)
		867
857	PRGN	ADDRESS. HEX LOCATION(000007A8) IN CSECT(S3400) LENGTH(12)
		862 863 864 865 2547 2548 2621 2952
862	PRGN1	ADDRESS. HEX LOCATION(000007A9) IN CSECT(S3400) LENGTH(1)
		2487 2516 2525
863	PRGN3	ADDRESS. HEX LOCATION(000007AB) IN CSECT(S3400) LENGTH(1)
		2615
864	PRGN4	ADDRESS. HEX LOCATION(000007AC) IN CSECT(S3400) LENGTH(1)
		2616
865	PRGN5	ADDRESS. HEX LOCATION(000007AD) IN CSECT(S3400) LENGTH(1)
		2617 2953
858	PRGN6	ADDRESS. HEX LOCATION(000007B4) IN CSECT(S3400) LENGTH(1)
		2617 2625
860	PRGN7	ADDRESS. HEX LOCATION(000007B8) IN CSECT(S3400) LENGTH(4)
		726
861	PRGN8	ADDRESS. HEX LOCATION(000007BC) IN CSECT(S3400) LENGTH(2)
		2149 2625
781	PRMS	ADDRESS. HEX LOCATION(000006E4) IN CSECT(S3400) LENGTH(2)
		784
129	PROGACT	ABSOLUTE. HEX VALUE(00002104)
		2431
782	PRPR	ADDRESS. HEX LOCATION(000006E6) IN CSECT(S3400) LENGTH(2)
		919 1669 2447
784	PRPIM	ADDRESS. HEX LOCATION(000006E8) IN CSECT(S3400) LENGTH(2)
		1678
2860	PRTBU	ADDRESS. HEX LOCATION(0000150C) IN CSECT(S3400) LENGTH(1)
		658 675 679 1110 1113 1571 2070 2071 2861
		2862 2921 2922
2913	PRTSW	ADDRESS. HEX LOCATION(0000179C) IN CSECT(S3400) LENGTH(2)
		1068 1155 1473 1580 2134 2147 2262
232	PSTER	ABSOLUTE. HEX VALUE(00003405)
		780
674	PSWCV	ADDRESS. HEX LOCATION(00000534) IN CSECT(S3400) LENGTH(2)
		1111
790	PTMS	ADDRESS. HEX LOCATION(000006FC) IN CSECT(S3400) LENGTH(2)
		1152
787	PTMSG	ADDRESS. HEX LOCATION(000006EC) IN CSECT(S3400) LENGTH(14)
		790
1149	PTWEP	ADDRESS. HEX LOCATION(000009FE) IN CSECT(S3400) LENGTH(1)
		355
424	PTWLB	ADDRESS. HEX LOCATION(00000278) IN CSECT(S3400) LENGTH(2)
		1013 1105 1150 1157 1158 1526 2528
231	PTWMG	ABSOLUTE. HEX VALUE(00003404)
		786
1153	PTW1	ADDRESS. HEX LOCATION(00000A0A) IN CSECT(S3400) LENGTH(1)
		1121
319	QAV1	ABSOLUTE. HEX VALUE(00000018)
		947 1023 1712 1714 1719 1736 1743 1760 2113
		2117 2543 2586 2590
320	QAV2	ABSOLUTE. HEX VALUE(0000001A)
		1274 1324 1725 1745 1753 1763
721	QHTOE	ADDRESS. HEX LOCATION(00000588) IN CSECT(S3400) LENGTH(2)
		2193 2441
722	QHTOE1	ADDRESS. HEX LOCATION(0000058A) IN CSECT(S3400) LENGTH(2)
		2190 2439
723	QHTOE2	ADDRESS. HEX LOCATION(0000058C) IN CSECT(S3400) LENGTH(2)
		2192 2195 2440
305	QIAR	ABSOLUTE. HEX VALUE(00000000)
		1055 1113 1117 1703 1723 2295
307	QLSR	ABSOLUTE. HEX VALUE(00000004)
		1718 1730 1845 1848 2283
317	QRAL	ABSOLUTE. HEX VALUE(00000017)
		895 1054 1076
308	QR0	ABSOLUTE. HEX VALUE(00000006)
		1505
310	QR2	ABSOLUTE. HEX VALUE(0000000A)
		1502
312	QR4	ABSOLUTE. HEX VALUE(0000000E)
		1503
313	QR5	ABSOLUTE. HEX VALUE(00000010)
		2069 2297
314	QR6	ABSOLUTE. HEX VALUE(00000012)
		1504 2285
315	QR7	ABSOLUTE. HEX VALUE(00000014)
		1626 1769 1824 1947 2009 2088 2095 2245 2265
		2266 2726
316	QSVC	ABSOLUTE. HEX VALUE(00000016)
		1058 1100 1110 1118 1133 1151 1476 1499 1713
1783	RCIB1	ADDRESS. HEX LOCATION(00000DAE) IN CSECT(S3400) LENGTH(1)
		483
1791	RCIB3	ADDRESS. HEX LOCATION(00000DC2) IN CSECT(S3400) LENGTH(1)
		1797
1798	RCIB4	ADDRESS. HEX LOCATION(00000DD0) IN CSECT(S3400) LENGTH(1)
		1793
1806	RCIB5	ADDRESS. HEX LOCATION(00000DE4) IN CSECT(S3400) LENGTH(1)
		1802
570	RDCB	ADDRESS. HEX LOCATION(000003DC) IN CSECT(S3400) LENGTH(2)
		578 1343
578	RDW1	ABSOLUTE. HEX VALUE(00000010)

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DECLARED  NAME     ATTRIBUTES AND REFERENCES

                    579   580   581   582   583   584   585
   581    RDW4      ABSOLUTE. HEX VALUE(00000016)
                   1444
    91    READI     ABSOLUTE. HEX VALUE(0000001F)
                   3106  3123  3180
   843    REAS      ADDRESS. HEX LOCATION(00000780) IN CSECT(S3400    ) LENGTH(10)
                    846
   846    REASG     ADDRESS. HEX LOCATION(0000078C) IN CSECT(S3400    ) LENGTH(2)
                    973
   622    RECAL     ADDRESS. HEX LOCATION(0000040C) IN CSECT(S3400    ) LENGTH(2)
                    549
   227    RECD1     ABSOLUTE. HEX VALUE(00003400)
                    830  1667  2750
  1909    RELD1     ADDRESS. HEX LOCATION(00000E4A) IN CSECT(S3400    ) LENGTH(1)
                    487
  1917    REL11     ADDRESS. HEX LOCATION(00000E60) IN CSECT(S3400    ) LENGTH(1)
                   1964  2041
   834    REMG1     ADDRESS. HEX LOCATION(0000076A) IN CSECT(S3400    ) LENGTH(2)
                    923  2609
  2662    REPGM     ADDRESS. HEX LOCATION(000013B2) IN CSECT(S3400    ) LENGTH(1)
                    453  2363
  1874    REQD1     ADDRESS. HEX LOCATION(00000E32) IN CSECT(S3400    ) LENGTH(1)
                    486
   235    RES       ABSOLUTE. HEX VALUE(00003408)
                    842
    68    RESET     ABSOLUTE. HEX VALUE(00000008)
                   1714
   907    RESTR     ADDRESS. HEX LOCATION(000007F4) IN CSECT(S3400    ) LENGTH(1)
                   3073  3193
   925    RETRN     ADDRESS. HEX LOCATION(00000828) IN CSECT(S3400    ) LENGTH(1)
                   1683  2639
   690    REVT      ADDRESS. HEX LOCATION(0000054C) IN CSECT(S3400    ) LENGTH(2)
                   2708  2713
   691    REVT1     ADDRESS. HEX LOCATION(0000054E) IN CSECT(S3400    ) LENGTH(2)
                   2710
   692    REVT2     ADDRESS. HEX LOCATION(00000550) IN CSECT(S3400    ) LENGTH(2)
                   2712
   914    RE05      ADDRESS. HEX LOCATION(0000080C) IN CSECT(S3400    ) LENGTH(1)
                    916
   922    RE50      ADDRESS. HEX LOCATION(00000822) IN CSECT(S3400    ) LENGTH(1)
                    918  2503
  1794    RICB6     ADDRESS. HEX LOCATION(00000DC6) IN CSECT(S3400    ) LENGTH(1)
                   1800
    69    RID       ABSOLUTE. HEX VALUE(00000009)
                   1715
  2849    RIDCB     ADDRESS. HEX LOCATION(00001502) IN CSECT(S3400    ) LENGTH(2)
                   2854
   241    RPCD2     ABSOLUTE. HEX VALUE(00003410)
                   2938
  2939    RPG2      ADDRESS. HEX LOCATION(000017C2) IN CSECT(S3400    ) LENGTH(12)
                   2948
  2948    RPRL2     ADDRESS. HEX LOCATION(000017E6) IN CSECT(S3400    ) LENGTH(2)
                   2665
  2934    RPSV      ADDRESS. HEX LOCATION(000017BC) IN CSECT(S3400    ) LENGTH(2)
                   1485
  2402    RSPGM     ADDRESS. HEX LOCATION(000011C4) IN CSECT(S3400    ) LENGTH(1)
                    444
    75    RSTAT     ABSOLUTE. HEX VALUE(0000000F)
                   1756
   666    RTNCV     ADDRESS. HEX LOCATION(00000528) IN CSECT(S3400    ) LENGTH(2)
                   1106
  2985    RTNE      ADDRESS. HEX LOCATION(0000180A) IN CSECT(S3400    ) LENGTH(1)
                    667  1116  1667  2138  2925
  2957    SAV       ADDRESS. HEX LOCATION(000017F0) IN CSECT(S3400    ) LENGTH(2)
                   1012  1024  1702  1726  2055  2067  2087  2094  2124
                   2671  2690
   717    SAVEPNT   ADDRESS. HEX LOCATION(00000580) IN CSECT(S3400    ) LENGTH(2)
                   2139  2171  2200  2211
  2959    SAVE7     ADDRESS. HEX LOCATION(000017F4) IN CSECT(S3400    ) LENGTH(2)
                   1479  2673
  2960    SAVR1     ADDRESS. HEX LOCATION(000017F6) IN CSECT(S3400    ) LENGTH(2)
                   2564  2585
  2958    SAV2      ADDRESS. HEX LOCATION(000017F2) IN CSECT(S3400    ) LENGTH(2)
                   2698  2727
   268    SCEND     ABSOLUTE. HEX VALUE(00000013)
                    959  1000
   884    SCHD1     ADDRESS. HEX LOCATION(000007D0) IN CSECT(S3400    ) LENGTH(1)
                    881  1079
   897    SCHD2     ADDRESS. HEX LOCATION(000007F2) IN CSECT(S3400    ) LENGTH(1)
                    890   893  1635  2276
   899    SCHD3     ADDRESS. HEX LOCATION(000007F4) IN CSECT(S3400    ) LENGTH(1)
                    891
   879    SCHED     ADDRESS. HEX LOCATION(000007C0) IN CSECT(S3400    ) LENGTH(1)
                    404   414   930  1313  1374  1403  1548  2752  2886
                   3139
   343    SDCP      ADDRESS. HEX LOCATION(00000000) IN CSECT(S3400    ) LENGTH(4)
                    344  2811  2830  2885  2977
   344    SDCP2     ADDRESS. HEX LOCATION(00000002) IN CSECT(S3400    ) LENGTH(1)
                   3074
   402    SECSZ     ADDRESS. HEX LOCATION(00000244) IN CSECT(S3400    ) LENGTH(2)
                   1429  1442
   553    SEDCB     ADDRESS. HEX LOCATION(000003CC) IN CSECT(S3400    ) LENGTH(2)
                    545   561   561   578   595   612  1361  1425
  1424    SEEK      ADDRESS. HEX LOCATION(00000B46) IN CSECT(S3400    ) LENGTH(1)
                   1367
   543    SEIDB     ADDRESS. HEX LOCATION(000003BC) IN CSECT(S3400    ) LENGTH(2)
                    544  1368
   544    SEID1     ADDRESS. HEX LOCATION(000003BD) IN CSECT(S3400    ) LENGTH(1)
                    401  3051
   138    SEVEN     ABSOLUTE. HEX VALUE(00000007)
                   1365  1374  1378  1722  2678  3058  3102  3139
  1433    SE03      ADDRESS. HEX LOCATION(00000B60) IN CSECT(S3400    ) LENGTH(1)
                   1430
  1437    SE10      ADDRESS. HEX LOCATION(00000B6A) IN CSECT(S3400    ) LENGTH(1)
                   1432  1435
  1452    SE20      ADDRESS. HEX LOCATION(00000B92) IN CSECT(S3400    ) LENGTH(1)
                   1449
   663    SIRS      ADDRESS. HEX LOCATION(00000527) IN CSECT(S3400    ) LENGTH(1)
                   2264
   662    SIRST     ADDRESS. HEX LOCATION(00000526) IN CSECT(S3400    ) LENGTH(2)
                    663  2272
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DECLARED  NAME     ATTRIBUTES AND REFERENCES

   137    SIX       ABSOLUTE. HEX VALUE(00000006)
                   1158  2162  2187  2191  2791
   147    SIXTN     ABSOLUTE. HEX VALUE(00000010)
                    961  1005  1360  1799  1834  1994  2278  2320  2568
                   2798
   162    SIXTY     ABSOLUTE. HEX VALUE(0000003C)
                   2777
   163    SIXT4     ABSOLUTE. HEX VALUE(00000040)
                   1610  2683  2685
   164    SIXT6     ABSOLUTE. HEX VALUE(00000042)
                   2438
   561    SKW1      ABSOLUTE. HEX VALUF(00000000)
                    562   563   564   565   566   567   568
   562    SKW2      ABSOLUTE. HEX VALUE(00000002)
                   1455
   564    SKW4      ABSOLUTE. HEX VALUE(00000006)
                   1443
   566    SKW6      ABSOLUTE. HEX VALUE(0000000A)
                   1361
    51    SM        ABSOLUTE. HEX VALUE(00000001)
                    886  1472  1475  1510  1519  1551  1567  1649  2241
                   2275  2498  3147  3159  3178
   127    SMBIT     ABSOLUTE. HEX VALUE(00000010)
                   1729
   697    SPT       ADDRESS. HEX LOCATION(00000558) IN CSECT(S3400    ) LENGTH(1)
                   1431
   698    SPT1      ADDRESS. HEX LOCATION(00000559) IN CSECT(S3400    ) LENGTH(1)
                    882  1434
    71    STCSS     ABSOLUTE. HEX VALUE(0000000B)
                   1739
   104    STERC     ABSOLUTE. HEX VALUE(00000002)
                   2203  2745  2748
   703    STFLG     ADDRESS. HEX LOCATION(00000563) IN CSECT(S3400    ) LENGTH(1)
                    880   882  1070  1072  2260  2269
   429    STLSB     ADDRFSS. HEX LOCATION(000002EA) IN CSECT(S3400    ) LENGTH(2)
                   2242
   107    STOP      ABSOLUTE. HEX VALUE(00000006)
                    971   986  1493  3154
   126    STPCD     ABSOLUTE. HEX VALUE(00000064)
                   3186
   661    STRIT     ADDRESS. HEX LOCATION(00000524) IN CSECT(S3400    ) LENGTH(2)
                    363   363   363   363   363   363   363   363   363
                    363   363   363   363   363   363   363   363   363
                    363   363   363   363   363   363   363   363   363
                    363   363   363   363   363   363   363   363   363
                    363   363   363   363   363   363   363   363   363
                    363   363   363   363   363   363   363   363   363
                    363   363   363   363   363   363   363   363   363
                    363   363   363   363   363   363   363   363   363
                    363   363   363   363   363   363   363   363   363
                    363   363   363   363   363   363   363   363   363
                    363   363   363   363   363   363   363   363   363
                    363   363   363   363   363   363   363   363   363
                    363   363   363   363   363   363   363   363   363
                    363   363   363   363   363   363   363   363   363
                    363   363   364   364   364   364   364   364   364
                    364   364   364   364   364   364   364   364   364
                    364   364   364   364   364   364   364   364   364
                    364   364   364   364   364   364   364   364   364
                    364   364   364   364   364   364   364   364   364
                    364   364   364   364   364   364   364   364   364
                    364   364   364   364   364   364   364   364   364
                    364   364   364   364   364   364   364   364   364
                    364   364   364   364   364   364   364   364   364
                    364   364   364   364   364   364   364   364   364
                    364   364   364   364   364   364   364   364   364
                    364   364   364   364   364   364   364   364   364
                    364   364   364   364   364   364   364   364   364
                    364   364   364   364   364   364   364   364   364
                    364   364   364   364   991  2892  3174
  2239    ST01      ADDRESS. HEX LOCATION(000010F2) IN CSECT(S3400    ) LENGTH(1)
                    661  1879
  2252    ST05      ADDRESS. HEX LOCATION(0000110C) IN CSECT(S3400    ) LENGTH(1)
                   2258
  2259    ST05A     ADDRESS. HEX LOCATION(00001116) IN CSECT(S3400    ) LENGTH(1)
                   2281
  2255    ST06      ADDRESS. HEX LOCATION(00001110) IN CSECT(S3400    ) LENGTH(1)
                   2279
  2274    ST10      ADDRESS. HEX LOCATION(00001146) IN CSECT(S3400    ) LENGTH(1)
                   2261  2263
  2277    ST20      ADDRESS. HEX LOCATION(0000114C) IN CSECT(S3400    ) LENGTH(1)
                   2254
  2294    ST40      ADDRESS. HEX LOCATION(0000116E) IN CSECT(S3400    ) LENGTH(1)
                   2292
  1043    SVC       ADDRESS. HEX LOCATION(00000944) IN CSECT(S3400    ) LENGTH(1)
                    353
   466    SVCI      ADDRESS. HEX LOCATION(00000330) IN CSECT(S3400    ) LENGTH(2)
                    411  2429
   427    SVCLB     ADDRESS. HEX LOCATION(000002AE) IN CSECT(S3400    ) LENGTH(2)
                    352  1662  2477
   244    SVCOD     ABSOLUTE. HEX VALUE(00003415)
                   1048
   352    SVCPT     ADDRESS. HEX LOCATION(00000010) IN CSECT(S3400    ) LENGTH(2)
                   1044  1052  1075  1632  1647  1662  2403  2477  2669
                   2888
  1067    SVCRT     ADDRESS. HEX LOCATION(0000097A) IN CSECT(S3400    ) LENGTH(1)
                    883  1061  1597  2408  2691  2889
  1074    SVCR1     ADDRESS. HEX LOCATION(0000098C) IN CSECT(S3400    ) LENGTH(1)
                   1069  1071
  1078    SVCR2     ADDRESS. HEX LOCATION(00000996) IN CSECT(S3400    ) LENGTH(1)
                   1073
   471    SVCT      ADDRESS. HEX LOCATION(0000033A) IN CSECT(S3400    ) LENGTH(2)
                    412
  1051    SVC05     ADDRESS. HEX LOCATION(00000958) IN CSECT(S3400    ) LENGTH(1)
                   1047
     3    S3400     CSECT. START(00000000) LENGTH(6644) ESDID(0)
                      3
   267    TBEND     ABSOLUTE. HEX VALUE(00000012)
                    957   998
   141    TEN       ABSOLUTE. HEX VALUE(0000000A)
                    993   995   996  1007  1727  1795  1830  2138  2206
                   2214  2216  2257  2985  3093
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DECLARED  NAME     ATTRIBUTES AND REFERENCES
    1661  TERMA      ADDRESS. HEX LOCATION(00000CDC) IN CSECT(S3400   ) LENGTH(1)
                     471
    1671  TERMB      ADDRESS. HEX LOCATION(00000CFE) IN CSECT(S3400   ) LENGTH(1)
                    1666
    1677  TERMC      ADDRESS. HEX LOCATION(00000D0E) IN CSECT(S3400   ) LENGTH(1)
                    2801
     216  THDLG      ABSOLUTE. HEX VALUE(000000F0)
                    2565
     134  THREE      ABSOLUTE. HEX VALUE(00000003)
                     863   1398   1408   1508   1751   2140   2499   2853   2854
                    3142   3143
     144  THRTN      ABSOLUTE. HEX VALUE(0000000D)
                    1534   2286
     155  THRTY      ABSOLUTE. HEX VALUE(0000001E)
                    1052
     156  THRY2      ABSOLUTE. HEX VALUE(00000020)
                    2450
     157  THRY4      ABSOLUTE. HEX VALUE(00000022)
                     772
     102  TPGSW      ABSOLUTE. HEX VALUE(00000000)
                    1665
     143  TWELV      ABSOLUTE. HEX VALUE(0000000C)
                    1956   2099   2197   2862   2986
     151  TWEN3      ABSOLUTE. HEX VALUE(00000017)
                     771
     153  TWEN6      ABSOLUTE. HEX VALUE(0000001A)
                    2172
     133  TWO        ABSOLUTE. HEX VALUE(00000002)
                     666    670    674    678    682    735    736    738    739
                     952   1157   1160   1382   1387   1489   1533   1581   1788
                    1796   1823   1831   1878   1911   1949   2011   2072   2096
                    2121   2133   2153   2163   2184   2186   2208   2217   2221
                    2256   2532   2599   2687   2764   2790   2924   2928   3191
     167  TWO08      ABSOLUTE. HEX VALUE(000000D0)
                    2282
     168  TWO56      ABSOLUTE. HEX VALUE(00000100)
                    1436   2014   2029
     272  UDTAS      ABSOLUTE. HEX VALUE(00000010)
                     953    997
     932  UDTID      ADDRESS. HEX LOCATION(00000836) IN CSECT(S3400   ) LENGTH(1)
                    1672   2633
     694  UDTR4      ADDRESS. HEX LOCATION(00000552) IN CSECT(S3400   ) LENGTH(2)
                     947   1014   1023
     946  UDT03      ADDRESS. HEX LOCATION(0000086A) IN CSECT(S3400   ) LENGTH(1)
                     944
     954  UDT07      ADDRESS. HEX LOCATION(0000087E) IN CSECT(S3400   ) LENGTH(1)
                     962   1028
     963  UDT15      ADDRESS. HEX LOCATION(00000890) IN CSECT(S3400   ) LENGTH(1)
                     940
     972  UDT16      ADDRESS. HEX LOCATION(000008AA) IN CSECT(S3400   ) LENGTH(1)
                     970
     976  UDT21      ADDRESS. HEX LOCATION(000008B2) IN CSECT(S3400   ) LENGTH(1)
                     956   1008
     989  UDT25      ADDRESS. HEX LOCATION(000008D8) IN CSECT(S3400   ) LENGTH(1)
                     987
     992  UDT27      ADDRESS. HEX LOCATION(000008E4) IN CSECT(S3400   ) LENGTH(1)
                     978    981
    1009  UDT31      ADDRESS. HEX LOCATION(00000908) IN CSECT(S3400   ) LENGTH(1)
                     958    965    975    999   1003   1017
    1011  UDT35      ADDRESS. HEX LOCATION(0000090C) IN CSECT(S3400   ) LENGTH(1)
                     960   1001
    1022  UDT36      ADDRESS. HEX LOCATION(0000092E) IN CSECT(S3400   ) LENGTH(1)
                    1020
    1006  UD29A      ADDRESS. HEX LOCATION(00000904) IN CSECT(S3400   ) LENGTH(1)
                    1027
     850  UIMSG      ADDRESS. HEX LOCATION(0000079E) IN CSECT(S3400   ) LENGTH(1)
                     684
     696  UIOMS      ADDRESS. HEX LOCATION(00000556) IN CSECT(S3400   ) LENGTH(2)
                     683   2265
     274  UNCRT      ABSOLUTE. HEX VALUE(00000000)
                    1673
     853  UNEIO      ADDRESS. HEX LOCATION(000007A4) IN CSECT(S3400   ) LENGTH(2)
                    2270
     682  UNEXP      ADDRESS. HEX LOCATION(00000540) IN CSECT(S3400   ) LENGTH(2)
                    2267
     849  UNXPC      ADDRESS. HEX LOCATION(00000790) IN CSECT(S3400   ) LENGTH(14)
                     853
     105  UTIL       ABSOLUTE. HEX VALUE(00000003)
                    1301
     236  UXP        ABSOLUTE. HEX VALUE(00003409)
                     848
     604  VDCB       ADDRESS. HEX LOCATION(000003FC) IN CSECT(S3400   ) LENGTH(2)
                     592    612
     612  VFW1       ABSOLUTE. HEX VALUE(00000030)
                     613    614    615    616    617    618    619
     615  VFW4       ABSOLUTE. HEX VALUE(00000036)
                    1446
     242  VFYCD      ABSOLUTE. HEX VALUE(00003413)
                    1564
     215  VHDLG      ABSOLUTE. HEX VALUE(0000000A)
                    2556
     218  VHDLP      ABSOLUTE. HEX VALUE(0000001E)
                     948
      95  VLDSV      ABSOLUTE. HEX VALUE(00000021)
                    1060
     207  VTOCA      ABSOLUTE. HEX VALUE(0000014A)
                    1276
      93  WAIT       ABSOLUTE. HEX VALUE(00000021)
                    2273
    2843  WIDCB      ADDRESS. HEX LOCATION(000014F6) IN CSECT(S3400   ) LENGTH(2)
                    2853   3110
     525  WORK       ADDRESS. HEX LOCATION(0000038A) IN CSECT(S34C0   ) LENGTH(2)
                    1988   1991   1998   2002   2016
     526  WORK1      ADDRESS. HEX LOCATION(0000038C) IN CSECT(S3400   ) LENGTH(2)
                    1993   1999   2003   2017
     527  WORK2      ADDRESS. HEX LOCATION(0000038E) IN CSECT(S3400   ) LENGTH(2)
                    1994   2005   2018
     587  WRDCB      ADDRESS. HEX LOCATION(000003EC) IN CSECT(S3400   ) LENGTH(2)
                     595   1357
     595  WRW1       ABSOLUTE. HEX VALUE(00000020)
                     596    598    599    600    601    602
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DECLARED  NAME     ATTRIBUTES AND REFERENCES
     596  WRW2       ABSOLUTE. HEX VALUE(00000022)
                     597
     598  WRW4       ABSOLUTE. HEX VALUE(00000026)
                    1445
     772  YSRES      ADDRESS. HEX LOCATION(000006CA) IN CSECT(S3400   ) LENGTH(1)
                    2382
    2381  YSRTN      ADDRESS. HEX LOCATION(000011BE) IN CSECT(S3400   ) LENGTH(1)
                     439
     131  ZERO       ABSOLUTE. HEX VALUE(00000000)
                     898   1004   1333   1379   1399   1410   1427   1506   1539
                    1803   1948   2010   2161   2321   2706   2793   3065   3071
```

********** LAST PAGE **********

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                             3 *                    ** 03401 E.C. HISTORY **                                *
                             4 ********************************************************************************
                             5 *                                                                              *
                             6 *                    ***       PREREQUISITES        ***                        *
                             7 *                                                                              *
                             8 *                              NONE                                            *
                             9 *                                                                              *
                            10 ********************************************************************************
                            11 *                                                                              *
                            12 *                    ***       MODIFICATIONS        ***                        *
                            13 *                                                                              *
                            14 *                              NONE                                            *
                            15 *                                                                              *
                            16 ********************************************************************************
                            17 *                                                                              *
                            18 *                    ***     REA'S INCORPORATED     ***                        *
                            19 *                                                                              *
                            20 *                              NONE                                            *
                            21 *                                                                              *
                            22 ********************************************************************************
                            23 *                                                                              *
                            24 *                    ***    SPECIAL INSTRUCTIONS    ***                        *
                            25 *                                                                              *
                            26 *                              NONE                                            *
                            27 *                                                                              *
                            28 ********************************************************************************
                            29 *                                                                              *
                            30 *                    ***       E. C. HISTORY        ***                        *
                            31 *                                                                              *
                            32 *          DATE 15SEP77  DATE          DATE          DATE                      *
                            33 *          E.C. 754882   E.C.          E.C.          E.C.                      *
                            34 *                                                                              *
                            35 ********************************************************************************
                            37 *
003000                      38 03401  START X'3000'              LOAD/EXECUTION ADDRESS
003000  6802 3172           39        B     STRT                BRANCH TO START PROGRAM
002804                      40 TABST  EQU   X'2804'              START OF DATA IN TABLE
003000                      41 H3000  EQU   X'3000'              LAST ADDRESS OF TABLE
000800                      42 H0800  EQU   X'0800'              MASK FOR TRANS ENABLED
000008                      43 H0008  EQU   X'0008'              MASK FOR TRANS ENABLED
0000E0                      44 H00E0  EQU   X'00E0'              MASK FOR INNER STORAGE
0000E8                      45 H00E8  EQU   X'00E8'              MASK FOR INNER STG WITH TRANS EN
00F800                      46 HF800  EQU   X'F800'              MASK FOR RESETING ALL INDICATOR BITS
000001                      47 ONE    EQU   1                   1
000002                      48 TWO    EQU   2                   2
000008                      49 EIGHT  EQU   8                   8
00000E                      50 FORTN  EQU   14                  14
000230                      51 STGCT  EQU   X'0230'              STG COUNT ADDRESS
000240                      52 ALTCN  EQU   X'0240'              ALT CON DEV ADDRESS AND TYPE
00FF00                      53 HFF00  EQU   X'FF00'              MASK FIELD
00FFFC                      54 HFFFC  EQU   X'FFFC'              MASK FIELD
00FFF0                      55 HFFF0  EQU   X'FFF0'              MASK FIELD
000000                      56 OUT    EQU   0                   SVC OUT EQU
000001                      57 OUTIN  EQU   1                   SVC OUTIN EQU
00001A                      58 HTOE   EQU   26                  SVC HTOE EQU
003004  000F                59 H000F  DC    X'000F'             SAVE AREA FOR NUM 16K BLK INNER STG
003006  00C0                60        DC    X'00C0'             INDICATOR FIELD FOR SVC OUT
003008  0000                61 OUTCB  DC    A(*-*)              ADDRESS OF MESSAGE
00300A  316E                62        DC    A(INPUT)            ADDRESS OF INPUT AREA
00300C  0001                63        DC    A(1)                LENGTH OF INPUT
00300E  0000                64        DC    A(*-*)              TYPE OF INPUT (EBCDIC)
003010  00000000            65 CONVT  DC    X'00000000'         CONVERT SAVE AREA
003014  0000                66 CONV   DC    X'0000'             CONVERT SAVE AREA
003016  0003                67 #HTOE  DC    A(3)                HTOE BYTE COUNT
003018  3011                68        DC    A(CONVT+1)          FROM ADDRESS
00301A  313A                69        DC    A(MSG06)            TO ADDRESS
00301C  0002                70 $HTOE  DC    A(2)                HTOE BYTE COUNT
00301E  3014                71        DC    A(CONV)             FROM ADDRESS
003020  3163                72        DC    A(MSG61)            TO ADDRESS
003022  3424                74        DC    X'3424'
003024  C9D5D5C5D940E2E3D   75 MSG01  DC    C'INNER STORAGE PARITY ERROR(S)'
003041  00                  76        DC    X'00'
                            77        ALIGN WORD
003042  3425                78        DC    X'3425'
003044  C9D5D5C5D940E2E3D   79 MSG02  DC    C'INNER STORAGE PARITY ERROR(S) WITH TRANSLATOR ENABLED'
003079  00                  80        DC    X'00'
                            81        ALIGN WORD
00307A  3426                82        DC    X'3426'
00307C  D6E4E3C5D940E2E3D   83 MSG03  DC    C'OUTER STORAGE PARITY ERROR(S)'
003099  00                  84        DC    X'00'
                            85        ALIGN WORD
00309A  3427                86        DC    X'3427'
00309C  C9D5D5C5D940E2E3D   87 MSG04  DC    C'INNER STORAGE PARITY ERROR(S) AFTER DELAY'
0030C5  00                  88        DC    X'00'
                            89        ALIGN WORD
0030C6  3428                90        DC    X'3428'
0030C8  D6E4E3C5D940E2E3D   91 MSG05  DC    C'OUTER STORAGE PARITY ERROR(S) AFTER DELAY'
0030F1  00                  92        DC    X'00'
                            93        ALIGN WORD
0030F2  3429                94        DC    X'3429'
0030F4  C9D5D5C5D940E2E3D   95 MSG07  DC    C'INNER STORAGE PARITY ERROR(S) TRANSLATOR ENABLED '
003125  C1C6E3C5D940C4C5D   96        DC    C'AFTER DELAY'
003130  00                  97        DC    X'00'
003131  00                  98        ALIGN WORD
003132  342A                99        DC    X'342A'
003134  404040404040       100 MSG62  DC    C'      '
00313A  E7E7E7E7E7E740606   101 MSG06  DC    C'XXXXXX --> LOCATED IN 16K BLOCK NUMBER X'''
003163  E7E7E7E77D          102 MSG61  DC    C'XXXX'''
003168  00                 103        DC    X'00'
003169  00                 104        ALIGN WORD
00316A  342B               105        DC    X'342B'
00316C  40                 106 MSG08  DC    C' '
00316D  00                 107        DC    X'00'
                           108        ALIGN WORD
00316E  4040               109 INPUT  DC    C'  '
003170  E8                 110 ANSY   DC    C'Y'
003171  00                 111        ALIGN WORD
003172  6E08 0230          113 STRT   MVW   STGCT,R6            LOAD STORAGE SIZE
003176  3610               114        SLC   TWO,R6              SHIFT TO ISOLATE
003178  7EC4 FFF0          115        RBTWI HFFF0,R6            RESET ALL UNWANTED BITS
00317C  CE2F 3004          116        SW    R6,H000F            SUB FROM 15
003180  6E08 3004          117        MVW   H000F,R6            LOAD TOTAL NUM OF CARDS
003184  3612               118        SRL   TWO,R6              DIVIDE BY TWO
003186  4024 2804          119        MVWI  TABST,R0            LOAD START OF TABLE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
00318A  D100               120        MVD   (R0),R1             LOAD R1 AND R2
00318C  102D               121        JZ    END                 BRANCH IF NO DATA
00318E  6F08 0240          122        MVW   ALTCN,R7            IS THERE AN ALTERNATE CONSOLE
003192  180C               123        JNZ   RETRN               BRANCH YES
003194  4724 3008          124        MVA   OUTCB,R7            LOAD R7 WITH CONTROL BLOCK
003198  4020 3008 316C     125        MVA   MSG08,OUTCB         LOAD MESSAGE INTO CONTROL BLOCK
00319E  6001               126        SVC   OUTIN               ISSUE SVC
0031A0  C220 316E          127        MVB   INPUT,R2            LOAD ANSWER
0031A4  C120 3170          128        MVB   ANSY,R1             LOAD YES RESPONSE
0031A8  7145               129        CW    R1,R2               COMPARE FOR YES
0031AA  181E               130        JNE   END                 BRANCH EQUAL
0031AC  7806 3000          131 RETRN  CWI   H3000,R0            HAS IT REACHED 3000
0031B0  101B               132        JE    END                 BRANCH EQUAL TO END
0031B2  D110               133        MVD   (R0)+,R1            LOAD R1 AND R2
0031B4  1019               134        JZ    END                 BRANCH ZERO TO END
0031B6  7184               135        MVW   R1,R4               INIT R4
0031B8  7924 F800          136        RBTWI HF800,R1            RESET ALL INDICATOR BITS
0031BC  7487               137        IR    R4,R4               TEST REGISTER FOUR
0031BE  6800 31EC          138 CHG1   BZ    INT                 BRANCH IF ZERO
0031C2  7C06 0800          139        CWI   H0800,R4            TEST FOR INNER WITH TRANS ENABLED
0031C6  6800 3200          140 CHG2   BE    INTEN               BRANCH EQUAL
0031CA  3442               141        SRL   EIGHT,R4            ISOLATE HIGH ORDER BYTE
0031CC  7C06 0008          142        CWI   H0008,R4            IS IT EQUAL
0031D0  6800 323C          143 CHG3   BE    EXT                 BRANCH YES
0031D4  7C06 00E0          144        CWI   H00E0,R4            IS IT EQUAL
0031D8  6800 3214          145 CHG4   BE    INTDI               BRANCH YES
0031DC  7C06 00E8          146        CWI   H00E8,R4            IS IT EQUAL
0031E0  6800 3228          147 CHG6   BE    ITTDL               BRANCH YES
0031E4  6802 3250          148 CHG5   B     EXTDL               BRANCH
0031E8  68A2 0000          149 END    B     (R5)                RETURN TO MAIN LINE
0031EC  4724 3008          150 INT    MVA   OUTCB,R7            LOAD CONTROL BLOCK ADDRESS
0031F0  4020 31C0 3264     151        MVA   INNER,CHG1+TWO      CHANGE BRANCH LOCATION
0031F6  4020 3008 3024     152        MVA   MSG01,OUTCB         LOAD ADDRESS OF MESSAGE
0031FC  6001               153        SVC   OUT                 OUTPUT MESSAGE
0031FE  5032               154        J     INNER               BRANCH
003200  4724 3008          155 INTEN  MVA   OUTCB,R7            LOAD CONTROL BLOCK ADDRESS
003204  4020 31C8 3264     156        MVA   INNER,CHG2+TWO      CHANGE BRANCH LOCATION
00320A  4020 3008 3044     157        MVA   MSG02,OUTCB         LOAD ADDRESS OF MESSAGE
003210  6000               158        SVC   OUT                 OUTPUT MESSAGE
003212  5028               159        J     INNER               BRANCH
003214  4724 3008          160 INTDL  MVA   OUTCB,R7            LOAD CONTROL BLOCK ADDRESS
003218  4020 31DA 3264     161        MVA   INNER,CHG4+TWO      CHANGE BRANCH LOCATION
00321E  4020 3008 309C     162        MVA   MSG04,OUTCB         LOAD ADDRESS OF MESSAGE
003224  6000               163        SVC   OUT                 OUTPUT MESSAGE
003226  501E               164        J     INNER               BRANCH
003228  4724 3008          165 ITTDL  MVA   OUTCB,R7            LOAD CONTROL BLOCK ADDRESS
00322C  4020 31E2 3264     166        MVA   INNER,CHG6+TWO      CHANGE BRANCH LOCATION
003232  4020 3008 30F4     167        MVA   MSG07,OUTCB         LOAD ADDRESS OF MESSAGE
003238  6000               168        SVC   OUT                 OUTPUT MESSAGE
00323A  5014               169        J     INNER               BRANCH
00323C  4724 3008          170 EXT    MVA   OUTCB,R7            LOAD CONTROL BLOCK ADDRESS
003240  4020 31D2 3292     171        MVA   OUTER,CHG3+TWO      CHANGE BRANCH LOCATION
003246  4020 3008 307C     172        MVA   MSG03,OUTCB         LOAD ADDRESS OF MESSAGE
00324C  6000               173        SVC   OUT                 OUTPUT MESSAGE
00324E  5021               174        J     OUTER               BRANCH
003250  4724 3008          175 EXTDL  MVA   OUTCB,R7            LOAD CONTROL BLOCK ADDRESS
003254  4020 31E6 3292     176        MVA   OUTER,CHG5+TWO      CHANGE BRANCH LOCATION
00325A  4020 3008 30C8     177        MVA   MSG05,OUTCB         LOAD ADDRESS OF MESSAGE
003260  6000               178        SVC   OUT                 OUTPUT MESSAGE
003262  5017               179        J     OUTER               BRANCH
003264  D128 3010          180 INNER  MVD   R1,CONVT            LOAD ADDRESS INTO CONVERT AREA
003268  4724 3016          181        MVA   #HTOE,R7            LOAD ADDRESS OF CONTROL BLOCK
00326C  601A               182        SVC   HTOE                ISSUE SVC
00326E  7264               183        MVW   R2,R3               LOAD LOWER ORDER ADDRESS
003270  3310               184        SLC   TWO,R3              ISOLATE 16K BLOCK
003272  7B64 FFFC          185        RBTWI HFFFC,R3            RESET UNUSED BITS
003276  0301               186 CONTN  ABI   ONE,R3              ADD ONE
003278  6B0D 3014          187        MVW   R3,CONV             LOAD CONVERT BLOCK
00327C  4724 301C          188        MVA   $HTOE,R7            LOAD ADDRESS OF CONTROL BLOCK
003280  601A               189        SVC   HTOE                ISSUE SVC
003282  4724 3008          190        MVA   OUTCB,R7            LOAD ADDRESS OF CONTROL BLOCK
003286  4020 3008 3134     191        MVA   MSG62,OUTCB         LOAD ADDRESS OF MESSAGE
00328C  6000               192        SVC   OUT                 OUTPUT MESSAGE
00328E  6802 31AC          193        B     RETRN               BRANCH
003292  D128 3010          194 OUTER  MVD   R1,CONVT            LOAD ADDRESS INTO CONVERT BLOCK
003296  4724 3016          195        MVA   #HTOE,R7            LOAD ADDRESS OF CONTROL BLOCK
00329A  601A               196        SVC   HTOE                ISSUE SVC
00329C  D320 3010          197        MVD   CONVT,R3            LOAD ADDRESS
0032A0  3376               198        SRLD  FORTN,R3            SHIFT TO OBTAIN 16K BLOCK
0032A2  7387               199        IR    R3,R4               ISOLATE INTO R3
0032A4  7B64 FF00          200        RBTWI HFF00,R3            RESET UNUSED BITS
0032A8  50E6               201        J     CONTN               BRANCH TO CONTINUE
003000                     202        END   03401
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
0	.R0.	ABSOLUTE. HEX VALUE(00000000) 119 120 131 133
0	.R1.	ABSOLUTE. HEX VALUE(00000001) 120 128 129 133 135 136 180 194
0	.R2.	ABSOLUTE. HEX VALUE(00000002) 127 129 183
0	.R3.	ABSOLUTE. HEX VALUE(00000003) 183 184 185 186 187 197 198 199 200
0	.R4.	ABSOLUTE. HEX VALUE(00000004) 135 137 137 139 141 142 144 146 199
0	.R5.	ABSOLUTE. HEX VALUE(00000005) 149
0	.R6.	ABSOLUTE. HEX VALUE(00000006) 113 114 115 116 117 118
0	.R7.	ABSOLUTE. HEX VALUE(00000007) 122 124 150 155 160 165 170 175 181 188 190 195
70	$HTOE	ADDRESS. HEX LOCATION(0000301C) IN CSECT(03401) LENGTH(2) 188
67	#HTOE	ADDRESS. HEX LOCATION(00003016) IN CSECT(03401) LENGTH(2) 181 195
52	ALTCN	ABSOLUTE. HEX VALUE(00000240) 122
110	ANSY	ADDRESS. HEX LOCATION(00003170) IN CSECT(03401) LENGTH(1) 128
138	CHG1	ADDRESS. HEX LOCATION(000031BE) IN CSECT(03401) LENGTH(4) 151
140	CHG2	ADDRESS. HEX LOCATION(000031C6) IN CSECT(03401) LENGTH(4) 156
143	CHG3	ADDRESS. HEX LOCATION(000031D0) IN CSECT(03401) LENGTH(4) 171
145	CHG4	ADDRESS. HEX LOCATION(000031D8) IN CSECT(03401) LENGTH(4) 161
148	CHG5	ADDRESS. HEX LOCATION(000031E4) IN CSECT(03401) LENGTH(4) 176
147	CHG6	ADDRESS. HEX LOCATION(000031E0) IN CSECT(03401) LENGTH(4) 166
186	CONTN	ADDRESS. HEX LOCATION(00003276) IN CSECT(03401) LENGTH(2) 201
66	CONV	ADDRESS. HEX LOCATION(00003014) IN CSECT(03401) LENGTH(2) 71 187
65	CONVT	ADDRESS. HEX LOCATION(00003010) IN CSECT(03401) LENGTH(4) 68 180 194 197
49	EIGHT	ABSOLUTE. HEX VALUE(00000008) 141
149	END	ADDRESS. HEX LOCATION(000031E8) IN CSECT(03401) LENGTH(4) 121 130 132 134
170	EXT	ADDRESS. HEX LOCATION(0000323C) IN CSECT(03401) LENGTH(4) 143
175	EXTDL	ADDRESS. HEX LOCATION(00003250) IN CSECT(03401) LENGTH(4) 148
50	FORTN	ABSOLUTE. HEX VALUE(0000000E) 198
54	HFFFC	ABSOLUTE. HEX VALUE(0000FFFC) 185
55	HFFF0	ABSOLUTE. HEX VALUE(0000FFF0) 115
53	HFF00	ABSOLUTE. HEX VALUE(0000FF00) 200
46	HF800	ABSOLUTE. HEX VALUE(0000F800) 136
58	HTOE	ABSOLUTE. HEX VALUE(0000001A) 182 189 196
44	H00E0	ABSOLUTE. HEX VALUE(000000E0) 144
45	H00E8	ABSOLUTE. HEX VALUE(000000E8) 146
59	H000F	ADDRESS. HEX LOCATION(00003004) IN CSECT(03401) LENGTH(2) 116 117
43	H0008	ABSOLUTE. HEX VALUE(00000008) 142
42	H0800	ABSOLUTE. HEX VALUE(00000800) 139
41	H3000	ABSOLUTE. HEX VALUE(00003000) 131
180	INNER	ADDRESS. HEX LOCATION(00003264) IN CSECT(03401) LENGTH(4) 151 154 156 159 161 164 166 169
109	INPUT	ADDRESS. HEX LOCATION(0000316E) IN CSECT(03401) LENGTH(2) 62 127
150	INT	ADDRESS. HEX LOCATION(000031EC) IN CSECT(03401) LENGTH(4) 138
160	INTDL	ADDRESS. HEX LOCATION(00003214) IN CSECT(03401) LENGTH(4) 145
155	INTEN	ADDRESS. HEX LOCATION(00003200) IN CSECT(03401) LENGTH(4) 140
165	ITTDL	ADDRESS. HEX LOCATION(00003228) IN CSECT(03401) LENGTH(4) 147
75	MSG01	ADDRESS. HEX LOCATION(00003024) IN CSECT(03401) LENGTH(29) 152
79	MSG02	ADDRESS. HEX LOCATION(00003044) IN CSECT(03401) LENGTH(53) 157
83	MSG03	ADDRESS. HEX LOCATION(0000307C) IN CSECT(03401) LENGTH(29) 172
87	MSG04	ADDRESS. HEX LOCATION(0000309C) IN CSECT(03401) LENGTH(41) 162
91	MSG05	ADDRESS. HEX LOCATION(000030C8) IN CSECT(03401) LENGTH(41) 177
101	MSG06	ADDRESS. HEX LOCATION(0000313A) IN CSECT(03401) LENGTH(41) 69
95	MSG07	ADDRESS. HEX LOCATION(000030F4) IN CSECT(03401) LENGTH(49) 167
106	MSG08	ADDRESS. HEX LOCATION(0000316C) IN CSECT(03401) LENGTH(1) 125
102	MSG61	ADDRESS. HEX LOCATION(00003163) IN CSECT(03401) LENGTH(5) 72
100	MSG62	ADDRESS. HEX LOCATION(00003134) IN CSECT(03401) LENGTH(6) 191
47	ONE	ABSOLUTE. HEX VALUE(00000001) 186
56	OUT	ABSOLUTE. HEX VALUE(00000000) 153 158 163 168 173 178 192

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
61	OUTCB	ADDRESS. HEX LOCATION(00003008) IN CSECT(03401) LENGTH(2) 124 125 150 152 155 157 160 162 165 167 170 172 175 177 190 191
194	OUTER	ADDRESS. HEX LOCATION(00003292) IN CSECT(03401) LENGTH(4) 171 174 176 179
57	OUTIN	ABSOLUTE. HEX VALUE(00000001) 126
38	03401	CSECT. START(00003000) LENGTH(682) ESDID(0) 38 202
131	RETRN	ADDRESS. HEX LOCATION(000031AC) IN CSECT(03401) LENGTH(4) 123 193
51	STGCT	ABSOLUTE. HEX VALUE(00000230) 113
113	STRT	ADDRESS. HEX LOCATION(00003172) IN CSECT(03401) LENGTH(4) 39
40	TABST	ABSOLUTE. HEX VALUE(00002804) 119
48	TWO	ABSOLUTE. HEX VALUE(00000002) 114 118 151 156 161 166 171 176 184

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                             3 *                    ** SYSTEM TEST EC HISTORY **                                *
                             4 ********************************************************************************
                             5 *                                                                              *
                             6 *                    ***       PREREQUISITES        ***                        *
                             7 *                                 NONE                                         *
                             8 *                                                                              *
                             9 ********************************************************************************
                            10 *                                                                              *
                            11 *                    ***       MODIFICATIONS        ***                        *
                            12 *                                                                              *
                            13 *            PROGRAMMABLE COMMUNICATIONS SUBSYSTEM ADDED                       *
                            14 *                                                                              *
                            15 ********************************************************************************
                            16 *                                                                              *
                            17 *                    ***     REA'S INCORPORATED     ***                        *
                            18 *                                 NONE                                         *
                            19 *                                                                              *
                            20 ********************************************************************************
                            21 *                                                                              *
                            22 *                    ***    SPECIAL INSTRUCTIONS    ***                        *
                            23 *                                 NONE                                         *
                            24 *                                                                              *
                            25 ********************************************************************************
                            26 *                                                                              *
                            27 *                    ***       E. C. HISTORY        ***                        *
                            28 *                                                                              *
                            29 *        DATE 01OCT76  DATE 02DEC76  DATE 06MAY77  DATE 15SEP77                *
                            30 *        E.C. 578468   E.C. 578469   E.C. 578756   E.C. 754882                  *
                            31 *                                                                              *
                            32 *        DATE 09DEC77  DATE          DATE          DATE                         *
                            33 *        E.C. 755104   E.C.          E.C.          E.C.                         *
                            34 *                                                                              *
                            35 ********************************************************************************
 001800                     36 D3410    START X'1800'            PROGRAM START ADDRESS = X'1800'
 00179C                     37 PRTSW    EQU   X'179C'            LOCATION OF SUPERVISOR PRINT SWITCH
 000256                     38 SVCIDLE  EQU   X'0256'            ADDRESS OF -> TO SVC IDLE ROUTINE
 000258                     39 SVCTERM  EQU   X'0258'            ADDRESS OF -> TO SVC TERMINATE RTN.
 000252                     40 COMDT    EQU   X'0252'            ADDRESS OF -> TO COMMAND T ROUTINE
 000254                     41 COMDB    EQU   X'0254'            ADDRESS OF -> TO COMMAND B ROUTINE
 000250                     42 COMDS    EQU   X'0250'            ADDRESS OF -> TO COMMAND S ROUTINE
 000233                     43 IPLADD   EQU   X'0233'            IPL DEVISE ADDRESS STORED HERE
 000240                     44 ALCONADD EQU   X'0240'            ALT. CON. DEVISE ADDRESS STORED HERE
 00025E                     45 COMPRNT  EQU   X'025E'            ADDRESS OF COMMON PRINT ROUTINE
 00025A                     46 CICBTB   EQU   X'025A'            ADDRESS OF CICB SVC TABLE
 0000A8                     47 CICBTBND EQU   168                LEN OF CICB TABLE
 002102                     48 TOTPROG  EQU   X'2102'            ADDRESS OF MAX PROGRAMS LOADED
 002100                     49 ADDTABPT EQU   X'2100'            ADDRESS OF START OF CONFIG. TABLE
 002104                     50 PROGACT  EQU   X'2104'            ADDRESS OF TOTAL PROGRAMS REQUESTED
 002106                     51 ENTNUM   EQU   X'2106'            ADDRESS OF TOTAL DEV TAB ENTRIES
 00025C                     52 SCHAD    EQU   X'025C'            ADDRESS OF ECP SCHEDULAR
 000004                     53 FOUR     EQU   4                  04
 000003                     54 THREE    EQU   3                  03
 000001                     55 ONE      EQU   1                  01
 000000                     56 ZERO     EQU   0                  00
 000020                     57 THIRTY2  EQU   32                 32
 00001E                     58 THIRTY   EQU   30                 30
 000002                     59 TWO      EQU   2                  02
 000017                     60 TWENTY3  EQU   23                 23
 000006                     61 SIX      EQU   6                  06
 00000A                     62 TEN      EQU   10                 10
 000010                     63 SIXTEEN  EQU   16                 16
 000011                     64 SEVNTEEN EQU   17                 17
 000014                     65 TWENTY   EQU   20                 20
 000008                     66 EIGHT    EQU   8                  08
 000010                     67 SVCPT    EQU   X'0010'           LOW CORE ADDRESS OF SVC POINTER TAB.
 00001A                     68 HTOE     EQU   26                 SVC FOR HEX TO EBC.
 00001F                     69 READI    EQU   31                 SVC FOR READ PROGRAM
 000021                     70 WAIT     EQU   33                 SVC FOR 40 MILL-SEC DELAY
 000007                     71 TERM     EQU   7                  SVC FOR TERMINATE PROGRAM
 000000                     72 OUT      EQU   0                  SVC FOR OUT PUT OF DATA
 000019                     73 ETOH     EQU   25                 SVC FOR EBC. TO HEX
 00000E                     74 FOURTEEN EQU   14                 14
 008000                     75 ASSIGNBT EQU   X'8000'           BIT EQUATE
 008800                     76 ASSGNBTS EQU   X'8800'           BIT EQUATE
 000200                     77 STOPBIT  EQU   X'0200'           BIT EQUATE
 00C5F0                     78 EZERO    EQU   X'C5F0'           CHARACTER EQU FOR C'E0'
 001000                     79 TERMBIT  EQU   X'1000'           BIT EQUATE
 002000                     80 INVAL    EQU   X'2000'           BIT EQUATE
 004000                     81 NOTCOMP  EQU   X'4000'           BIT EQUATE
 000001                     82 SM       EQU   1                  SUMMERY MASK MASK
 00BF00                     83 TERMFAKE EQU   X'BF00'           BIT MASK
 000100                     84 BEGINBIT EQU   X'0100'           BIT EQUATE
 00FFFF                     85 HEXFOIS  EQU   X'FFFF'           BIT MASK
 006A00                     86 DELAY    EQU   X'6A00'           DELAY COUNT FOR WAIT ROUTINES
 001000                     87 ALTBIT   EQU   X'1000'           MASK FOR ATL CON ASSIGN
 003436                     88 MSGNUM7  EQU   X'3436'           MASK FOR HALT CODE FOR PNF
 001800 F3F4F1F0            89 $PID     DC    C'3410'          PROGRAM I.D.
 001804 0000                90 $LEVEL   DC    X'0000'          CURRENT LEVEL OF PROGRAM
 001806 1A9C                91 $INADR   DC    A(SYSTART)       START ADDRESS OF PROGRAM
 001808 1812                92 $DEVPT   DC    A(DEVTAB)        POINTER TO DEVISE TABLE
 00180A 0000                93 RTNE     DC    A(*-*)           CURRENT ROUTINE
 00180C 0000                94 CKPT     DC    A(*-*)           CURRENT CHECKPOINT
 00180E 0000                95 OPTN1    DC    A(*-*)           OPTION WORD 1
 001810 0000                96 OPTN2    DC    A(*-*)           OPTION WORD 2
 001812 0000                97 DEVTAB   DC    X'0000'          START ADDRESS OF DUMMY DEVISE TABLE
 001814 0000                98          DC    X'0000'
 001816 00                  99          DC    X'00'
 001817 E4                 100 PROGDEV  DC    C'U'             CONTROL BLOCK FOR READI OF U34F1
 001818 F34F4C6F1          101 PROGREQ  DC    CL4'34F1'
 00181C 0000               102          DC    X'0000'
 00181E 20D0               103 PRNTRTN  DC    A($PRNT)         ADDRESS OF COMMON EXERCISOR PRINT RTN
 001820 0001               104 LASTPROG DC    A(1)             REFERANCE TO LAST PROG WITH CONTROL
 001822 0000               105 TEMPLAST DC    A(*-*)           TEMP SAVE AREA FOR LASTPROG
 001824 C001               106 DEVQUAN  DC    X'C001'          DEVISE TABLE USED WHEN B COMMAND USED
 001826 0000               107 DEVTYPE  DC    X'0000'          DEVISE TYPE STORE HERE
 001828 00000000000000000  108 DEVASSGN DC    8X'00'           DEVISE DEPENDENT DATA STORE HERE
 001830 00000000000000000  109          DC    10X'00'
 00183A 00000000000000000  110          DC    10X'00'
 001844 00000000000000000  111          DC    10X'00'
 00184E 00000000000000000  112          DC    10X'00'
 001858 00000000000000000  113          DC    10X'00'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
 001862 00000000000000000  114          DC    10X'00'
 00186C 00000000000000000  115 SAVEAREA DC    10X'00'
 001876 3D                 116 VALDEVT  DC    X'3D'            TABLE OF VALID DEVISE TYPES 3D
 001877 40                 117          DC    X'40'                                        40
 001878 44                 118          DC    X'44'                                        44
 001879 45                 119          DC    X'45'                                        45
 00187A 48                 120          DC    X'48'                                        48
 00187B 50                 121          DC    X'50'                                        50
 00187C 64                 122          DC    X'64'                                        64
 00187D 68                 123          DC    X'68'                                        68
 00187E 78                 124          DC    X'78'                                        78
 00187F A0                 125          DC    X'A0'                                        A0
 001880 A3                 126          DC    X'A3'                                        A3
 001881 A4                 127          DC    X'A4'                                        A4
 001882 E0                 128          DC    X'E0'                                        E0
 001883 E8                 129          DC    X'E8'                                        E8
 001884 E9                 130          DC    X'E9'                                        E9
 001885 F0                 131          DC    X'F0'                                        F0
 001886 F1                 132          DC    X'F1'                                        F1
 001887 F800               133          DC    X'F800'                                      F8
 00188A 0000               134 PROGACTV DC    A(*-*)           PROGRAM ACTIVE INDICATOR
 00188C 0001               135 $HTOE    DC    X'0001'          CONTROL BLOCK FOR HTOE
 00188E 0000               136 $HTOE1   DC    A(*-*)
 001890 18A6               137 $HTOE2   DC    A(PROGID)
 001892 0001               138 @HTOE    DC    X'0001'          CONTROL BLOCKS FOR HTOE
 001894 0000               139 @HTOE1   DC    A(*-*)
 001896 1802               140 @HTOE2   DC    A($PID+2)
 001898 0001               141 THTOE    DC    A(1)
 00189A 0000               142 THTOE1   DC    A(*-*)
 00189C 1A56               143 THTOE2   DC    A(MSG04)
 00189E 0001               144 BHTOE    DC    A(1)
 0018A0 0000               145 BHTOE1   DC    A(*-*)
 0018A2 1A72               146 BHTOE2   DC    A(MSG10)
 0018A4 00                 147          DC    X'00'
 0018A5 C5                 148 ETYPE    DC    C'E'             CONTROL BLOCK FOR READI (RELOCATE)
 0018A6 40404040           149 PROGID   DC    CL4'   '         PROG I.D.
 0018AA 0000               150 LOADADD  DC    X'0000'          PROGRAM LOAD ADDRESS
 0018AC 0002               151 @ETOH    DC    A(2)             CONTROL BLOCK FOR ETOH
 0018AE 0000               152 @ETOH1   DC    A(*-*)
 0018B0 18B2               153 @ETOH2   DC    A(DEVADD)
 0018B2 0000               154 DEVADD   DC    A(*-*)           HEX LOCATION OF REQUESTED D.A.
 0018B4 00000000           155 SYSTSTAT DC    2A(*-*)          SYSTEM TEST STATUS AREA
 0018B8 FFFF               156 MINONE   DC    X'FFFF'          NEGITIVE ONE
 0018BA 0F0F               157 CONLIT   DC    X'0F0F'          INIT LIGHT INDICATOR
 0018BC 0001               158 LIGHTS   DC    X'0001'          COUNTER TO STORE INTO THE LEDS
 0018BE 0000               159 DEVEBADD DC    A(*-*)           D.A. STORED IN EBC.
 0018C0 0000               160 TERMENT  DC    A(*-*)           SAVE AREA FOR TERMINATE SVC
 0018C2 0000               161 IDLEENT  DC    A(*-*)           SAVE AREA FOR IDLE SVC
 0018C4 0000               162 SACOMDT  DC    A(*-*)           SAVE AREA FOR COMMAND T
 0018C6 0000               163 SACOMDS  DC    A(*-*)           SAVE AREA FOR COMMAND S
 0018C8 0000               164 SACOMDB  DC    A(*-*)           SAVE AREA FOR COMMAND B
 0018CA 0000               165 SAVR1    DC    A(*-*)           REG. SAVE AREA
 0018CC 0000               166 SAVR3    DC    A(*-*)           REG. SAVE AREA
 0018CE 0040               167 CHAINMSK DC    X'0040'          MASK FOR CHAIN BIT OFF
 0018D0                    168 CHAINBIT EQU   X'4000'          MASK FIELD FOR CHAIN BIT ON
 0018D0 00C0               169 $NORD    DC    X'00C0'          CONTROL BLOCK FOR SVC OUT
 0018D2 0000               170 $OUT     DC    A(*-*)           DURRING THE PRINTING OF A ERROR
 0018D4 5C5C5C5CC5D9D9D6D  171 $HDR     DC    C'****ERROR*****'
 0018E2 0000               172          DC    X'0000'
 0018E4 C6D3C1C740C9D6C9D  173 $HDR1    DC    C'FLAG IOIN ISB  INST DEV1 DEV2 DEV3 DEV4 '
 0018FC 0000               174          DC    X'0000'
 0018FE 4040404040404040  175 LINE1    DC    CL40' '
 001926 0000               176          DC    X'0000'
 001928 C3D5E3D340C4C3C2F  177 $HDR2    DC    C'CNTL DCB2 DCB3 DCB4 DCB5 CHAD BYCT ADRS '
 001960 0000               178          DC    X'0000'
 001962 4040404040404040  179 LINE2    DC    CL40' '
 00198A 0000               180          DC    X'0000'
 00198C D9E2C1C440C3E260F  181 $HDR3    DC    C'RSAD CS-2 CS-3 CS-4 CS-5 CS-6 CS-7 CS-8 '
 0019B4 0000               182          DC    X'0000'
 0019B6 4040404040404040  183 LINE3    DC    CL40' '
 0019DE 0000               184          DC     X'0000'
 0019E0 343D               185          DC     X'343D'
 0019E2 E7E740C5D9D940D3C  186          DC     C'XX ERR LIM'
 0019EC 0000               187          DC     X'0000'
 0019EE 343C               188          DC     X'343C'
 0019F0 C5E7C5C361C5D9D94  189          DC     C'EXEC/ERR CNT. = '
 001A00 E7E7E7E7E7E7E7E7E  190 PGMC1    DC     C'XXXXXXXXXXXXXXXX'
 001A10 00                 191          DC     X'00'
 001A11 00                 192          ALIGN  WORD
 001A12 3430               193          DC     X'3430'
 001A14 E6C1C9E3           194 MSG01    DC     C'WAIT'
 001A18 00                 195          DC     X'00'
 001A19 00                 196          ALIGN  WORD
 001A1A 3431               197          DC     X'3431'
 001A1C C9D5E540D9C5D8     198 MSG02    DC     C'INV REQ'
 001A23 00                 199          DC     X'00'
 001A24 3434               200          ALIGN  WORD
 001A26 D7D5C6             201 MSG07    DC     X'3434'
 001A29 00                 202 MSG05    DC     C'PNF'
 001A2A 3435               203          DC     X'00'
 001A2C D5D640D7D9D6C740C  204          ALIGN  WORD
 001A37 00                 205 MSG06    DC     X'3435'
 001A38 3437               206          DC     C'NO PROG ACT'
 001A3A D5D640E2E3D6D9C1C  207          DC     X'00'
 001A44 00                 208          ALIGN  WORD
 001A45 00                 209          DC     X'3437'
 001A46 3432               210 MSG08    DC     C'NO STORAGE'
 001A48                    211          DC     X'00'
 001A48 404040D5D6E340C6D  212          ALIGN  WORD
 001A52 00                 213          DC     X'3432'
 001A53 00                 214 MSG03    EQU    *
 001A54 3433               215 MSG031   DC     C'   NOT FND'
 001A56 404040E3C5D9D4     216          DC     X'00'
 001A5D 00                 217          ALIGN  WORD
 001A5E 3438               218          DC     X'3433'
 001A60 404040C1C3E340C9D  219 MSG04    DC     C'  TERM'
 001A6E 00                 220          DC     X'00'
 001A6F 00                 221          ALIGN  WORD
 001A70 3439               222          DC     X'3438'
 001A72 404040E2E3         223 MSG09    DC     C'  ACT INV REQ'
                           224          DC     X'00'
                           225          ALIGN  WORD
                           226          DC     X'3439'
                           227 MSG10    DC     C'  ST'
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

001A77  00                236          DC    X'00'
                          237          ALIGN WORD
001A78  343A              238          DC    X'343A'
001A7A  404040D4E4E2E340E 239 MSG11    DC    C' MUST TERM'
001A86  00                240          DC    X'00'
001A87  00                241          ALIGN WORD
001A88  343B              242          DC    X'343B'
001A8A  4040406040C9D5E54 243 MSG12    DC    C'  - INV DEV TYPE'
001A9B  00                244          DC    X'00'
                          245          ALIGN WORD
001A9C  6802 1AA0         247 SYSTART  B     SYS                      INSTRUCTION USED TO CHANGE ENTRY PNT
001AA0  4020 1808 2106    248 SYS      MVWI  ENTNUM,$DEVPT            CHANGE DEV. POINTER ADDRESS
001AA6  8828 2104 188A    249          MVW   PROGACT,PROGACTV         SAVE TOTAL PROGRAMS REQUESTED
001AAC  8838 0254 18C8    250          MVW   COMDB*,SACOMDB           SAVE COMMAND B ADDRESS
001AB2  8838 0250 18C6    251          MVW   COMDS*,SACOMDS           SAVE COMMAND S ADDRESS
001AB8  8838 0252 18C4    252          MVW   COMDT*,SACOMDT           SAVE COMMAND T ADDRESS
001ABE  8838 0256 18C2    253          MVW   SVCIDLE*,IDLEENT         SAVE SVC IDLE ENTRY
001AC4  4030 0254 1DD4    254          MVA   $BDA,COMDB*              STORE COMMAND B ADDRESS
001ACA  4030 0256 1B48    255          MVA   $IDLE,SVCIDLE*           STORE SVC IDLE ADDRESS
001AD0  4030 0252 1DCA    256          MVA   $TDA,COMDT*              STORE COMMAND T ADDRESS
001AD6  4030 0250 1DDE    257          MVA   $SDA,COMDS*              STORE COMMAND S ADDRESS
001ADC  8838 0258 18C0    258          MVW   SVCTERM*,TERMENT         SAVE SVC TERM ENTRY
001AE2  4030 0258 1E24    259          MVA   $TERM,SVCTERM*           STORE SVC TERM ADDRESS
001AE8  4724 1817         260          MVA   PROGDEV,R7               LOAD SYSTEM TEST CONFIG.
001AEC  601F              261          SVC   READI                    SVC READ PROG
001AEE  75A7              262          IR    R5,R5                    INSPECT RETURN CODE
001AF0  6801 1D66         263          BNZ   $MSG07                   BRANCH IF ERROR
001AF4  6F08 2104         264          MVW   PROGACT,R7               LOAD PROGRAM ACTIVE COUNT
001AF8  1009              265          JZ    LOADONE                  BRANCH IF ZERO
001AFA  9F70              266 CONTIN   JAL   LOAD,R7                   BRANCH TO LOAD PROGRAM
001AFC  4029 1820 0001    267          AWI   ONE,LASTPROG             ADD ONE TO PROGRAMS LOADDED COUNT
001B02  882B 1820 2104    268          CW    LASTPROG,PROGACT         WAS THIS THE LAST ONE
001B08  1201              269          JN    LOADONE                  BRANCH YES
001B0A  50F7              270          J     CONTIN                   NO -- CONTINUE
001B0C  4020 1820 0001    271 LOADONE  MVWI  ONE,LASTPROG             INIT LAST PROG ACTIVE INDICATOR
001B12  402B 2102 1000    272          TWI   ALTBIT,TOTPROG           IS THE ALT CON GOING TO BE TESTED
001B18  1028              273          JOFF  $IDLE1                   BRANCH IF NO
001B1A  402D 2102 1000    274          RBTWI ALTBIT,TOTPROG           TURN OFF INDICATOR BIT
001B20  8828 0240 1826    275          MVW   ALCONADD,DEVTYPE         SET DEVISE TABLE
001B26  882C 18C0 0258    276          MVW   TERMENT,SVCTERM*         RESET SVC TERM POINTER
001B2C  4020 1808 1824    277          MVA   DEVQUAN,$DEVPT           INIT DEV POINTER FOR ECP
001B32  4020 1A9E 1B3A    278          MVA   SYS+2,SYSTART+2          CHANGE BRANCH POINT
001B38  6007              279          SVC   TERM                     ISSUE SVC
001B3A  4030 0258 1E24    280 SYSAC    MVA   $TERM,SVCTERM*           REINIT TERMINATE ADDRESS
001B40  4020 1808 2106    281          MVWI  ENTNUM,$DEVPT            REINIT DEV POINTER
001B46  5011              282          J     $IDLE1                   BRANCH
001B48  6B08 2100         284 $IDLE    MVW   ADDTABPT,R3              LOAD ADDRESS OF LSB SAVE AREA
001B4C  6A08 1820         285          MVW   LASTPROG,R2              LOAD LAST PROG INDICATOR
001B50  BA01              286 $IDLE4   JCT   $IDLE2,R2                BRANCH FOR COUNT
001B52  5002              287          J     $IDLE3                   BRANCH
001B54  0320              288 $IDLE2   ABI   THIRTY2,R3                ADD 32 TO LSB POINTER
001B56  50FC              289          J     $IDLE4                   BRANCH
001B58  0F1E              290 $IDLE3   MVBI  THIRTY,R7                LOAD R7 WITH LSB COUNT
001B5A  0302              291          ABI   TWO,R3                   BUMP PAST ACTIVE INDICATOR
001B5C  690D 0010         292          MVW   R1,SVCPT                 REINIT SVC POINTER
001B60  2964              293          MVFN  (R1),(R3)                MOVE LSB
001B62  4029 1820 0001    294          AWI   ONE,LASTPROG             BUMP LAST PROG INDICATOR
001B68  5075              295          J     CKTINGS                  BRANCH TO CHECK TINGS
001B6A  6201              296 $IDLE1   EN    SM                       ENABLE SUMMARY MASK
001B6C  6C08 18BC         297          MVW   LIGHTS,R4                LOAD R4 WITH LED COUNT
001B70  0401              298          ABI   ONE,R4                   INCREMENT BY ONE
001B72  6C0D 18BC         299          MVW   R4,LIGHTS                SAVE
001B76  102A              300          JZ    $IDLE9                   BRANCH IF ZERO
001B78  6B08 2100         301 $IDLE8   MVW   ADDTABPT,R3              LOAD ADDRESS OF LSB SAVE AREA
001B7C  882B 1820 2104    302          CW    LASTPROG,PROGACT         COMPARE LAST PROG INDI TO TOTAL ENT.
001B82  1201              303          JN    REINIT                   BRANCH IF HIGH
001B84  5003              304          J     NOINIT                   BRANCH
001B86  4020 1820 0001    305 REINIT   MVWI  ONE,LASTPROG             REINIT LAST PROG INDICATOR
001B8C  6D08 1820         306 NOINIT   MVW   LASTPROG,R5              LOAD PROG INDICATOR
001B90  BD01              307 $IDLE7   JCT   $IDLE5,R5                BRANCH FOR COUNT
001B92  5002              308          J     $IDLE6                   BRANCH
001B94  0320              309 $IDLE5   ABI   THIRTY2,R3                BUMP LSB POINTER
001B96  50FC              310          J     $IDLE7                   BRANCH
001B98  402F 2104 0000    311 $IDLE6   CWI   ZERO,PROGACT              ARE THERE ANY PROG ACT
001B9E  6800 1D18         312          BE    $NONACT                  BRANCH IF NONE
001BA2  6D68 0002         313          MVW   (R3,TWO),R5              LOAD FIRST WORD OF LSB
001BA6  100E              314          JZ    STPROG                   IF X'0000' START PROG
001BA8  402F 2104 0002    315          CWI   TWO,PROGACT              COMPARE TO TWO ACTIVE PROG
001BAE  1D05              316          JGT   $IDLE10                  BRANCH IF MORE
001BB0  0D03              317          MVBI  THREE,R5                 INIT R5
001BB2  6D0F 2104         318          SW    PROGACT,R5               SUB TOTAL PROG
001BB6  6021              319 $IDLE11  SVC   WAIT                     ISSUE SVC
001BB8  BDFE              320          JCT   $IDLE11,R5               BRANCH FOR COUNT
001BBA  0302              321 $IDLE10  ABI   TWO,R3                   BUMP R3 TO START OF LSB
001BBC  C2E0 0017         322          MVB   (R3,TWENTY3),R2          SET LEVEL INTO R2
001BC0  5AC6              323          SELB  R2,(R3)                  BRANCH TO PROG
001BC2  6100              324          LEX   0                        LEX OFF LEVEL
001BC4  CBC0              325 STPROG   MVW   (R3),R3                  LOAD START ADDRESS OF PROG
001BC6  0306              326          ABI   SIX,R3                   INDEX TO POINT AT EXECUTION START ADD
001BC8  CBC0              327          MVW   (R3),R3                  LOAD EXEC START ADDRESS
001BCA  5300              328          BXS   (R3)                     BRANCH TO START PROG
001BCC  6C08 18BA         329 $IDLE9   MVW   CONLIT,R4                LOAD CONSOL LEDS MASK
001BD0  7890              330          SECON R4                       SET LEDS
001BD2  6C08 18B8         331          MVW   NONE,R4                  LOAD MASK FIELD
001BD6  CC2B 18BA         332          XW    R4,CONLIT                SET LEDS FIELD FOR NEXT TIME
001BDA  50CE              333          J     $IDLE8                   BRANCH TO CONTINUE
001BDC  6F0D 1C52         335 LOAD     MVW   R7,LOADRET+2             SAVE RETURN ADDRESS
001BE0  6A08 2100         336          MVW   ADDTABPT,R2              MOVE ADDRESS OF ADD/LSB TABLE
001BE4  4424 2106         337          MVWI  ENTNUM,R4                LOAD ENTRY NUMBER ADDRESS
001BE8  0402              338          ABI   TWO,R4                   ADD TWO TO POINT AT DEV TAB
001BEA  6908 1820         339          MVW   LASTPROG,R1              LOAD R1 WITH PROG NUMBER
001BEE  B901              340 DECR1    JCT   INCREM,R1                BRANCH ON PROG NUM
001BF0  5007              341          J     FOUND                    BRANCH
001BF2  4C11              342 INCREM   TBT   (R4,SEVNTEEN)            TEST CHAIN BIT
001BF4  1002              343          JOFF  INCREM1                  BRANCH IF NO
001BF6  040A              344          ABI   TEN,R4                   BUMP R4
001BF8  50FC              345          J     INCREM                   BRANCH
001BFA  040A              346 INCREM1  ABI   TEN,R4                   BUMP TO NEXT DEVISE
001BFC  0220              347          ABI   THIRTY2,R2               BUMP TO NEXT ADD/LSB
001BFE  50F7              348          J     DECR1                    BRANCH
001C00  6C0D 1894         349 FOUND    MVW   R4,@HTOE1                MOVE ADDRESS INTO CONTROL BLOCK
001C04  4724 1892         350          MVA   @HTOE,R7                 LOAD ADD OF CONTROL BLOCK
001C08  601A              351          SVC   HTOE                     ISSUE SVC
001C0A  0401              352          ABI   ONE,R4                   POINT AT DEV TYPE FIELD
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001C0C  6C0D 188E         353          MVW   R4,$HTOE1                MOVE ADDRESS INTO CONTROL BLOCK
001C10  4724 188C         354          MVA   $HTOE,R7                 LOAD ADDRESS OF CONTROL BLOCK
001C14  601A              355          SVC   HTOE                     ISSUE SVC
001C16  CFA5 0002         356          MVWZ  (R2,TWO),R7              ZERO OUT FIRST LSB ENTRY
001C1A  8A08 18AA         357          MVW   (R2),LOADADD             MOVE START EXECUTION ADDRESS
001C1E  4724 18A5         358          MVA   $TYPE,R7                 LOAD ADDRESS OF CONTROL BLOCK
001C22  4020 18A8 C5F0    359          MVWI  EZERO,PROGID+2           SET UP TO ASK FOR C'E0' PROG.
001C28  601F              360          SVC   READI                    ISSUE SVC
001C2A  75A7              361          IR    R5,R5                    TEST RETURN CODE
001C2C  1844              362          JNZ   $MSG05                   BRANCH IF ERROR
001C2E  7C82 0001         363          SWI   ONE,R4                   POINT AT DEV TABLE
001C32  CA80              364          MVW   (R2),R2                  LOAD START ADDRESS
001C34  0202              365          ABI   TWO,R2                   BUMP BY TWO
001C36  88A0 1802         366          MVW   $PID+2,(R2)              PUT EBC DEV ADDRESS IN PID OF PROG
001C3A  77EA              367          SW    R7,R7                    INIT R7 TO 00
001C3C  7424              368          MVW   R4,R1                    INIT R1 AS POINTER
001C3E  4911              369 FNDEND   TBT   (R1,SEVNTEEN)            TEST CHAIN BIT
001C40  1003              370          JOFF  FNDEND1                  BRANCH IF OFF
001C42  070A              371          ABI   TEN,R7                   BUMP R7
001C44  010A              372          ABI   TEN,R1                   BUMP R1
001C46  50EB              373          J     FNDEND                   BRANCH
001C48  070A              374 FNDEND1  ABI   TEN,R7                   ESTABLISH LEN FOR R7
001C4A  0206              375          ABI   SIX,R2                   POINT R2 AT DEV ADD POINTER
001C4C  CA80              376          MVW   (R2),R2                  LOAD ADDRESS OF DEV ADD TAB
001C4E  2C44              377          MVFN  (R4),(R2)                MOVE CONFIG ENTRY
001C50  6802 0000         378 LOADRET  B     0                        RETURN
001C54  402B 18B4 4000    380 CKTINGS  TWI   NOTCOMP,SYSTSTAT         TEST NOT COMPLETE BIT
001C5A  1235              381          JON   $MSG01                   BRANCH IF ON
001C5C  402B 18B4 2000    382          TWI   INVAL,SYSTSTAT           TEST INVALID FUNCTION BIT
001C62  1218              383          JON   $MSG02                   BRANCH IF ON
001C64  402B 18B4 1000    384          TWI   TERMBIT,SYSTSTAT         TEST TERMINATE PROG BIT
001C6A  6A00 1DEE         385          BON   SETERM                   BRANCH IF ON
001C6E  402B 18B4 0100    386          TWI   BEGINBIT,SYSTSTAT        TEST BEGIN PROG BIT
001C74  6A00 1F62         387          BON   BEGINPG                  BRANCH IF ON
001C78  402B 18B4 0200    388          TWI   STOPBIT,SYSTSTAT         TEST STOP SYSTEM TEST BIT
001C7E  6A00 1F48         389          BON   STOPPG                   BRANCH IF ON
001C82  6802 1B6A         390          B     $IDLE1                   RETURN IF ALL OFF
001C86  4020 18D2 1A14    391 $MSG01   MVA   MSG01,$OUT               MOVE ADDRESS OF MSG
001C8C  402D 18B4 4000    392          RBTWI NOTCOMP,SYSTSTAT         RESET BIT
001C92  503B              393          J     ISSUE                    BRANCH
001C94  4020 18D2 1A1C    394 $MSG02   MVA   MSG02,$OUT               MOVE ADDRESS OF MSG
001C9A  402D 18B4 2000    395          RBTWI INVAL,SYSTSTAT           RESET BIT
001CA0  5034              396          J     ISSUE                    BRANCH
001CA2  4020 18D2 1A48    397 $MSG03   MVA   MSG03,$OUT               MOVE ADDRESS OF MSG
001CA8  8828 18BE 1A48    398          MVW   DEVEBADD,MSG031          LOAD DEV ADDRESS INTO MSG
001CAE  402D 18B4 1000    399          RBTWI TERMBIT,SYSTSTAT         RESET BIT
001CB4  502A              400          J     ISSUE                    BRANCH
001CB6  4020 18D2 1A26    401 $MSG05   MVA   MSG05,$OUT               MOVE ADDRESS OF MESSAGE
001CBC  4324 18B2         402          MVA   DEVADD,R3                INIT R3 WITH ADDRESS
001CC0  4724 18D2         403          MVA   $OUT,R7                  LOAD ADDRESS OF CONTROL BLOCK
001CC4  6000              404          SVC   OUT                      ISSUE SVC
001CC6  503C              405          J     DOTOSTOP                 BRANCH TO TERMINATE
001CC8  4020 18D2 1A3A    406 $MSG08   MVA   MSG08,$OUT               MOVE ADDRESS OF MSG
001CCE  402D 18B4 0100    407          RBTWI BEGINBIT,SYSTSTAT        RESET BIT
001CD4  501A              408          J     ISSUE                    BRANCH
001CD6  4020 18D2 1A60    409 $MSG09   MVA   MSG09,$OUT               MOVE ADDRESS OF MSG
001CDC  8828 18BE 1A60    410          MVW   DEVEBADD,MSG09           MOVE DEV ADDRESS INTO MSG
001CE2  402D 18B4 0100    411          RBTWI BEGINBIT,SYSTSTAT        RESET BIT
001CE8  5010              412          J     ISSUE                    BRANCH
001CEA  4020 18D2 1A7A    413 $MSG11   MVA   MSG11,$OUT               MOVE ADDRESS OF MSG
001CF0  402D 18B4 0100    414          RBTWI BEGINBIT,SYSTSTAT        RESET BIT
001CF6  500B              415          J     ISSUE1                   BRANCH
001CF8  4020 18D2 1A8A    416 $MSG12   MVA   MSG12,$OUT               MOVE ADDRESS OF MSG
001CFE  8828 18BE 1A8A    417          MVW   DEVEBADD,MSG12           MOVE DEV ADDRESS INTO MSG
001D04  402D 18B4 0100    418          RBTWI BEGINBIT,SYSTSTAT        RESET BIT
001D0A  4324 18B2         420 ISSUE    MVA   DEVADD,R3                INIT R3 WITH ADDRESS
001D0E  4724 18D2         421 ISSUE1   MVA   $OUT,R7                  LOAD ADDRESS OF CONTROL BLOCK
001D12  6000              422          SVC   OUT                      ISSUE SVC
001D14  6802 1B6A         423          B     $IDLE1                   RETURN
001D18  402B 18B4 0200    424 $NONACT  TWI   STOPBIT,SYSTSTAT         TEST STOP SYSTEM TEST BIT
001D1E  1210              425          JON   DOTOSTOP                 BRANCH IF ON
001D20  4020 18D2 1A2C    426          MVA   MSG06,$OUT               MOVE ADDRESS OF MSG
001D26  CF25 18B4         427          MVWZ  SYSTSTAT,R7              ZERO ALL STATUS BITS
001D2A  4724 18D2         428          MVA   $OUT,R7                  LOAD ADDRESS OF CONTROL BLOCK
001D2E  4324 18B2         429          MVA   DEVADD,R3                INIT R3 WITH ADDRESS
001D32  6000              430          SVC   OUT                      ISSUE SVC
001D34  6F08 18B4         431 $NONAC   MVW   SYSTSTAT,R7              LOAD SYSTEM STATUS WORD
001D38  6801 1C54         432          BNZ   CKTINGS                  BRANCH IF NON ZERO
001D3C  6201              433          EN    SM                       ENABLE SYSTEM MASK
001D3E  50FA              434          J     $NONAC                   CONTINUE TESTING STATUS WORD
001D40  882C 18C0 0258    435 DOTOSTOP MVW   TERMENT,SVCTERM*         REINIT TERMINATE POINTER
001D46  4020 1808 1812    436          MVA   DEVTAB,$DEVPT            REINIT DEV ADD TAB POINTER
001D4C  882C 18C2 0256    437          MVW   IDLEENT,SVCIDLE*         REINIT SVC IDLE POINTER
001D52  882C 18C8 0254    438          MVW   SACOMDB,COMDB*           REINIT COMMAND B POINTER
001D58  882C 18C4 0252    439          MVW   SACOMDT,COMDT*           REINIT COMMAND T POINTER
001D5E  882C 18C6 0250    440          MVW   SACOMDS,COMDS*           REINIT COMMAND S POINTER
001D64  6007              441          SVC   TERM                     TERMINATE
001D66  4020 1A24 3436    442 $MSG07   MVWI  MSGNUM7,MSG07            LOAD MESSAGE HALT CODE
001D6C  4020 18D2 1A26    443          MVA   MSG05,$OUT               LOAD ADDRESS OF MESSAGE
001D72  4724 18D2         444          MVA   $OUT,R7                  LOAD ADDRESS OF CONTROL BLOCK
001D76  4324 1818         445          MVA   PROGREQ,R3               LOAD ADDRESS OF PROG NAME INTO R3
001D7A  6000              446          SVC   OUT                      ISSUE SVC
001D7C  50E1              447          J     DOTOSTOP                 BRANCH TO TERMINATE
001D7E  6F0D 1DB2         449 TEST     MVW   R7,TESTRET+2             SAVE RETURN ADDRESS
001D82  C180              450          MVB   (R2),R1                  MOVE FIRST BYTE OF DATA
001D84  103B              451          JZ    $INVAL                   BRANCH IF END OF INPUT
001D86  402B 18B4 1000    452          TWI   TERMBIT,SYSTSTAT         TEST TERMINATE BIT
001D8C  1213              453          JON   $NOTCOMP                 BRANCH IF ON
001D8E  402B 18B4 0100    454          TWI   BEGINBIT,SYSTSTAT        TEST BEGIN BIT
001D94  120F              455          JON   $NOTCOMP                 BRANCH IF ON
001D96  402B 18B4 0200    456          TWI   STOPBIT,SYSTSTAT         TEST STOP BIT
001D9C  120B              457          JON   $NOTCOMP                 BRANCH IF ON
001D9E  6A0D 18AE         458          MVW   R2,@ETOH1                LOAD ADDRESS INTO CONTROL BLOCK
001DA2  8218 18BE         459          MVB   (R2),DEVEBADD            MOVE EBC DEV ADDRESS
001DA6  8208 18BF         460          MVB   (R2),DEVEBADD+1                  INTO SAVE AREA
001DAA  4724 18AC         461          MVA   @ETOH,R7                 LOAD ADDRESS OF CONTROL BLOCK
001DAE  6019              462          SVC   ETOH                     ISSUE SVC
001DB0  6802 0000         463 TESTRET  B     0                        RETURN
001DB4  402C 18B4 4000    464 $NOTCOMP OWI   NOTCOMP,SYSTSTAT         TURN ON TASK NOT COMPLETE BIT
001DBA  5003              465          J     EXIT                     BRANCH
001DBC  402C 18B4 2000    466 $INVAL   OWI   INVAL,SYSTSTAT           TURN ON INVALID COMMAND BIT
001DC2  6D08 025C         467 EXIT     MVW   SCHAD,R5                 LOAD R5 WITH BRANCH TO ADDRESS
001DC6  68A2 0000         468          B     (R5)                     BRANCH
001DCA  9FD9              470 $TDA     JAL   TEST,R7                  BRANCH TO TEST STATUS
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001DCC  402C 18B4 1000      471          OWI   TERMBIT,SYSTSTAT   SET TERRMINATE BIT
001DD2  50F7                472          J     EXIT               BRANCH
001DD4  9FD4                473 $BDA     JAL   TEST,R7            BRANCH TO TEST STATUS
001DD6  402C 18B4 0100      474          OWI   BEGINBIT,SYSTSTAT   SET BEGIN BIT
001DDC  50F2                475          J     EXIT               BRANCH
001DDE  402B 18B4 0100      476 $SDA     TWI   BEGINBIT,SYSTSTAT  TEST BEGIN BIT
001DE4  12E7                477          JON   $NOTCOMP          BRANCH IF NOT COMPLETE
001DE6  402C 18B4 0200      478          OWI   STOPBIT,SYSTSTAT   SET STOP BIT
001DEC  50EA                479          J     EXIT               BRANCH
001DEE  C120 18B2           481 SETERM   MVB   DEVADD,R1          MOVE DEV ADDRESS INTO R1
001DF2  6C08 2104           482          MVW   PROGACT,R4         LOAD TOTAL ENTRY NUMBER
001DF6  6D08 2100           483          MVW   ADDTABPT,R5        LOAD POINTER TO LSB
001DFA  4324 2106           484          MVWI  ENTNUM,R3          LOAD ADDRESS OF DEV TAB
001DFE  0302                485          ABI   TWO,R3             POINT AT FIRST ENTRY
001E00  C1C4                486 CKNEXT   CB    (R3),R1           IS THIS THE DEV TO TERM
001E02  1009                487          JE    SETBIT             BRANCH IF YES
001E04  4B11                488 INCREM2  TBT   (R3,SEVNTEEN)      TEST CHAIN BIT
001E06  1002                489          JOFF  INCREM3            BRANCH IF OFF
001E08  030A                490          ABI   TEN,R3             BUMP R3
001E0A  50FC                491          J     INCREM2            BRANCH
001E0C  030A                492 INCREM3  ABI   TEN,R3             INCREMENT WITHIN DEV TAB
001E0E  0520                493          ABI   THIRTY2,R5         BUMP TO NEXT LSB
001E10  BCF7                494          JCT   CKNEXT,R4          BRANCH ON ENTRY NUMBER
001E12  6802 1CA2           495          B     $MSG03             IF ENTRY NOT FOUND PUT OUT MSG
001E16  6AA8 0000           496 SETBIT   MVW   (R5),R2            LOAD START ADDRESS OF PROG
001E1A  020E                497          ABI   FOURTEEN,R2        BUMP POINTER TO OPTION WORD ONE
001E1C  408C 1000           498          OWI   TERMBIT,(R2)       TURN ON TERMINATE BIT
001E20  6802 1B6A           499          B     $IDLE1             RETURN
001E24  690D 0010           501 $TERM    MVW   R1,SVCPT           RESET SVC POINTERS
001E28  5820 18B8           502          SEIMR MINONE             SET SYSTEM MASK
001E2C  6201                503          EN    SM                 ENABLE INTERRUPTS
001E2E  4324 6A00           504          MVWI  DELAY,R3           INIT DELAY COUNT
001E32  6021                505 TERM0    SVC   WAIT               ISSUE SVC TO DELAY
001E34  BBFE                506          JCT   TERM0,R3           DELAY FOR 6 SEC.
001E36  6B08 2100           507          MVW   ADDTABPT,R3        LOAD POINTER TO LSB TABLE
001E3A  6C08 2102           508          MVW   TOTPROG,R4         LOAD TOTAL PROG ALLOWED
001E3E  6D08 1820           509          MVW   LASTPROG,R5        LOAD LAST PROG ACTIVE INDICATOR
001E42  BD01                510 TERM1    JCT   TERM2,R5           BRANCH TO FIND CORRECT LSB
001E44  5004                511          J     TERM3              BRANCH
001E46  0320                512 TERM2    ABI   THIRTY2,R3         INCREMENT TO NEXT LSB
001E48  7C82 0001           513          SWI   ONE,R4             KEEP TRACK OF PROG REMAINING
001E4C  50FA                514          J     TERM1              BRANCH
001E4E  CAC0                515 TERM3    MVW   (R3),R2            LOAD START ADDRESS OF PROG
001E50  7C82 0001           516          SWI   ONE,R4             KEEP TRACK OF PROG REMAINING
001E54  1005                517          JZ    TERM4              BRANCH IF AT END OF TABLE
001E56  73A4                518          MVW   R3,R5              INIT R5 WITH ADDRESS
001E58  0520                519          ABI   THIRTY2,R5         BUMP R5 TO NEXT ENTRY
001E5A  0F20                520 TERM10   MVBI  THIRTY2,R7         INIT COUNT REGISTER
001E5C  2D64                521          MVFN  (R5),(R3)          MOVE LSB ENTRY TO NEW LOCATION
001E5E  BCFD                522          JCT   TERM10,R4          BRANCH UNTIL FINISHED
001E60  CAD8                523 TERM9    MVW   R2,(R3)            STORE PROG LOADED
001E62  40C0 0000           524          MVWI  ZERO,(R3)          INIT LSB TO PROG NOT LOADED
001E66  402E 188A 0001      525          SWI   ONE,PROGACTV       DECREMENT PROG ACTIVE COUNT
001E6C  402E 2104 0001      526          SWI   ONE,PROGACT        DECREMENT PROG IN CORE COUNT
001E72  6808 025A           527          MVW   CICBTB,R0          LOAD ADDRESS OF CICB TABLE
001E76  6D08 1820           528          MVW   LASTPROG,R5        LOAD PROG INDICATOR
001E7A  4324 2106           529          MVWI  ENTNUM,R3          LOAD ADDRESS OF ENTRY NUM TAB
001E7E  0302                530          ABI   TWO,R3             POINT TO DEV TABLE
001E80  BD01                531 TERM4    JCT   TERM5,R5           BRANCH TO FIND DEV ENTRY
001E82  5008                532          J     TERM61             BRANCH
001E84  4B11                533 TERM5    TBT   (R3,SEVNTEEN)      TEST CHAIN BIT
001E86  1003                534          JOFF  TERM7              BRANCH IF OFF
001E88  030A                535          ABI   TEN,R3             BUMP R3
001E8A  0002                536          ABI   TWO,R0             BUMP R0
001E8C  50FB                537          J     TERM5              BRANCH
001E8E  030A                538 TERM7    ABI   TEN,R3             BUMP R3
001E90  0002                539          ABI   TWO,R0             BUMP R0
001E92  50F6                540          J     TERM4              BRANCH
001E94  7344                541 TERM61   MVW   R3,R2              SAVE START ADDRESS OF CONFIG BLOCK
001E96  7024                542          MVW   R0,R1              SAVE START ADDRESS WITHIN CICB TABLE
001E98  6B0D 189A           543 TERM6    MVW   R3,THTOE1          LOAD CONTROL BLOCK
001E9C  4724 1898           544          MVA   THTOE,R7           LOAD ADDRESS
001EA0  601A                545          SVC   HTOE               ISSUE SVC
001EA2  4020 18D2 1A56      546          MVA   MSG04,$OUT         LOAD ADDRESS OF MSG
001EA8  D028 186C           547          MVD   R0,SAVEAREA        SAVE REG 0 AND 1
001EAC  D228 1870           548          MVD   R2,SAVEAREA+4      SAVE REG 2 AND 3
001EB0  830B 0240           549          CB    (R3),ALCONADD      IS  THIS THE ALT CON
001EB4  1813                550          JNE   TERM62             BRANCH NO
001EB6  4020 1824 A001      551          MVWI  X'A001',DEVQUAN    SET UP TERMINATE CONTROL WORD
001EBC  882C 18C0 0258      552          MVW   TERMENT,SVCTERM*   INIT SVC TERM POINTER
001EC2  4020 1808 1824      553          MVA   DEVQUAN,$DEVPT     INIT DEV TAB POINTER
001EC8  4020 1A9E 1ED0      554          MVA   TERM63,SYSTART+2   INIT ENTRY POINT
001ECE  6007                555          SVC   TERM               ISSUE SVC
001ED0  4030 0258 1E24      556 TERM63   MVA   $TERM,SVCTERM*     REINIT SVC POINTER
001ED6  4020 1808 2106      557          MVWI  ENTNUM,$DEVPT      MOVE OLD ADDRESS INTO POINTER AREA
001EDC  4724 18D2           558 TERM62   MVA   $OUT,R7            LOAD ADDRESS
001EE0  4324 18B2           559          MVA   DEVADD,R3          INIT R3 WITH ADDRESS OF DEV. ADD.
001EE4  6000                560          SVC   OUT                ISSUE SVC
001EE6  D020 186C           561          MVD   SAVEAREA,R0        RESTORE REG 0 AND 1
001EEA  D220 1870           562          MVD   SAVEAREA+4,R2      RESTORE REG 2 AND 3
001EEE  402E 2106 0001      563          SWI   ONE,ENTNUM         DECREMENT ENTRIES IN TABLE COUNT
001EF4  4B11                564          TBT   (R3,SEVNTEEN)     TEST CHAIN BIT
001EF6  1003                565          JOFF  TERM8              BRANCH IF OFF
001EF8  030A                566          ABI   TEN,R3             BUMP R3
001EFA  0002                567          ABI   TWO,R0             BUMP R0
001EFC  50CD                568          J     TERM6              BRANCH
001EFE  030A                569 TERM8    ABI   TEN,R3             POINT AT CORRECT TAB ENTRY
001F00  0002                570          ABI   TWO,R0             BUMP R0
001F02  6F08 2100           571          MVW   ADDTABPT,R7        LOAD ADDRESS OF END OF TABLE
001F06  73EA                572          SW    R3,R7              SUBTRACT TO OBTAIN COUNT
001F08  2B44                573          MVFN  (R3),(R2)          MOVE ALL REMAINING TAB ENT UP
001F0A  6F08 025A           574          MVW   CICBTB,R7          LOAD START ADDRESS OF TABLE
001F0E  7FE1 00A8           575          AWI   CICBTBND,R7        BUMP POINTER TO END OF TABLE
001F12  70EA                576          SW    R0,R7              SUBTRACT TO OBTAIN COUNT
001F14  2824                577          MVFN  (R0),(R1)          MOVE ALL REMAINING TABLE ENTRIES UP
001F16  6E08 2106           578 CLEANUP  MVW   ENTNUM,R6          LOAD TOTAL ENTRIES
001F1A  4524 2106           579          MVWI  ENTNUM,R5          LOAD ADDRESS OF TAB
001F1E  0502                580          ABI   TWO,R5             BUMP TO TABLE
001F20  76C7                581          IR    R6,R6              TEST R6
001F22  1002                582          JZ    CLEAN2             BRANCH IF ZERO
001F24  050A                583 CLEAN1   ABI   TEN,R5             BUMP R5 BY ENT LEN
001F26  BEFE                584          JCT   CLEAN1,R6          BRANCH FOR TOTAL ENT NUM
001F28  6F08 2100           585 CLEAN2   MVW   ADDTABPT,R7        LOAD ADDRESS OF LSB TABLE
001F2C  75EA                586          SW    R5,R7              OBTAIN TOTAL LEN OF MOVE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001F2E  6E08 18CE           587          MVW   CHAINMSK,R6        LOAD MASK FIELD
001F32  2EAC                588          FFW   R6,(R5)            LOAD STORAGE WITH X'80'
001F34  7DA2 0008           589          SWI   EIGHT,R5           DECREMENT TO POINT AT LAST ENTRY
001F38  71A7                590          IR    R1,R5              STORE ADDRESS IN R1
001F3A  404D 4000           591          RBTWI CHAINBIT,(R1)      ZERO THIS CHAIN BIT
001F3E  402D 18B4 1000      592          RBTWI TERMBIT,SYSTSTAT   RESET TERM BIT
001F44  6802 1B6A           593          B     $IDLE1             BRANCH TO CONTINUE
001F48  6D08 2100           595 STOPPG   MVW   ADDTABPT,R5        LOAD ADDRESS OF LSB TABLE
001F4C  6C08 2104           596          MVW   PROGACT,R4         LOAD TOTAL PROG ACTIVE
001F50  6AA8 0000           597 NEXTPG   MVW   (R5),R2            LOAD ADDRESS OF PROG
001F54  020E                598          ABI   FOURTEEN,R2        BUMP TO POINT AT OPTION WORD ONE
001F56  408C 1000           599          OWI   TERMBIT,(R2)       TURN ON TERMINATE BIT
001F5A  0520                600          ABI   THIRTY2,R5         BUMP TO NEXT LSB
001F5C  BCF9                601          JCT   NEXTPG,R4          BRANCH FOR ALL PROGRAMS
001F5E  6802 1B6A           602          B     $IDLE1             RETURN
001F62  882B 188A 2102      604 BEGINPG  CW    PROGACTV,TOTPROG   TEST TO DETERMINE IF THERE IS ROOM
001F68  6800 1CC8           605          BE    $MSG08             BRANCH IF NO ROOM
001F6C  4324 2106           606          MVWI  ENTNUM,R3          LOAD ADDRESS OF TAB
001F70  0302                607          ABI   TWO,R3             POINT AT DEV TABLE
001F72  6D08 2104           608          MVW   PROGACT,R5         LOAD TOTAL ENTRY NUMBER
001F76  1018                609          JZ    BEGIN06            BRANCH IF TABLE EMPTY
001F78  830B 18B2           610 BEGIN01  CB    (R3),DEVADD        IS THIS THE DEV ADDRESS TO START
001F7C  6800 1CD6           611          BE    $MSG09             BRANCH IF YES
001F80  830B 0233           612          CB    (R3),IPLADD        IS THIS THE IPL ADDRESS
001F84  1007                613          JE    BEGIN03            BRANCH IF YES
001F86  4B11                614 BEGIN011 TBT   (R3,SEVNTEEN)      TEST CHAIN BIT
001F88  1002                615          JOFF  BEGIN012           BRANCH IF OFF
001F8A  030A                616          ABI   TEN,R3             BUMP R3
001F8C  50FC                617          J     BEGIN011           BRANCH
001F8E  030A                618 BEGIN012 ABI   TEN,R3             BUMP R3
001F90  BDF3                619          JCT   BEGIN01,R5         BRANCH FOR ALL ENTRIES
001F92  500A                620          J     BEGIN06            IF ENTRY NOT FOUND BRANCH
001F94  6B0D 188E           621 BEGIN03  MVW   R3,$HTOE1          LOAD ADD INTO CONTROL BLOCK
001F98  4724 188C           622          MVA   $HTOE,R7           LOAD ADD OF CONTROL BLOCK
001F9C  601A                623          SVC   HTOE               ISSUE SVC
001F9E  8828 18A6 1A7A      624          MVW   PROGID,MSG11       LOAD PID INTO MSG
001FA4  6802 1CEA           625          B     $MSG11             BRANCH TO ISSUE MSG
001FA8  4029 2104 0001      626 BEGIN06  AWI   ONE,PROGACT        INCREMENT ENTRY NUM
001FAE  4029 188A 0001      627          AWI   ONE,PROGACTV       INCREMENT ACTIVE INDICATOR
001FB4  6B0D 18CC           628          MVW   R3,SAVR3           SAVE R3
001FB8  5820 18B8           629          SEIHR MINONE             SET SYSTEM MASK
001FBC  6201                630          EN    SM                 ENABLE INTERRUPTS
001FBE  4324 6A00           631          MVWI  DELAY,R3           INIT R3 FOR COUNT
001FC2  6021                632 BEGIN11  SVC   WAIT               BRANCH TO ALLOW ALL PENDING
                            633 *                                       INTERRUPTS FROM ALL DEVISES
001FC4  BBFE                634          JCT   BEGIN11,R3                 TO BE FIELDED BEFORE ANY
                            635 *                                       PROG IS REQUESTED FOR LOAD
001FC6  4124 1876           637          MVA   VALDEVT,R1         LOAD START ADD OF VALID DEV TAB
001FCA  8118 1827           638 BEGIN07  MVB   (R1)+,DEVTYPE+1    MOVE BYTE INTO DEV TAB
001FCE  690D 18CA           639          MVW   R1,SAVR1           SAVE REGISTER ONE
001FD2  8028 18B2 1826      640          MVB   DEVADD,DEVTYPE     INSERT DEV ADDRESS
001FD8  882C 18C0 0258      641          MVW   TERMENT,SVCTERM*   REINIT SVC TERM POINTER
001FDE  4020 1A9E 1FEC      642          MVA   BEGIN08,SYSTART+2  SET  RETURN ADDRESS FROM SVC TERM
001FE4  4020 1808 1824      643          MVA   DEVQUAN,$DEVPT     LOAD ADDRESS OF TEMP DEV TAB
001FEA  6007                644          SVC   TERM               TERMINATE TO CHECK
001FEC  4030 0258 1E24      645 BEGIN08  MVA   $TERM,SVCTERM*     REINIT SVC POINTER
001FF2  4020 1808 2106      646          MVWI  ENTNUM,$DEVPT      REINIT DEV TAB POINTER
001FF8  6908 18CA           647          MVW   SAVR1,R1           RESTORE R1
001FFC  6B08 18CC           648          MVW   SAVR3,R3           RESTORE R3
002000  402B 1828 8000      649          TWI   ASSIGNBT,DEVASSGN  WAS DEV ADD ASSIGNED
002004  C740                650          JON   GOTONE             BRANCH YES
002008  1001                651          MVB   (R1),R7            IS R1 POINTING AT END OF TABLE
00200A  50DE                652          JZ    $MSG12BR           BRANCH YES
00200C  402E 2104 0001      653          J     BEGIN07            RETRY WITH NEXT DEV TYPE
002012  402E 188A 0001      654 $MSG12BR SWI   ONE,PROGACT        DECREMENT ENTRY COUNT
002018  6802 1CF8           655          SWI   ONE,PROGACTV       DECREMENT PROG ACTIVE COUNT
00201C  7124                656          B     $MSG12             OUT PUT MSG
00201E  4724 1826           657 GOTONE   SW    R1,R1              ZERO R1
002022  4F11                658          MVA   DEVTYPE,R7         LOAD DEV TAB START ADD
002024  1003                659 GOTONE1  TBT   (R7,SEVNTEEN)      TEST CHAIN BIT
002026  070A                660          JOFF  GOODENT            BRANCH IF OFF
002028  0101                661          ABI   TEN,R7             BUMP R7
00202A  50FB                662          ABI   ONE,R1             BUMP R1
00202C  030A                663          J     GOTONE1            BRANCH
00202E  0101                664 GOODENT  ABI   ONE,R1             BUMP R1
002030  7304                665 GOODENT1 MVW   R3,R0              SAVE R3
002032  724A                666          SW    R2,R2              ZERO R2
002034  4B11                667 GOODENT2 TBT   (R3,SEVNTEEN)      TEST CHAIN BIT
002036  1003                668          JOFF  GOODENT3           BRANCH IF OFF
002038  0201                669          ABI   ONE,R2             BUMP R2
00203A  030A                670          ABI   TEN,R3             BUMP R3
00203C  50FB                671          J     GOODENT2           BRANCH
00203E  0201                672 GOODENT3 ABI   ONE,R2             BUMP R2
002040  7145                673          CW    R1,R2              IS THERE ROOM
002042  1233                674          JN    NOTENOF            BRANCH IF NO
002044  CB24 2100           675          CW    ADDTABPT,R3        IS THIS THE END OF TABLE
002048  1A3B                676          JNN   $MSG08BR           BRANCH IF YES
00204A  0F0A                677          MVBI  TEN,R7             INIT R7
00204C  690D 1810           678          MVW   R1,OPTN2           STORE R1
002050  EE21 1811           679          MB    OPTN2+1,R7         MULTIPLY BY CHAIN NUM
002054  4224 1826           680          MVA   DEVTYPE,R2         LOAD DEV TAB START ADD
002058  7064                681          MVW   R0,R3              LOAD ADDRESS INTO R3
00205A  2A64                682          MVFN  (R2),(R3)          MOVE CONFIG TABLE
00205C  A828 1810 2106      683          AW    OPTN2,ENTNUM       ADD ENT TO ENTRY NUM
002062  8828 1820 1822      684          MVW   LASTPROG,TEMPLAST  SAVE LAST PROG POINTER
002068  8828 2104 1820      685          MVW   PROGACT,LASTPROG   INIT LAST PROG POINTER
00206E  6F03 1BDC           686          BAL   LOAD,R7            GO LOAD PROG
002072  8828 1822 1820      687          MVW   TEMPLAST,LASTPROG  REINIT LAST PROG POINTER
002078  D225 1826           688          MVDZ  DEVTYPE,R2         ZERO TEMP DEV ADD AREA
00207C  7047                689 BEGOUT   IR    R0,R2              LOAD ADDRESS OF TABLE INTO R2
00207E  6A0D 18A0           690 BEGOUT1  MVW   R2,BHTOE1          LOAD FROM ADDRESS
002082  4724 189E           691          MVA   BHTOE,R7           LOAD ADDRESS
002086  601A                692          SVC   HTOE               ISSUE SVC
002088  4020 18D2 1A72      693          MVA   MSG10,$OUT         LOAD MSG ADDRESS
00208E  4724 18D2           694          MVA   $OUT,R7            LOAD ADDRESS
002092  4324 18B2           695          MVA   DEVADD,R3          LOAD R3 WITH ADDRESS OF DEV. ADD.
002096  6000                696          SVC   OUT                ISSUE SVC
002098  4A11                697          TBT   (R2,SEVNTEEN)      TEST CHAIN BIT
00209A  1002                698          JOFF  BEGEND             BRANCH IF OFF
00209C  020A                699          ABI   TEN,R2             BUMP R2
00209E  50EF                700          J     BEGOUT1            BRANCH
0020A0  402D 18B4 0100      701 BEGEND   RBTWI BEGINBIT,SYSTSTAT  TURN OFF BEGIN BIT
0020A6  6802 1B6A           702          B     $IDLE1             BRANCH
0020AA  CB24 2100           703 NOTENOF  CW    ADDTABPT,R3        COMPARE TO END OF TABLE
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 LOCTR  OBJECT TEXT          STMT SOURCE STATEMENT

0020AE  1A08                 704          JNN    $MSG08BR        BRANCH IF TO LARGE
0020B0  4B10                 705          TBT    (R3,SIXTEEN)    IS THIS DEV ASSIGNED
0020B2  1202                 706          JON    FINDNEW         BRANCH IF YES
0020B4  030A                 707          ABI    TEN,R3          BUMP R3
0020B6  50BC                 708          J      GOODENT1        BRANCH
0020B8  030A                 709 FINDNEW  ABI    TEN,R3          BUMP R3
0020BA  4B10                 710          TBT    (R3,SIXTEEN)    TEST ASSIGNED BIT
0020BC  12FD                 711          JON    FINDNEW         BRANCH IF YES
0020BE  50B8                 712          J      GOODENT1        BRANCH
0020C0  402E 2104 0001       713 $MSG08BR SWI    ONE,PROGACT     DECREMENT PROG ACTIVE INDICATOR
0020C6  402E 188A 0001       714          SWI    ONE,PROGACTV    DECREMENT PROG ACTIVE COUNTER
0020CC  6802 1CC8            715          B      $MSG08          BRANCH
0020D0  4024 20DC            716 $PRNT    MVA    LIST,R0         LOAD ADDRESS OF ADDRESS VECTOR
0020D4  6908 025E            717          MVW    COMPRNT,R1      LOAD ADDRESS OF COMMON PRINT ROUTINE
0020D8  6822 0000            718          B      (R1)            BRANCH THERE
0020DC  18D4                 719 LIST     DC     A($HDR)         PRINT ROUTINE ADDRESS VECTOR
0020DE  18E4                 720          DC     A($HDR1)
0020E0  190E                 721          DC     A(LINE1)
0020E2  1938                 722          DC     A($HDR2)
0020E4  1962                 723          DC     A(LINE2)
0020E6  19E2                 724          DC     A(STPGM)
0020E8  19F0                 725          DC     A(PGMCT)
0020EA  1A00                 726          DC     A(PGMC1)
001800                       727          END    D3410
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES

       0  .R0.        ABSOLUTE. HEX VALUE(00000000)
                      527   536   539   542   547   561   567   570   576
                      577   665   681   689   716
       0  .R1.        ABSOLUTE. HEX VALUE(00000001)
                      292   293   339   340   368   369   372   450   481
                      486   501   542   577   590   591   637   638   639
                      647   651   657   657   662   664   673   678   717
                      718
       0  .R2.        ABSOLUTE. HEX VALUE(00000002)
                      285   286   322   323   336   347   356   357   364
                      364   364   364   365   366   366   375   376   376
                      376   376   377   450   458   459   460   496   497
                      498   515   523   541   548   562   573   597   598
                      599   666   666   669   672   673   680   682   688
                      689   690   697   699
       0  .R3.        ABSOLUTE. HEX VALUE(00000003)
                      284   288   291   293   301   309   313   321   322
                      323   325   325   325   325   326   327   327   327
                      327   328   402   420   429   445   484   485   486
                      488   490   492   504   506   507   512   515   515
                      515   518   521   523   523   524   529   530   533
                      535   538   541   543   549   559   564   566   569
                      572   573   606   607   610   612   614   616   618
                      621   628   631   634   648   665   667   670   675
                      681   682   695   703   705   707   709   710
       0  .R4.        ABSOLUTE. HEX VALUE(00000004)
                      297   298   299   329   330   331   332   337   338
                      342   344   346   349   352   353   363   368   377
                      482   494   508   513   516   522   596   601
       0  .R5.        ABSOLUTE. HEX VALUE(00000005)
                      262   262   306   307   313   317   318   320   361
                      361   467   468   483   493   496   496   496   509
                      510   518   519   521   528   531   579   580   583
                      586   588   589   590   595   597   597   597   600
                      608   619
       0  .R6.        ABSOLUTE. HEX VALUE(00000006)
                      578   581   581   584   587   588
       0  .R7.        ABSOLUTE. HEX VALUE(00000007)
                      260   264   266   290   335   350   354   356   358
                      367   367   371   374   403   421   427   428   431
                      444   449   461   470   473   520   544   558   571
                      572   574   575   576   585   586   622   651   658
                      659   661   677   679   686   691   694
     473  $BDA        ADDRESS. HEX LOCATION(00001DD4) IN CSECT(D3410   ) LENGTH(2)
                      254
      97  $DEVPT      ADDRESS. HEX LOCATION(00001808) IN CSECT(D3410   ) LENGTH(2)
                      248   277   281   436   553   557   643   646
     178  $HDR        ADDRESS. HEX LOCATION(000018D4) IN CSECT(D3410   ) LENGTH(14)
                      719
     180  $HDR1       ADDRESS. HEX LOCATION(000018E4) IN CSECT(D3410   ) LENGTH(40)
                      720
     184  $HDR2       ADDRESS. HEX LOCATION(00001938) IN CSECT(D3410   ) LENGTH(40)
                      722
     141  $HTOE       ADDRESS. HEX LOCATION(0000188C) IN CSECT(D3410   ) LENGTH(2)
                      354   622
     142  $HTOE1      ADDRESS. HEX LOCATION(0000188E) IN CSECT(D3410   ) LENGTH(2)
                      353   621
     284  $IDLE       ADDRESS. HEX LOCATION(00001B48) IN CSECT(D3410   ) LENGTH(4)
                      255
     296  $IDLE1      ADDRESS. HEX LOCATION(00001B6A) IN CSECT(D3410   ) LENGTH(2)
                      273   282   390   423   499   593   602   702
     321  $IDLE10     ADDPRESS. HEX LOCATION(00001BBA) IN CSECT(D3410   ) LENGTH(2)
                      316
     319  $IDLE11     ADDRESS. HEX LOCATION(00001BB6) IN CSECT(D3410   ) LENGTH(2)
                      320
     288  $IDLE2      ADDRESS. HEX LOCATION(00001B54) IN CSECT(D3410   ) LENGTH(2)
                      286
     290  $IDLE3      ADDRESS. HEX LOCATION(00001B58) IN CSECT(D3410   ) LENGTH(2)
                      287
     286  $IDLE4      ADDRESS. HEX LOCATION(00001B50) IN CSECT(D3410   ) LENGTH(2)
                      289
     309  $IDLE5      ADDRESS. HEX LOCATION(00001B94) IN CSECT(D3410   ) LENGTH(2)
                      307
     311  $IDLE6      ADDRESS. HEX LOCATION(00001B98) IN CSECT(D3410   ) LENGTH(6)
                      308
     307  $IDLE7      ADDRESS. HEX LOCATION(00001B90) IN CSECT(D3410   ) LENGTH(2)
                      310
     301  $IDLE8      ADDRESS. HEX LOCATION(00001B78) IN CSECT(D3410   ) LENGTH(4)
                      333
     329  $IDLE9      ADDRESS. HEX LOCATION(00001BCC) IN CSECT(D3410   ) LENGTH(4)
                      300
     466  $INVAL      ADDRESS. HEX LOCATION(00001DBC) IN CSECT(D3410   ) LENGTH(6)
                      451
     391  $MSG01      ADDRESS. HEX LOCATION(00001C86) IN CSECT(D3410   ) LENGTH(6)
                      381
     394  $MSG02      ADDRESS. HEX LOCATION(00001C94) IN CSECT(D3410   ) LENGTH(6)
                      383
     397  $MSG03      ADDRESS. HEX LOCATION(00001CA2) IN CSECT(D3410   ) LENGTH(6)
                      495
     401  $MSG05      ADDRESS. HEX LOCATION(00001CB6) IN CSECT(D3410   ) LENGTH(6)
                      362
     442  $MSG07      ADDRESS. HEX LOCATION(00001D66) IN CSECT(D3410   ) LENGTH(6)
                      263
     406  $MSG08      ADDRESS. HEX LOCATION(00001CC8) IN CSECT(D3410   ) LENGTH(6)
                      605   715
     713  $MSG08BR    ADDRESS. HEX LOCATION(000020C0) IN CSECT(D3410   ) LENGTH(6)
                      676   704
     409  $MSG09      ADDRESS. HEX LOCATION(00001CD6) IN CSECT(D3410   ) LENGTH(6)
                      611
     413  $MSG11      ADDRESS. HEX LOCATION(00001CEA) IN CSECT(D3410   ) LENGTH(6)
                      625
     416  $MSG12      ADDRESS. HEX LOCATION(00001CF8) IN CSECT(D3410   ) LENGTH(6)
                      656
     654  $MSG12BR    ADDRESS. HEX LOCATION(0000200E) IN CSECT(D3410   ) LENGTH(6)
                      652
     431  $NONAC      ADDRESS. HEX LOCATION(00001D34) IN CSECT(D3410   ) LENGTH(4)
                      434
     424  $NONACT     ADDRESS. HEX LOCATION(00001D18) IN CSECT(D3410   ) LENGTH(6)
                      312
     464  $NOTCOMP    ADDRESS. HEX LOCATION(00001DB4) IN CSECT(D3410   ) LENGTH(6)
                      453   455   457   477
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
     176  $OUT        ADDRESS. HEX LOCATION(000018D2) IN CSECT(D3410   ) LENGTH(2)
                      391   394   397   401   403   406   409   413   416
                      421   426   428   443   444   546   558   693   694
      94  $PID        ADDRESS. HEX LOCATION(00001800) IN CSECT(D3410   ) LENGTH(4)
                      146   366
     716  $PRNT       ADDRESS. HEX LOCATION(000020D0) IN CSECT(D3410   ) LENGTH(4)
                      108
     476  $SDA        ADDRESS. HEX LOCATION(00001DDE) IN CSECT(D3410   ) LENGTH(6)
                      257
     470  $TDA        ADDRESS. HEX LOCATION(00001DCA) IN CSECT(D3410   ) LENGTH(2)
                      256
     501  $TERM       ADDRESS. HEX LOCATION(00001E24) IN CSECT(D3410   ) LENGTH(4)
                      259   280   556   645
     157  @ETOH       ADDRESS. HEX LOCATION(000018AC) IN CSECT(D3410   ) LENGTH(2)
                      461
     158  @ETOH1      ADDRESS. HEX LOCATION(000018AE) IN CSECT(D3410   ) LENGTH(2)
                      458
     144  @HTOE       ADDRESS. HEX LOCATION(00001892) IN CSECT(D3410   ) LENGTH(2)
                      350
     145  @HTOE1      ADDRESS. HEX LOCATION(00001894) IN CSECT(D3410   ) LENGTH(2)
                      349
      53  ADDTABPT    ABSOLUTE. HEX VALUE(00002100)
                      284   301   336   483   507   571   585   595   675
                      703
      48  ALCONADD    ABSOLUTE. HEX VALUE(00000240)
                      275   549
      91  ALTBIT      ABSOLUTE. HEX VALUE(00001000)
                      272   274
      79  ASSIGNBT    ABSOLUTE. HEX VALUE(00008000)
                      649
     701  BEGEND      ADDRESS. HEX LOCATION(000020A0) IN CSECT(D3410   ) LENGTH(6)
                      698
      88  BEGINBIT    ABSOLUTE. HEX VALUE(00000100)
                      386   407   411   414   418   454   474   476   701
     604  BEGINPG     ADDRESS. HEX LOCATION(00001F62) IN CSECT(D3410   ) LENGTH(6)
                      387
     610  BEGIN01     ADDRESS. HEX LOCATION(00001F78) IN CSECT(D3410   ) LENGTH(4)
                      619
     614  BEGIN011    ADDRESS. HEX LOCATION(00001F86) IN CSECT(D3410   ) LENGTH(2)
                      617
     618  BEGIN012    ADDRESS. HEX LOCATION(00001F8E) IN CSECT(D3410   ) LENGTH(2)
                      615
     621  BEGIN03     ADDRESS. HEX LOCATION(00001F94) IN CSECT(D3410   ) LENGTH(4)
                      613
     626  BEGIN06     ADDRESS. HEX LOCATION(00001FA8) IN CSECT(D3410   ) LENGTH(6)
                      609   620
     638  BEGIN07     ADDRESS. HEX LOCATION(00001FCA) IN CSECT(D3410   ) LENGTH(4)
                      653
     645  BEGIN08     ADDRESS. HEX LOCATION(00001FEC) IN CSECT(D3410   ) LENGTH(6)
                      642
     632  BEGIN11     ADDRESS. HEX LOCATION(00001FC2) IN CSECT(D3410   ) LENGTH(2)
                      634
     690  BEGOUT1     ADDRESS. HEX LOCATION(0000207E) IN CSECT(D3410   ) LENGTH(4)
                      700
     150  BHTOE       ADDRESS. HEX LOCATION(0000189E) IN CSECT(D3410   ) LENGTH(2)
                      691
     151  BHTOE1      ADDRESS. HEX LOCATION(000018A0) IN CSECT(D3410   ) LENGTH(2)
                      690
     174  CHAINBIT    ABSOLUTE. HEX VALUE(00004000)
                      591
     173  CHAINMSK    ADDRESS. HEX LOCATION(000018CE) IN CSECT(D3410   ) LENGTH(2)
                      587
      50  CICBTB      ABSOLUTE. HEX VALUE(0000025A)
                      527   574
      51  CICBTBND    ABSOLUTE. HEX VALUE(000000A8)
                      575
     486  CKNEXT      ADDRESS. HEX LOCATION(00001E00) IN CSECT(D3410   ) LENGTH(2)
                      494
     380  CKTINGS     ADDRESS. HEX LOCATION(00001C54) IN CSECT(D3410   ) LENGTH(6)
                      295   432
     583  CLEAN1      ADDRESS. HEX LOCATION(00001F24) IN CSECT(D3410   ) LENGTH(2)
                      584
     585  CLEAN2      ADDRESS. HEX LOCATION(00001F28) IN CSECT(D3410   ) LENGTH(4)
                      582
      45  COMDB       ABSOLUTE. HEX VALUE(00000254)
                      250   254   438
      46  COMDS       ABSOLUTE. HEX VALUE(00000250)
                      251   257   440
      44  COMDT       ABSOLUTE. HEX VALUE(00000252)
                      252   256   439
      49  COMPRNT     ABSOLUTE. HEX VALUE(0000025E)
                      717
     163  CONLIT      ADDRESS. HEX LOCATION(000018BA) IN CSECT(D3410   ) LENGTH(2)
                      329   332
     266  CONTIN      ADDRESS. HEX LOCATION(00001AFA) IN CSECT(D3410   ) LENGTH(2)
                      270
     340  DECR1       ADDRESS. HEX LOCATION(00001BEE) IN CSECT(D3410   ) LENGTH(2)
                      348
      90  DELAY       ABSOLUTE. HEX VALUE(00006A00)
                      504   631
     160  DEVADD      ADDRESS. HEX LOCATION(000018B2) IN CSECT(D3410   ) LENGTH(2)
                      159   402   420   429   481   559   610   640   695
     113  DEVASSGN    ADDRESS. HEX LOCATION(00001828) IN CSECT(D3410   ) LENGTH(1)
                      649
     165  DEVEBADD    ADDRESS. HEX LOCATION(000018BE) IN CSECT(D3410   ) LENGTH(2)
                      398   410   417   459   460
     111  DEVQUAN     ADDRESS. HEX LOCATION(00001824) IN CSECT(D3410   ) LENGTH(2)
                      277   551   553   643
     102  DEVTAB      ADDRESS. HEX LOCATION(00001812) IN CSECT(D3410   ) LENGTH(2)
                       97   436
     112  DEVTYPE     ADDRESS. HEX LOCATION(00001826) IN CSECT(D3410   ) LENGTH(2)
                      275   638   640   658   680   688
     435  DOTOSTOP    ADDRESS. HEX LOCATION(00001D40) IN CSECT(D3410   ) LENGTH(6)
                      405   425   447
      40  D3410       CSECT. START(00001800) LENGTH(2284) ESDID(0)
                       40   727
      70  EIGHT       ABSOLUTE. HEX VALUE(00000008)
                      589
      55  ENTNUM      ABSOLUTE. HEX VALUE(00002106)
                      248   281   337   484   529   557   563   578   579
                      606   646   683
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
      77  ETOH        ABSOLUTE. HEX VALUE(00000019)
                      462
     154  ETYPE       ADDRESS. HEX LOCATION(000018A5) IN CSECT(D3410   ) LENGTH(1)
                      358
     467  EXIT        ADDRESS. HEX LOCATION(00001DC2) IN CSECT(D3410   ) LENGTH(4)
                      465   472   475   479
      82  EZERO       ABSOLUTE. HEX VALUE(0000C5F0)
                      359
     709  FINDNEW     ADDRESS. HEX LOCATION(000020B8) IN CSECT(D3410   ) LENGTH(2)
                      706   711
     369  FNDEND      ADDRESS. HEX LOCATION(00001C3E) IN CSECT(D3410   ) LENGTH(2)
                      373
     374  FNDEND1     ADDRESS. HEX LOCATION(00001C48) IN CSECT(D3410   ) LENGTH(2)
                      370
     349  FOUND       ADDRESS. HEX LOCATION(00001C00) IN CSECT(D3410   ) LENGTH(4)
                      341
      78  FOURTEEN    ABSOLUTE. HEX VALUE(0000000E)
                      497   598
     664  GOODENT     ADDRESS. HEX LOCATION(0000202E) IN CSECT(D3410   ) LENGTH(2)
                      660
     665  GOODENT1    ADDRESS. HEX LOCATION(00002030) IN CSECT(D3410   ) LENGTH(2)
                      708   712
     667  GOODENT2    ADDRESS. HEX LOCATION(00002034) IN CSECT(D3410   ) LENGTH(2)
                      671
     672  GOODENT3    ADDRESS. HEX LOCATION(0000203E) IN CSECT(D3410   ) LENGTH(2)
                      668
     657  GOTONE      ADDRESS. HEX LOCATION(0000201E) IN CSECT(D3410   ) LENGTH(2)
                      650
     659  GOTONE1     ADDRESS. HEX LOCATION(00002024) IN CSECT(D3410   ) LENGTH(2)
                      663
      72  HTOE        ABSOLUTE. HEX VALUE(0000001A)
                      351   355   545   623   692
     167  IDLEENT     ADDRESS. HEX LOCATION(000018C2) IN CSECT(D3410   ) LENGTH(2)
                      253   437
     342  INCREM      ADDRESS. HEX LOCATION(00001BF2) IN CSECT(D3410   ) LENGTH(2)
                      340   345
     346  INCREM1     ADDRESS. HEX LOCATION(00001BFA) IN CSECT(D3410   ) LENGTH(2)
                      343
     488  INCREM2     ADDRESS. HEX LOCATION(00001E04) IN CSECT(D3410   ) LENGTH(2)
                      491
     492  INCREM3     ADDRESS. HEX LOCATION(00001E0C) IN CSECT(D3410   ) LENGTH(2)
                      489
      84  INVAL       ABSOLUTE. HEX VALUE(00002000)
                      382   395   466
      47  IPLADD      ABSOLUTE. HEX VALUE(00000233)
                      612
     420  ISSUE       ADDRESS. HEX LOCATION(00001D0A) IN CSECT(D3410   ) LENGTH(4)
                      393   396   400   408   412
     421  ISSUE1      ADDRESS. HEX LOCATION(00001D0E) IN CSECT(D3410   ) LENGTH(4)
                      415
     109  LASTPROG    ADDRESS. HEX LOCATION(00001820) IN CSECT(D3410   ) LENGTH(2)
                      267   268   271   285   294   302   305   306   339
                      509   528   684   685   687
     164  LIGHTS      ADDRESS. HEX LOCATION(000018BC) IN CSECT(D3410   ) LENGTH(2)
                      297   299
     182  LINE1       ADDRESS. HEX LOCATION(0000190E) IN CSECT(D3410   ) LENGTH(40)
                      721
     186  LINE2       ADDRESS. HEX LOCATION(00001962) IN CSECT(D3410   ) LENGTH(40)
                      723
     719  LIST        ADDRESS. HEX LOCATION(000020DC) IN CSECT(D3410   ) LENGTH(2)
                      716
     335  LOAD        ADDRESS. HEX LOCATION(00001BDC) IN CSECT(D3410   ) LENGTH(4)
                      266   686
     156  LOADADD     ADDRESS. HEX LOCATION(000018AA) IN CSECT(D3410   ) LENGTH(2)
                      357
     271  LOADONE     ADDRESS. HEX LOCATION(00001B0C) IN CSECT(D3410   ) LENGTH(6)
                      265   269
     378  LOADRET     ADDRESS. HEX LOCATION(00001C50) IN CSECT(D3410   ) LENGTH(4)
                      335
     162  MINONE      ADDRESS. HEX LOCATION(000018B8) IN CSECT(D3410   ) LENGTH(2)
                      331   502   629
      92  MSGNUM7     ABSOLUTE. HEX VALUE(00003436)
                      442
     202  MSG01       ADDRESS. HEX LOCATION(00001A14) IN CSECT(D3410   ) LENGTH(4)
                      391
     206  MSG02       ADDRESS. HEX LOCATION(00001A1C) IN CSECT(D3410   ) LENGTH(7)
                      394
     222  MSG03       ADDRESS. HEX LOCATION(00001A48) IN CSECT(D3410   ) LENGTH(1)
                      397
     223  MSG031      ADDRESS. HEX LOCATION(00001A48) IN CSECT(D3410   ) LENGTH(10)
                      398
     227  MSG04       ADDRESS. HEX LOCATION(00001A56) IN CSECT(D3410   ) LENGTH(7)
                      149   546
     210  MSG05       ADDRESS. HEX LOCATION(00001A26) IN CSECT(D3410   ) LENGTH(3)
                      401   443
     214  MSG06       ADDRESS. HEX LOCATION(00001A2C) IN CSECT(D3410   ) LENGTH(11)
                      426
     209  MSG07       ADDRESS. HEX LOCATION(00001A24) IN CSECT(D3410   ) LENGTH(2)
                      442
     218  MSG08       ADDRESS. HEX LOCATION(00001A3A) IN CSECT(D3410   ) LENGTH(10)
                      406
     231  MSG09       ADDRESS. HEX LOCATION(00001A60) IN CSECT(D3410   ) LENGTH(14)
                      409   410
     235  MSG10       ADDRESS. HEX LOCATION(00001A72) IN CSECT(D3410   ) LENGTH(5)
                      152   693
     239  MSG11       ADDRESS. HEX LOCATION(00001A7A) IN CSECT(D3410   ) LENGTH(12)
                      413   624
     243  MSG12       ADDRESS. HEX LOCATION(00001A8A) IN CSECT(D3410   ) LENGTH(17)
                      416   417
     597  NEXTPG      ADDRESS. HEX LOCATION(00001F50) IN CSECT(D3410   ) LENGTH(4)
                      601
     306  NOINIT      ADDRESS. HEX LOCATION(00001B8C) IN CSECT(D3410   ) LENGTH(4)
                      304
      85  NOTCOMP     ABSOLUTE. HEX VALUE(00004000)
                      380   392   464
     703  NOTENOF     ADDRESS. HEX LOCATION(000020AA) IN CSECT(D3410   ) LENGTH(4)
                      674
      59  ONE         ABSOLUTE. HEX VALUE(00000001)
                      267   271   294   298   305   352   363   513   516
                      525   526   563   626   627   654   655   662   664
                      669   672   713   714
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
     101  OPTN2       ADDRESS. HEX LOCATION(00001810) IN CSECT(D3410   ) LENGTH(2)
                      678   679   683
      76  OUT         ABSOLUTE. HEX VALUE(00000000)
                      404   422   430   446   560   696
     196  PGMCT       ADDRESS. HEX LOCATION(000019F0) IN CSECT(D3410   ) LENGTH(16)
                      725
     197  PGMC1       ADDRESS. HEX LOCATION(00001A00) IN CSECT(D3410   ) LENGTH(16)
                      726
      54  PROGACT     ABSOLUTE. HEX VALUE(00002104)
                      249   264   268   302   311   315   318   482   526
                      596   608   626   654   685   713
     140  PROGACTV    ADDRESS. HEX LOCATION(0000188A) IN CSECT(D3410   ) LENGTH(2)
                      249   525   604   627   655   714
     105  PROGDEV     ADDRESS. HEX LOCATION(00001817) IN CSECT(D3410   ) LENGTH(1)
                      260
     155  PROGID      ADDRESS. HEX LOCATION(000018A6) IN CSECT(D3410   ) LENGTH(4)
                      143   359   624
     106  PROGREQ     ADDRESS. HEX LOCATION(00001818) IN CSECT(D3410   ) LENGTH(4)
                      445
      73  READI      ABSOLUTE. HEX VALUE(0000001F)
                      261   360
     305  REINIT      ADDRESS. HEX LOCATION(00001B86) IN CSECT(D3410   ) LENGTH(6)
                      303
     170  SACOMDB     ADDRESS. HEX LOCATION(000018C8) IN CSECT(D3410   ) LENGTH(2)
                      250   438
     169  SACOMDS     ADDRESS. HEX LOCATION(000018C6) IN CSECT(D3410   ) LENGTH(2)
                      251   440
     168  SACOMDT     ADDRESS. HEX LOCATION(000018C4) IN CSECT(D3410   ) LENGTH(2)
                      252   439
     120  SAVEAREA    ADDRESS. HEX LOCATION(0000186C) IN CSECT(D3410   ) LENGTH(1)
                      547   548   561   562
     171  SAVR1       ADDRESS. HEX LOCATION(000018CA) IN CSECT(D3410   ) LENGTH(2)
                      639   647
     172  SAVR3       ADDRESS. HEX LOCATION(000018CC) IN CSECT(D3410   ) LENGTH(2)
                      628   648
      56  SCHAD      ABSOLUTE. HEX VALUE(0000025C)
                      467
     496  SETBIT      ADDRESS. HEX LOCATION(00001E16) IN CSECT(D3410   ) LENGTH(4)
                      487
     481  SETERM      ADDRESS. HEX LOCATION(00001DEE) IN CSECT(D3410   ) LENGTH(4)
                      385
      68  SEVNTEEN   ABSOLUTE. HEX VALUE(00000011)
                      342   369   488   533   564   614   659   667   697
      65  SIX        ABSOLUTE. HEX VALUE(00000006)
                      326   375
      67  SIXTEEN    ABSOLUTE. HEX VALUE(00000010)
                      705   710
      86  SM         ABSOLUTE. HEX VALUE(00000001)
                      296   433   503   630
      81  STOPBIT     ABSOLUTE. HEX VALUE(00000200)
                      388   424   456   478
     595  STOPPG      ADDRESS. HEX LOCATION(00001F48) IN CSECT(D3410   ) LENGTH(4)
                      389
     193  STPGM       ADDRESS. HEX LOCATION(000019E2) IN CSECT(D3410   ) LENGTH(10)
                      724
     325  STPROG      ADDRESS. HEX LOCATION(00001BC4) IN CSECT(D3410   ) LENGTH(2)
                      314
      42  SVCIDLE    ABSOLUTE. HEX VALUE(00000256)
                      253   255   437
      71  SVCPT      ABSOLUTE. HEX VALUE(00000010)
                      292   501
      43  SVCTERM    ABSOLUTE. HEX VALUE(00000258)
                      258   259   276   280   435   552   556   641   645
     248  SYS         ADDRESS. HEX LOCATION(00001AA0) IN CSECT(D3410   ) LENGTH(6)
                      247
     280  SYSAC       ADDRESS. HEX LOCATION(00001B3A) IN CSECT(D3410   ) LENGTH(6)
                      278
     247  SYSTART     ADDRESS. HEX LOCATION(00001A9C) IN CSECT(D3410   ) LENGTH(4)
                       96   278   554   642
     161  SYSTSTAT    ADDRESS. HEX LOCATION(000018B4) IN CSECT(D3410   ) LENGTH(2)
                      380   382   384   386   388   392   395   399   407
                      411   414   418   424   427   431   452   454   456
                      464   466   471   474   476   478   592   701
     110  TEMPLAST    ADDRESS. HEX LOCATION(00001822) IN CSECT(D3410   ) LENGTH(2)
                      684   687
      66  TEN        ABSOLUTE. HEX VALUE(0000000A)
                      344   346   371   372   374   490   492   535   538
                      566   569   583   616   618   661   670   677   699
                      707   709
      75  TERM       ABSOLUTE. HEX VALUE(00000007)
                      279   441   555   644
      83  TERMBIT     ABSOLUTE. HEX VALUE(00001000)
                      384   399   452   471   498   592   599
     166  TERMENT     ADDRESS. HEX LOCATION(000018C0) IN CSECT(D3410   ) LENGTH(2)
                      258   276   435   552   641
     505  TERM0       ADDRESS. HEX LOCATION(00001E32) IN CSECT(D3410   ) LENGTH(2)
                      506
     510  TERM1       ADDRESS. HEX LOCATION(00001E42) IN CSECT(D3410   ) LENGTH(2)
                      514
     520  TERM10      ADDRESS. HEX LOCATION(00001E5A) IN CSECT(D3410   ) LENGTH(2)
                      522
     512  TERM2       ADDRESS. HEX LOCATION(00001E46) IN CSECT(D3410   ) LENGTH(2)
                      510
     515  TERM3       ADDRESS. HEX LOCATION(00001E4E) IN CSECT(D3410   ) LENGTH(2)
                      511
     531  TERM4       ADDRESS. HEX LOCATION(00001E80) IN CSECT(D3410   ) LENGTH(2)
                      540
     533  TERM5       ADDRESS. HEX LOCATION(00001E84) IN CSECT(D3410   ) LENGTH(2)
                      531   537
     543  TERM6       ADDRESS. HEX LOCATION(00001E98) IN CSECT(D3410   ) LENGTH(4)
                      568
     541  TERM61      ADDRESS. HEX LOCATION(00001E94) IN CSECT(D3410   ) LENGTH(2)
                      532
     558  TERM62      ADDRESS. HEX LOCATION(00001EDC) IN CSECT(D3410   ) LENGTH(4)
                      550
     556  TERM63      ADDRESS. HEX LOCATION(00001ED0) IN CSECT(D3410   ) LENGTH(6)
                      554
     538  TERM7       ADDRESS. HEX LOCATION(00001E8E) IN CSECT(D3410   ) LENGTH(2)
                      534
     569  TERM8       ADDRESS. HEX LOCATION(00001EFE) IN CSECT(D3410   ) LENGTH(2)
                      565
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
     523  TERM9       ADDRESS. HEX LOCATION(00001E60) IN CSECT(D3410   ) LENGTH(2)
                      517
     449  TEST        ADDRESS. HEX LOCATION(00001D7E) IN CSECT(D3410   ) LENGTH(4)
                      470   473
     463  TESTRET     ADDRESS. HEX LOCATION(00001DB0) IN CSECT(D3410   ) LENGTH(4)
                      449
      62  THIRTY     ABSOLUTE. HEX VALUE(0000001E)
                      290
      61  THIRTY2    ABSOLUTE. HEX VALUE(00000020)
                      288   309   347   493   512   519   520   600
      58  THREE      ABSOLUTE. HEX VALUE(00000003)
                      317
     147  THTOE       ADDRESS. HEX LOCATION(00001898) IN CSECT(D3410   ) LENGTH(2)
                      544
     148  THTOE1      ADDRESS. HEX LOCATION(0000189A) IN CSECT(D3410   ) LENGTH(2)
                      543
      52  TOTPROG    ABSOLUTE. HEX VALUE(00002102)
                      272   274   508   604
      64  TWENTY3    ABSOLUTE. HEX VALUE(00000017)
                      322
      63  TWO        ABSOLUTE. HEX VALUE(00000002)
                      291   313   315   321   338   356   365   485   530
                      536   539   567   570   580   607
     121  VALDEVT     ADDRESS. HEX LOCATION(00001876) IN CSECT(D3410   ) LENGTH(1)
                      637
      74  WAIT       ABSOLUTE. HEX VALUE(00000021)
                      319   505   632
      60  ZERO       ABSOLUTE. HEX VALUE(00000000)
                      311   524
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                              3 ************************************************************************
                              4 *                                                                      *
                              5 *                    ***       PREREQUISITES        ***               *
                              6 *                                                                      *
                              7 *                              NONE                                    *
                              8 *                                                                      *
                              9 ************************************************************************
                             10 *                                                                      *
                             11 *                    ***       MODIFICATIONS        ***               *
                             12 *                                                                      *
                             13 *                      CHANGES MADE FOR ODD PARITY TTY                 *
                             14 *                                                                      *
                             15 ************************************************************************
                             16 *                                                                      *
                             17 *                    ***     REA'S INCORPORATED     ***               *
                             18 *                                                                      *
                             19 *                              NONE                                    *
                             20 *                                                                      *
                             21 ************************************************************************
                             22 *                                                                      *
                             23 *                    ***    SPECIAL INSTRUCTIONS    ***               *
                             24 *                                                                      *
                             25 *                              NONE                                    *
                             26 *                                                                      *
                             27 ************************************************************************
                             28 *                                                                      *
                             29 *                    ***       E. C. HISTORY        ***               *
                             30 *                                                                      *
                             31 *          DATE 01OCT76  DATE 02DEC76  DATE 06MAY77  DATE 15SEP77      *
                             32 *          E.C. 578468   E.C. 578469   E.C. 578756   E.C. 754882       *
                             33 *                                                                      *
                             34 *          DATE 09DEC77  DATE          DATE          DATE               *
                             35 *          E.C. 755104   E.C.          E.C.          E.C.               *
                             36 *                                                                      *
                             37 ************************************************************************
000000                       39 E40E0 START X'0000'
                             40 *           SUPERVISOR EQUATES
000014                       41 CICB   EQU  20                    CONNECT INTERRUPT CONTROL BLOCK
000006                       42 EXIT   EQU  6                     EXIT INTERRUPT LEVEL
000001                       43 OUTIN  EQU  1                     OUT MESSAGE WITH EXPECTED RESPONCE
00001A                       44 HTOE   EQU  26                    CHANGE HEX DATA TO EBCDIC DATA
000002                       45 IDLE   EQU  2                     SHARE PROGRAM TIME WITH OTHER PGMS
00000C                       46 PREP   EQU  12                    PREPARE DEVICE
000013                       47 RICB   EQU  19                    RELEASE INTERRUPT CONTROL BLOCK
00000A                       48 START  EQU  10                    START CYCLE STEAL COMMAND
000007                       49 TERM   EQU  7                     TERMINATE THIS PROGRAM
000008                       50 RESET  EQU  8                     RESET DEVICE
000009                       51 RID    EQU  9                     READ DEVICE ID
000000                       52 REG    EQUR 0                     WORK REGISTER
00181E                       53 PRNTRTN EQU X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
000232                       54 CPUTYPE EQU X'0232'               ADDRESS OF PROCESSOR TYPE
                             55 *
                             56 *           PROGRAM HEADING AND CONTROL WORDS
                             57 *
000000  F4F0F0F0             58 $PID   DC   C'4000'               PROGRAM IDENTIFICATION
000004  0000                 59        DC   XL2'0000'            CURRENT LEVEL OF PROGRAM
000006  00C8                 60        DC   A($PENT)             -> TO START EXEC ADDRESS
000008  004C                 61        DC   A($DVAD)             -> TO DEVICE TABLE
00000A  0000                 62 $RTNE  DC   A(*-*)              ROUTINE NUMBER BEING RUN
00000C  0000                 63 $CKPT  DC   A(*-*)              LAST CHECK POINT PASSED
00000E  0000                 64 OPTN1  DC   X'0000'             PROGRAM OPTION CONTROL WORD 1
                             65 *
                             66 * BIT FUNCTION
                             67 *
000003                       68 TM     EQU  3                   TERMINATE PROGRAM
00000C                       69 WRIT   EQU  12                  ON = EITHER WRAPPED OR TTY
00000D                       70 QUES   EQU  13                  QUESTION HAS BEEN ASKED
00000E                       71 IND    EQU  14                  INDICATOR FOR TTY WRAP CABLE
00000F                       72 DIR    EQU  15                  SEEK DIRECTION INDICATOR
                             73 *
000010  0000                 74 OPTN2  DC   X'0000'             PROGRAM OPTION CONTROL WORD 2
000012  0000                 75 OPTN3  DC   X'0000'             PROGRAM OPTION CONTROL WORD 3
                             76 *
                             77 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                             78 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                             79 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                             80 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                             81 *
                             82 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                             83 *  5  WRONG INTR LEVEL      LE       13  N.U.
                             84 *  6  LOAS INTERRUPT        LI       14  N.U.
                             85 *  7  CS STATUS IN PROGR    CS       15  N.U.
                             86 *                        BIT     HEX
000020                       87 MI     EQU  32      0       8   MYSTERY INTERRUPT HAPPENED
000021                       88 ER     EQU  33      1       4   ERROR RECEIVED ON INTERRUPT
000022                       89 XI     EQU  34      2       2   EXPECTED INTERRUPT CONTROL BIT
000023                       90 IN     EQU  35      3       1   INTERRUPT RECEIVED CONTROL BIT
000024                       91 XE     EQU  36      4       8   EXPECTED ERROR RESPONSE
000025                       92 LE     EQU  37      5       4   INTERRUPT ON WRONG LEVEL ERROR
000026                       93 LI     EQU  38      6       2   LOST INTERRUPT
000027                       94 CS     EQU  39      7       1   CYCLE STATUS IN PROGRESS
000028                       95 CE     EQU  40      8       8   CYCLE STEAL STATUS INERRRUPT ERROR
000029                       96 GI     EQU  41      9       4   GOOD INTERRUPT RECEIVED (EXPECTED ER)
00002A                       97 PE     EQU  42      10      2   PROBABLE ERROR EXPECTED
00002B                       98 NI     EQU  43      11      1   NO INTR. EXPECTED UNPREPED DEV.
000014  0000                 99 $IOIN  DC   A(*-*)              I/O AND INTR CONDITION CODES
000016  0000                100 $ISB   DC   A(*-*)              R7, INTR STATUS BYTE & DEV ADRS
000018  0000                101 LSTIO  DC   A(*-*)              ADRS OF LAST I/O + 4 BYTES
00001A  00000000            102 $DATA  DC   2A(*-*)            DEVICE DEPENDENT DATA
00001E  0000                103 DEV3   DC   A(*-*)             DEVICE DEPENDENT DATA DEV3
000020  0000                104 DEV4   DC   A(*-*)             DEVICE DEPENDENT DATA DEV4
000022  0000                105 DCBUF  DC   A(*-*)             LAST DCB TABLE, CONTROL WORD
000024  0000                106 DCB2   DC   A(*-*)             LAST DCB TABLE, DEV DEP WORD
000026  0000                107 DCB3   DC   A(*-*)             LAST DCB TABLE, DEV DEP WORD
000028  0000                108 DCB4   DC   A(*-*)             LAST DCB TABLE, DEV DEP WORD
00002A  0000                109 DCB5   DC   A(*-*)             LAST DCB TABLE, DEV DEP WORD
00002C  0000                110 DCB6   DC   A(*-*)             LAST DCB TABLE, CHAIN ADRS
00002E  0000                111 DCB7   DC   A(*-*)             LAST DCB TABLE, BYTE COUNT
000030  0000                112 DCB8   DC   A(*-*)             LAST DCB TABLE, BUFFER ADDRESS
000032                      113 CSBUF  EQU  *                  CYCLE STEAL DATA BUFFER
000032  0000                114 CSTL1  DC   A(*-*)             CYCLE STEAL BUFFER, RESIDUAL ADRS
000034  0000                115 CSTL2  DC   A(*-*)             CYCLE STEAL WD 2, DEVICE DEPEND
000036  0000                116 CSTL3  DC   A(*-*)             CYCLE STEAL WD 3, DEVICE DEPEND
000038  0000                117 CSTL4  DC   A(*-*)             CYCLE STEAL WD 4, DEVICE DEPEND
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00003A  0000                120 CSTL5  DC   A(*-*)             CYCLE STEAL WD 5, DEVICE DEPEND
00003C  0000                121 CSTL6  DC   A(*-*)             CYCLE STEAL WD 6, DEVICE DEPEND
00003E  0000                122 CSTL7  DC   A(*-*)             CYCLE STEAL WD 7, DEVICE DEPEND
000040  0000                123 CSTL8  DC   A(*-*)             CYCLE STEAL WD 8, DEVICE DEPEND
000042  00000000            124 PCTR   DC   2A(*-*)            PASS COUNTER
000046  00000000            125 ECTR   DC   2A(*-*)            ERROR COUNTER
00004A  0005                126 ERNUM  DC   X'0005'            NUM OF ERRORS ALLOWED BEFORE TERM
00004C  0040                127 $DVAD  DC   X'0040'            DEVICE ADDRESS BEING TESTED
00004E  0000000000000000    128        DC   XL8'00'
000056  0011                129 $INTL  DC   X'0011'            INTERRUPT LEVEL REQUESTED
000058  0010                130 $DVID  DC   X'0010'            DEVICE IDENTIFICATION
00005A  0006                131 $MXSL  DC   A(6)               MAXIMUM SELECTABLE ROUTINES
00005C  0000                132 H0000  DC   X'0000'            CONSTANT
00005E  0001                133 H0001  DC   X'0001'            HEX WORD CONSTANT
000060  2300                134 TYPE23 DC   X'2300'            CONSTANT TO CHECK PROCESSOR AGAINST
000062  0001                135 $HTOE  DC   A(1)               HEX TO EBC CONTROL BLOCK
000064  004C                136        DC   A($DVAD)
000066  0094                137        DC   A(MSG11)
000068  0080                138        DC   X'0080'
00006A  0074                139 $OUTN  DC   A(MSG01)           SVC OUTIN CONTROL BLOCK
00006C  00C6                140        DC   A(INARA)
00006E  0001                141        DC   A(1)
000070  0000                142        DC   A(0)
000072  40E1                143        DC   X'40E1'
000074  C9E240E3C8C5D9C54   144 MSG01  DC   C'IS THERE A TTY ATTACHED TO DA = '
000094  4040                145 MSG11  DC   C' '
000096  0000                146        DC   A(0)
000098  40E2                147        DC   X'40E2'
00009A  C9E240E3C8C5D9C54   148 MSG02  DC   C'IS THERE A WRAP CABLE CONNECTED TO DA = '
0000C2  4040                149 MSG21  DC   C' '
0000C4  0000                150        DC   A(0)
0000C6  4040                151 INARA  DC   C' '
                            153 ************************************************************************
                            154 *                                                                      *
                            155 *           PROGRAM CONTROL FUNCTIONS                                  *
                            156 *                                                                      *
                            157 ************************************************************************
0000C8  4020 0586 04FC      158 $PENT  MVA  XIOER,IOERR        INIT ERROR RETURN ADDRESS
0000CE  4020 0056 0011      159        MVWI X'0011',$INTL      INIT INTERRUPT LEVEL
0000D4  4424 000E           160        MVA  OPTN1,R4           LOAD ADDRESS OF OPTION WORDS
0000D8  4C0D                161        TBT  (R4,QUES)          HAS QUESTION BEEN ASKED
0000DA  1236                162        JON  $PEN1              BRANCH YES
0000DC  4C4D                163        TBTS (R4,QUES)          SET QUES ASKED BIT
0000DE  8028 004C 046F      164        MVB  $DVAD,REDA         MOVE DEV ADDRESS TO ALL LOCATIONS
0000E4  8028 004C 045F      165        MVB  $DVAD,RDDA         *  ------------------------------
0000EA  8028 004C 0477      166        MVB  $DVAD,LFDA         *  ------------------------------
0000F0  8028 004C 0467      167        MVB  $DVAD,RFDA         *  ------------------------------
0000F6  8028 004C 0473      168        MVB  $DVAD,CRDA         *  ------------------------------
0000FC  8028 004C 0463      169        MVB  $DVAD,WRDA         *  ------------------------------
000102  8028 004C 046B      170        MVB  $DVAD,UNDA         *  ------------------------------
000108  0BFF                171        MVBI 255,R3             LOAD MASK FIELD INTO R3
00010A  4524 0022           172        MVA  DCBUF,R5           LOAD ADDRESS OF TO FIELD
00010E  0F20                173        MVBI 32,R7              LOAD LENGTH TO MOVE
000110  2BAC                174        FFN  R3,(R5)            INIT DCBUFFER AREA
000112  CE25 002C           175        MVWZ DCB6,R7            ZERO CHAIN ADDRESS
000116  4724 0062           176        MVA  $HTOE,R7           LOAD ADDRESS OF CONTROL BLOCK
00011A  601A                177        SVC  HTOE               ISSUE SVC
00011C  4724 006A           178        MVA  $OUTN,R7           LOAD ADDRESS OF CONTROL BLOCK
000120  4324 0094           179        MVA  MSG11,R3           LOAD ADDRESS OF DEV ADDRESS
000124  6001                180        SVC  OUTIN              ISSUE SVC
000126  C620 00C6           181        MVB  INARA,R6           LOAD ANSWER
00012A  F6E8                182        CBI  C'Y',R6            COMPARE FOR YES
00012C  100C                183        JE   ISTTY              BRANCH EQUAL
00012E  8828 0094 00C2      184        MVW  MSG11,MSG21        MOVE CONVERTED DEV ADDRESS
000134  4020 006A 009A      185        MVA  MSG02,$OUTN        CHANGE MESSAGE
00013A  4724 006A           186        MVA  $OUTN,R7           LOAD ADDRESS OF CONTROL BLOCK
00013E  6001                187        SVC  OUTIN              ISSUE SVC
000140  F6E8                188        CBI  C'Y',R6            COMPARE FOR YES
000142  1802                189        JNE  $PEN1              BRANCH NO
000144  4C4E                190        TBTS (R4,IND)           SET WRAP CABLE IND
000146  4C4C                191 ISTTY  TBTS (R4,WRIT)          SET WRITE INDICATOR
000148  CE25 000A           192 $PEN1  MVWZ $RTNE,R6           CLEAR OLD ROUTINE NUMBER
00014C  A82A 005C 0042      193        AD   H0000,PCTR         ADVANCE PASS COUNTER BY 1
000152  4020 0596 0003      194        MVWI X'0003',INTCC      INIT FIRST CON CODE
000158  4424 000E           195 $PUPD  MVA  OPTN1,R4           R4 MUST BE SET TO 'OPTN1'
00015C  4C03                196 $PUP2  TBT  (R4,TM)            IS TERMINATE PGM REQUESTED
00015E  1018                197        JZ   $PUP8              * NO, CONTINUE CHECKING
                            199 *
                            200 *           TERMINATE CONTROL BIT FOUND ON
                            201 *
000160  4020 0586 016C      202 $TERM  MVA  $RETI,IOERR        INIT ERROR RETURN ADDRESS
000166  4724 0584           203        MVA  IOBLK,R7           LOAD ADDRESS OF CONTROL BLOCK
00016A  6008                204        SVC  RESET              ISSUE SVC
00016C  4020 0586 0184      205 $RETI  MVA  $TER1,IOERR        INIT ERROR RETURN ADDRESS
000172  8828 0056 0588      206        MVW  $INTL,IODCB        LOAD INTERRUPT LEVEL
000178  4724 0584           207        MVA  IOBLK,R7           LOAD ADDRESS OF CONTROL BLOCK
00017C  402D 0588 0001      208        RBTWI X'0001',IODCB     TURN OFF 'I' BIT
000182  600C                209        SVC  PREP               ISSUE SVC
000184  C720 004C           210 $TER1  MVB  $DVAD,R7           LOAD DEV ADDRESS
000188  7FF4 FF00           211        RBTWI X'FF00',R7        ZERO HIGH ORDER BYTE
00018C  6013                212        SVC  RICB               ISSUE SVC
00018E  6007                213        SVC  TERM               ISSUE SVC
                            214 *
000190  A828 005E 000A      215 $PUP8  AW   H0001,$RTNE        ADVANCE ROUTINE NUMBER
000196  882B 005A 000A      216        CW   $MXSL,$RTNE        CHECK FOR LAST AUTOMATIC ROUTINE
00019C  1095                217        JE   $PENT              * BCH AND START WITH RTN 1
                            218 *
                            219 *           GET RTN NUMBER AND BCH TO THAT RTN
                            220 *
00019E  6E08 000A           221 $PSEL  MVW  $RTNE,R6           MOVE RTN NUMBER IN REG
0001A2  CD25 000C           222        MVWZ $CKPT,R5           ZERO CHECKPOINT
0001A6  CD25 001A           223        MVWZ $DATA,R5           ZERO DEV DEPENDENT DATA DEV1
0001AA  CD25 001C           224        MVWZ $DATA+2,R5                                 DEV2
0001AE  CD25 001E           225        MVWZ DEV3,R5                                    DEV3
0001B2  CD25 0020           226        MVWZ DEV3+2,R5                                  DEV4
0001B6  3609                227        SLL  1,R6               DOUBLE R6 FOR BRANCH TABLE
0001B8  68D2 01BC           228        B    (R6,$RTAD)*        BCH VIA RTN TABLE
                            229 *
                            230 *           TABLE OF ROUTINE ADDRESSES
                            231 *
0001BC  00C8                232 $RTAD  DC   A($PENT)           NO RTN SELECTED
0001BE  01C8                233        DC   A(RT01)            ROUTINE ADDRESS
0001C0  022C                234        DC   A(RT02)            ''      ''
0001C2  02B6                235        DC   A(RT03)            ''      ''
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0001C4  0322               236        DC    A(RT04)                ''     ''
0001C6  037C               237        DC    A(RT05)                ''     ''
                           239 ********************************************************************
                           240 *     CHANNEL INTERFACE TEST                                       *
                           241 *                                                                  *
                           242 *     TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS   *
                           243 *     THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO *
                           244 *     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS *
                           245 *     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS    *
                           246 *     EXCEPT LEVEL THREE.                                          *
                           247 ********************************************************************
0001C8  6E03 0598          248 RT01  BAL   $CONR,R6             CLEAR AND CONNECT I/O BLK
0001CC  4020 0596 0007     249       MVWI  X'0007',INTCC        SET EXPECTED INTER VALUE TO SEVEN
0001D2  6A08 0056          250       MVW   $INTL,R2             SAVE SELECTED INTERRUPT
0001D6  4020 0056 FFF1     251       MVWI  X'FFF1',$INTL        SET UP INTERRUPT LEVEL FOR PREP
0001DC  680C 046E          252       IO    RESDW                ISSUE A DIAG RESET
0001E0  6F05 04FC          253       BNCC  7,XIOER              CHECK CON CODE AND BRANCH ON ERROR
0001E4  4724 0584          254       MVA   IOBLK,R7             LOAD ADDRESS OF CONTROL BLOCK
0001E8  6009               255       SVC   RID                  ISSUE SVC
0001EA  882B 058E 0058     256       CW    IORSP,$DVID          IS ID CORRECT
0001F0  1008               257       JE    ITST4                BRANCH YES
0001F2  8828 058E 001E     258       MVW   IORSP,DEV3           STORE READ VALUE IN DEV3
0001F8  8828 0058 0020     259       MVW   $DVID,DEV3+2         STORE EXPECTED VALUE IN DEV4
0001FE  6802 05D2          260       B     $PRNT                BRANCH TO PRINT ERROR
000202  4029 0056 0010    261 ITST4 AWI   X'10',$INTL           ADV INTR LEVEL, STARTING AT 0
000208  6E03 05A2          262       BAL   $CONC,R6             GO PREPARE ON NEW LEVEL
00020C  712A               263       SW    R1,R1                ZERO REG ONE
00020E  6E03 047A          264       BAL   XIOWR,R6             EXEC WRITE TO GET AN INTR
000212  6E03 0496          265       BAL   XIORD,R6             EXEC READ TO CLEAR BUFFER
000216  4029 000C 0001     266       AWI   1,$CKPT              BUMP CHECKPOINT
00021C  402F 0056 0021     267       CWI   X'21',$INTL          HAS INTR LEVEL COME DOWN TO 2
000222  18EF               268       JNE   ITST4                * NO, BCH AND CONTINUE TEST
000224  6A0D 0056          269       MVW   R2,$INTL             RESTORE SELECTED INTR LEVEL
000228  6802 0158          270       B     $PUPD                BRANCH TO CONTINUE
                           272 ********************************************************************
                           273 *     TEST DEVICE FOR INTERRUPT AND READ ERRORS                    *
                           274 *     TO VERIFY THAT WHAT IS WRITTEN CAN BE READ BACK              *
                           275 *                                                                  *
                           276 *     A WRITE COMMAND IS GIVEN TO AN UNPREPED DEVICE AND THE DEVICE *
                           277 *     IS CHECKED TO INSURE NO INTERRUPT IS RECEIVED.  THEN THE DEVICE *
                           278 *     IS PREPARED AND THE INTERRUPT IS ALLOWED TO OCCUR  AFTER WHICH *
                           279 *     THE DATA IS READ AND COMPARED (X'0000') THEN OTHER DATA IS   *
                           280 *     WRITTEN (X'00FF') THEN READ AND COMPARED.                    *
                           281 ********************************************************************
00022C  6E03 05A2          282 RT02  BAL   $CONC,R6             PREPARE ON CORRECT LEVEL
000230  CE25 0588          283       MVWZ  IODCB,R6             ZERO MOD FIELD
000234  6E03 05AC          284       BAL   $CONU,R6             BRANCH TO UNPREP DEVICE
000238  4C6B               285       TBTS  (R4,NI)              SET NO INTERRUPT BIT ON
00023A  712A               286       SW    R1,R1                ZERO REG ONE
00023C  6E03 047A          287       BAL   XIOWR,R6             EXEC WRITE COMMAND
000240  090A               288       MVBI  10,R1                LOAD COUNT REG
000242  6002               289 RT022 SVC   IDLE                 ISSUE SVC (DELAY)
000244  B9FE               290       JCT   RT022,R1             BRANCH FOR COUNT
000246  4C23               291       TBT   (R4,IN)              DID INTERRUPT OCCUR
000248  6A00 05D2          292       BON   $PRNT                BRANCH YES TO PRINT ERROR
00024C  4029 000C 0001     293       AWI   1,$CKPT              BUMP CHECKPOINT
000252  6E03 05A6          294       BAL   $CONP,R6             PREPARE DEVICE TO INTERRUPT
000256  802B 0232 0060     295       CB    CPUTYPE,TYPE23       CHECK FOR PROCESSOR 23
00025C  1803               296       JNE   RT023               BRANCH NOT EQUAL
00025E  4524 C000          297       MVWI  X'C000',R5           LOAD LOOP COUNT
000262  5001               298       J     RT024                BRANCH
000264  75AA               299 RT023 SW    R5,R5                LOAD LOOP COUNT
000266  6E03 04DC          300 RT024 BAL   XIO8,R6             GO WAIT FOR INTERRUPT
00026A  6E03 0496          301       BAL   XIORD,R6             BRANCH TO READ BUFFER
00026E  4029 000C 0001     302       AWI   1,$CKPT              BUMP CHECKPOINT
000274  712A               303       SW    R1,R1                ZERO REG ONE
000276  6E03 047A          304       BAL   XIOWR,R6             BRANCH TO WRITE DATA
00027A  6E03 0496          305       BAL   XIORD,R6             BRANCH TO READ BUFFER
00027E  6E08 0024          306       MVW   DCB2,R6              LOAD READ BUFFER INTO R6
000282  1813               307       JNZ   RT021                ERROR IF NOT ZERO
000284  4029 000C 0001     308       AWI   1,$CKPT              BUMP CHECKPOINT
00028A  4124 00FF          309       MVWI  X'00FF',R1           LOAD WRITE DATA INTO R1
00028E  6E03 047A          310       BAL   XIOWR,R6             BRANCH TO WRITE DATA
000292  6E03 0496          311       BAL   XIORD,R6             BRANCH TO READ DATA
000296  C620 0025          312       MVB   DCB2+1,R6            LOAD READ BUFFER DATA INTO R6
00029A  7EC1 0001          313       AWI   1,R6                 ADD ONE
00029E  1805               314       JNZ   RT021                BRANCH NOT ZERO - ERROR
0002A0  4020 0596 0003     315       MVWI  X'0003',INTCC        INIT EXPECTED CON CODE TO THREE
0002A6  6802 0158          316       B     $PUPD                BRANCH TO CONTINUE
0002AA  690D 0020          317 RT021 MVW   R1,DEV3+2            LOAD DEV4 WITH EXPECTED VALUE
0002AE  6E0D 001E          318       MVW   R6,DEV3              LOAD DEV3 WITH RECEIVED DATA
0002B2  6802 05D2          319       B     $PRNT                BRANCH TO PRINT ERROR
                           321 ********************************************************************
                           322 *
                           323 *     PURPOSE: TO INSURE THE 7945 ATTACHMENT WILL RESPOND WITH A
                           324 *              'COMMAND REJECT' TO EACH INVALID IO INSTRUCTION.
                           325 *
                           326 *     METHOD: EACH INVALID IO INSTRUCTION IS ISSUED, AND THE RESPONSE
                           327 *             TO EACH IS TESTED.
                           328 ********************************************************************
0002B6  6E03 05A2          329 RT03  BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
0002BA  4029 000C 0001     330       AWI   1,$CKPT              BUMP CHECKPOINT
0002C0  0900               331       MVBI  0,R1                 SET UP TO TEST FUNC/MODR OF X'00'
0002C2  0A0F               332       MVBI  15,R2                * THRU X'0F'
0002C4  9F1C               333       JAL   RT302,R7             GO TEST THEM
0002C6  0912               334       MVBI  X'12',R1             SET UP TO TEST FUNC/MODR OF X'12'
0002C8  0A1F               335       MVBI  X'1F',R2             * THRU X'1F'
0002CA  9F19               336       JAL   RT302,R7             GO TEST THEM
0002CC  0921               337       MVBI  X'21',R1             SET UP TO TEST FUNC/MODR X'21'
0002CE  0A4F               338       MVBI  X'4F',R2             * THRU X'4F'
0002D0  9F16               339       JAL   RT302,R7             GO TEST THEM
0002D2  0952               340       MVBI  X'52',R1             SET UP TO TEST FUNC/MODR X'52'
0002D4  0A5F               341       MVBI  X'5F',R2             * THRU X'5F'
0002D6  9F13               342       JAL   RT302,R7             GO TEST THEM
0002D8  0961               343       MVBI  X'61',R1             SET UP TO TEST FUNC/MODR OF X'61'
0002DA  0A6D               344       MVBI  X'6D',R2             * THRU X'6D'
0002DC  9F10               345       JAL   RT302,R7             GO TEST THEM
0002DE  0970               346       MVBI  X'70',R1             SET UP TO TEST FUNC/MODR OF X'70'
0002E0  4224 00EF          347       MVWI  X'00EF',R2           * THRU X'EF'
0002E4  9F0C               348       JAL   RT302,R7             GO TEST THEM
0002E6  4029 000C 0001     349       AWI   1,$CKPT              BUMP CHECKPOINT
0002EC  4724 0584          350       MVA   IOBLK,R7             LOAD ADDRESS OF THE CONTROL BLOCK
0002F0  6008               351       SVC   RESET                ISSUE SVC
0002F2  6E08 0012          352       MVW   OPTN3,R6             CHECK OPTION WORD THREE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0002F6  6801 05D2          353       BNZ   $PRNT                BRANCH IF NOT ZERO
0002FA  6802 0158          354       B     $PUPD                BRANCH TO CONTINUE
                           355 ********************************************************************
                           356 * THIS SUBROUTINE WILL ISSUE OIO OPS WITH INVALID FUNC/MODR FIELDS FOR
                           357 * FORCING COMMAND REJECTS, AND WILL TEST THE RESULT OF EACH.
                           358 *
                           359 *     ENTRY    R1 = FIRST FUNC/MODR BYTE VALUE TO BE TESTED
                           360 *              R2 = LAST FUNC/MODR BYTE VALUE TO BE TESTED
                           361 ********************************************************************
0002FE  C128 0472          362 RT302 MVB   R1,CRCTL             SET TEST VALUE INTO IDCB
000302  9028 0472 0022     363       MVD   CRDCB,DCBUF          MOVE IDCB TO BE USED
000308  680C 0022          364       IO    DCBUF                ISSUE THE OIO
00030C  6B05 04FC          365       BNCC  3,XIOER              CHECK FOR 'COMMAND REJECT'
000310  6002               366       SVC   IDLE                 DELAY
000312  4C03               367       TBT   (R4,TM)              IS TERMINATE BIT ON
000314  6A00 0160          368       BON   $TERM                BRANCH IF YES
000318  0101               369 RT303 ABI   1,R1                 INCR TEST VALUE
00031A  7145               370       CW    R1,R2                WAS THAT THE LAST ONE ?
00031C  6FE0 0000          371       BLLT  (R7)                 YES, RETURN
000320  50EE               372       J     RT302                NO.  GO DO NEXT VALUE
                           374 ********************************************************************
                           375 *     PRINTER INTERRFACE ERRORS                                    *
                           376 *     CHECK ALL POSSIBLE PRINT CHAR FOR CORRECT TTY RECEPTION      *
                           377 *                                                                  *
                           378 *     THE ATTACHMENT WILL BE USED AS A PRINTER WITH ALL CHARICTERS  *
                           379 *     BEING PRINTED PER LINE FOR A MAX OF THREE LINES.             *
                           380 ********************************************************************
000322  6E03 05A2          381 RT04  BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
000326  4C0C               382       TBT   (R4,WRIT)            IS WRITE BIT ON
000328  6B0F 0158          383       BOFF  $PUPD                BRANCH NO
00032C  4C0E               384       TBT   (R4,IND)             IS INDICATOR BIT ON
00032E  6A00 0158          385       BON   $PUPD                BRANCH YES
000332  4024 0003          386       MVWI  X'0003',REG          LOAD EXPECTED CON CODE
000336  8028 0462 0472     387       MVB   WRCTL,CRCTL          REINIT C.R. IDCB
00033C  4029 000C 0001     388 RT043 AWI   1,$CKPT              BUMP CHECKPOINT
000342  C925 0020          389       MVWZ  DEV4,R1              ZERO DEV4 INFORMATION
000346  6E03 0486          390       BAL   XIOCR,R6             ISSUE CARRAGE RETURN
00034A  6E03 048E          391       BAL   XIOLF,R6             ISSUE LINE FEED
00034E  4224 0612          392       MVA   ALPHA,R2             LOAD ADDRESS OF WRITE BUFFER
000352  C190               393 RT041 MVB   (R2)+,R1            MOVE CHARACTER OF WRITE BUFFER
000354  1007               394       JZ    RT042                BRANCH IF ZERO (X'0000')
000356  7924 FF00          395       RBTWI X'FF00',R1           TURN OFF HIGH ORDER BITS
00035A  690D 0020          396       MVW   R1,DEV4              SAVE THE DATA TO BE WRITTEN IN DEV4
00035E  6E0D 047A          397       BAL   XIOWR,R6             ISSUE WRITE COMMAND
000362  50F7               398       J     RT041                BRANCH
000364  B8EB               399 RT042 JCT   RT043,REG            BRANCH FOR THREE LINES OF OUTPUT
000366  4029 000C 0001     400       AWI   1,$CKPT              BUMP CHECKPOINT
00036C  6E03 0486          401       BAL   XIOCR,R6             ISSUE CARRAGE RETURN
000370  6E03 048E          402       BAL   XIOLF,R6             ISSUE LINE FEED
000374  6E03 048E          403       BAL   XIOLF,R6             ISSUE LINE FEED
000378  6802 0158          404       B     $PUPD                BRANCH TO CONTINUE
                           406 ********************************************************************
                           407 *     DIAGNOSTIC WRAP TEST                                         *
                           408 *     CHECK ALL POSSIBLE BIT COMBINATIONS WITH DIAG WRAP           *
                           409 *                                                                  *
                           410 *     WRITE 'ATT' WITH BIT COMBINATIONS OF X'00' TO X'7F'          *
                           411 *     READ IT BACK AND VERIFY IT HAS NOT CHANGED.                  *
                           412 ********************************************************************
00037C  6E03 05A2          413 RT05  BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
000380  4C0E               414       TBT   (R4,IND)             TEST INDICATOR
000382  6800 0158          415       BOFF  $PUPD                BRANCH IF OFF
000386  712A               416       SW    R1,R1                ZERO REG ONE
000388  6E03 047A          417 RT052 BAL   XIOWR,R6             ISSUE WRITE COMMAND
00038C  802B 0232 0060     418       CB    CPUTYPE,TYPE23       CHECK FOR PROCESSOR 23
000392  1803               419       JNE   RT055               BRANCH NOT EQUAL
000394  4524 C000          420       MVWI  X'C000',R5           LOAD LOOP COUNT
000398  5002               421       J     RT051                BRANCH
00039A  4524 0000          422 RT055 MVWI  X'0000',R5           INIT COUNTER R5
00039E  6002               423 RT051 SVC   IDLE                 ISSUE SVC
0003A0  4C23               424       TBTR  (R4,IN)              CHECK INTERRUPT RECEIVED BIT
0003A2  1207               425       JON   RT054                BRANCH IF ON
0003A4  7DA1 0001          426       AWI   1,R5                 INCREMENT R5
0003A8  18FA               427       JNZ   RT051                BRANCH FOR LONG COUNT
0003AA  4C61               428       TBTS  (R4,ER)              TURN ON ERROR BIT
0003AC  4C66               429       TBTS  (R4,LI)              TURN ON LOST INTERRUPT BIT
0003AE  6802 05D2          430       B     $PRNT                BRANCH TO PRINT ERROR
0003B2  6E03 0012          431 RT054 MVWZ  OPTN3,R6             ZERO OPTION WORD THREE
0003B6  6E03 0496          432       BAL   XIORD,R6             EXEC READ OF DATA BUFFER
0003BA  CE25 0012          433       MVWZ  OPTN3,R6             ZERO OPTN WORD THREE
0003BE  6A08 0024          434       MVW   DCB2,R2              LOAD READ DATA BUFFER
0003C2  7A44 0080          435       RBTWI X'0080',R2           TURN OFF HIGH ORDER BIT
0003C6  7145               436       CW    R1,R2                COMPARE TO WRITE DATA
0003C8  1807               437       JNE   RT053                BRANCH IF ERROR
0003CA  7921 0001          438       AWI   1,R1                 ADD TO WRITE DATA
0003CE  7906 0080          439       CWI   X'0080',R1           IS TEST DONE
0003D2  6800 0158          440       BE    $PUPD                BRANCH YES TO CONTINUE
0003D6  50D8               441       J     RT052                BRANCH
0003D8  4029 000C 0001     442 RT053 AWI   1,$CKPT              BUMP CHECKPOINT
0003DE  7164               443       MVW   R1,R3                LOAD R3 WITH DATA
0003E0  D228 001E          444       MVD   R2,DEV3              LOAD R2 -> DEV3 AND R3 -> DEV4
0003E4  6802 05D2          445       B     $PRNT                BRANCH TO PRINT ERROR
                           447 ********************************************************************
                           448 *     ECHO TEST                                                    *
                           449 *     USERS SELF TEST OF THE ATTACHMENT CARD                       *
                           450 *                                                                  *
                           451 *     THIS ROUTINE IS ENTERED VIA DEPRESSING THE X-ON KEY.         *
                           452 *     AT THIS TIME WHATEVER THE OPERATOR ENTERS IS SENT BACK.       *
                           453 *     THIS ROUTINE IS ALSO EXITED VIA DEPRESSING THE X-ON KEY.     *
                           454 ********************************************************************
0003E8  4624 0200          455 RT06  MVWI  X'0200',R6           LOAD COUNT REGISTER
0003EC  6002               456 RT063 SVC   IDLE                 DELAY
0003EE  BEFE               457       JCT   RT063,R6             BRANCH FOR COUNT
0003F0  6E03 05A2          458       BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
0003F4  6E03 0496          459       BAL   XIORD,R6             READ TO CLEAR BUFFER
0003F8  6908 0024          460       MVW   DCB2,R1              LOAD R1 WITH DATA
0003FC  7924 FF80          461       RBTWI X'FF00',R1           RESET UNWANTED BITS
000400  7906 0011          462       CWI   X'0011',R1           COMPARE AGAINST X-ON KEY
000404  6801 05D2          463       BNE   $PRNT                BRANCH NOT EQUAL - ERROR
000408  4020 000A 0006     464       MVWI  X'0006',$RTNE        LOAD 6 INTO ROUTINE NUMBER
00040E  6E03 0486          465       BAL   XIOCR,R6             ISSUE CARRAGE RETURN
000412  6E03 048E          466       BAL   XIOLF,R6             ISSUE LINE FEED
000416  4029 000C 0001     467       AWI   1,$CKPT              BUMP CHECKPOINT
00041C  4024 0005          468       MVWI  X'0005',REG          INIT REGISTER
000420  4224 0654          469       MVA   $ENTR,R2             LOAD ADDRESS OF ENTER MESSAGE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000424  C190                 470 RT062 MVB   (R2)+,R1                LOAD ONE BYTE AT A TIME
000426  7924 FF00            471       RBTWI X'FF00',R1              STRIP HIGH ORDER BITS
00042A  6E03 047A            472       BAL   XIOWR,R6                ISSUE WRITE COMMAND
00042E  B8FA                 473       JCT   RT062,REG               LOOP UNTIL MESSAGE IS PRINTED
000430  6E03 0486            474       BAL   XIOCR,R6                ISSUE CARRAGE RETURN
000434  6E03 048E            475       BAL   XIOLF,R6                ISSUE LINE FEED
000438  4029 000C 0001       476       AWI   1,$CKPT                 BUMP CHECKPOINT
00043E  6002                 477 RT061 SVC   IDLE                    DELAY FOR INTERRUPT
000440  4CA3                 478       TBTR  (R4,IN)                 CHECK FOR INTERRUPT
000442  10FD                 479       JOFF  RT061                   BRANCH IF NO
000444  C225 0012            480       MVWZ  OPTN3,R6                ZERO OPTION WORD THREE
000448  6E03 0496            481       BAL   XIORD,R6                READ DATA BUFFER
00044C  6908 0024            482       MVW   DCB2,R1                 LOAD READ DATA BUFFER
000450  7906 0011            483       CWI   X'0011',R1              IS BUFFER EQUAL TO X-ON KEY
000454  6800 00C8            484       BE    $PENT                   BRANCH YES TO CONTINUE
000458  6E03 047A            485       BAL   XIOWR,R6                WRITE BACK DATA
00045C  50F0                 486       J     RT061                   BRANCH TO WAIT
                             488 *
                             489 *                  READ DATA CONTROL BLOCK
                             490 *
00045E                       491 RDDCB EQU   *                       USE FOR DCB REFERENCE ONLY
00045E  10                   492 RDCTL DC    X'10'                   CONTROL WORD
00045F  00                   493 RDDA  DC    X'00'
000460  0000                 494       DC    X'0000'
                             495 *
                             496 *                  WRITE DATA CONTROL BLOCK
                             497 *
000462                       498 WRDCB EQU   *                       USE FOR DCB REFERENCE ONLY
000462  50                   499 WRCTL DC    X'50'                   CONTROL WORD
000463  00                   500 WRDA  DC    X'00'
000464  0000                 501 WDATA DC    X'0000'
                             502 *
                             503 *                  PREP TO ONE DATA CONTROL BLOCK
                             504 *
000466                       505 RPREP EQU   *                       USE FOR DCB REFERENCE ONLY
000466  60                   506 RPCTL DC    X'60'                   CONTROL WORD
000467  00                   507 RPDA  DC    X'00'
000468  0001                 508       DC    X'0001'
                             509 *
                             510 *                  PREP TO ZERO DATA CONTROL BLOCK
                             511 *
00046A                       512 UNPRP  EQU   *                      USE FOR DCB REFERENCE ONLY
00046A  60                   513 UNCTL  DC    X'60'                  CONTROL WORD
00046B  00                   514 UNDA   DC    X'00'
00046C  0000                 515        DC    X'0000'
                             516 *
                             517 *                  DIAGNOSTIC RESET DATA CONTROL BLOCK
                             518 *
00046E                       519 RESDW  EQU   *                      USE FOR DCB FREERENCE ONLY
00046E  6E                   520 RECTL  DC    X'6E'                  CONTROL WORD
00046F  00                   521 REDA   DC    X'00'
000470  0000                 522        DC    X'0000'
                             523 *
                             524 *                  CARRAGE RETURN DATA CONTROL BLOCK
                             525 *
000472                       526 CRDCB  EQU   *                      USE FOR DCB REFERENCE ONLY
000472  50                   527 CRCTL  DC    X'50'                  CONTROL WORD
000473  00                   528 CRDA   DC    X'00'
000474  008D                 529        DC    X'008D'
                             530 *
                             531 *                  LINE FEED DATA CONTROL BLOCK
                             532 *
000476                       533 LFDCB  EQU   *                      USE FOR DCB REFERENCE ONLY
000476  50                   534 LFCTL  DC    X'50'                  CONTROL WORD
000477  00                   535 LFDA   DC    X'00'
000478  000A                 536        DC    X'000A'
                             538 ********************************************************************
                             539 *     ISSUE ALL I/O COMMANDS FROM A COMMON SUBROUTINE              *
                             540 *     TO DISPLAY INSTRUCTIONS AND OPERATING PROCEDURES TO THE OPERATOR*
                             541 *     AND SET UP ANY REQUIREMENTS FOR OTHER I/O COMMANDS           *
                             542 *                                                                  *
                             543 * --> BAL   XIOWR,R6               XEQ WRITE COMMAND              *
                             544 * --> BAL   XIOCR,R6               XEQ CARRAGE RETURN             *
                             545 * --> BAL   XIOLF,R6               XEQ LINE FEED                  *
                             546 * --> BAL   XIORD,R6               XEQ READ OF THE DATA BUFFER    *
                             547 *                                                                  *
                             548 ********************************************************************
00047A  4020 0588 0462       549 XIOWR MVA   WRDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
000480  690D 0464            550       MVW   R1,WDATA               LOAD WRITE DATA INTO IDCB
000484  500D                 551       J     XIO                    BRANCH
000486  4020 0588 0472       552 XIOCR MVA   CRDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
00048C  5009                 553       J     XIO                    BRANCH
00048E  4020 0588 0476       554 XIOLF MVA   LFDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
000494  5005                 555       J     XIO                    BRANCH
000496  4C6B                 556 XIORD TBTS  (R4,NI)                SET NO INTERRUPT EXPECTED BIT
000498  4020 0588 045E       557       MVA   RDDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
00049E  5000                 558       J     XIO                    BRANCH
                             560 ********************************************************************
                             561 *                                                                  *
                             562 * SOUBROUTINE                                                     *
                             563 *                                                                  *
                             564 *     EXECUTE INPUT AND OUTPUT COMMANDS                            *
                             565 *                                                                  *
                             566 * PURPOSE                                                         *
                             567 *                                                                  *
                             568 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.             *
                             569 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:             *
                             570 *                                                                  *
                             571 *     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED *
                             572 *        THE I/O COMMAND.                                          *
                             573 *     2. SAVES THE DCB BLOCK USED                                  *
                             574 *     3. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT  *
                             575 *        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND, *
                             576 *        MYSTERY INTERRUPT (HI) CONTROL BIT IS SET.                *
                             577 *     4. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE  *
                             578 *        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE NECESSARY IO. *
                             579 *     5. AFTER ISSUING THE I/O COMMAND, TIMING                     *
                             580 *        STARTS TO DETERMINE A LOST INTERRUPT.                     *
                             581 *     6. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF  *
                             582 *        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.    *
                             583 *     7. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.               *
                             584 *     8. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.   *
                             585 *     9. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.     *
                             586 *                                                                  *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                             587 * CALLING SEQUENCE                                              *
                             588 *                                                               *
                             589 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                   *
                             590 *                                                               *
                             591 * --> B     XIO                    XEQ ANY CYCLE STEAL COMMAND, MOD=0 *
                             592 *                                                               *
                             593 * RETURN CONTROL                                               *
                             594 *                                                               *
                             595 *     BXS   (R6)                   RETURN TO USER NO ERROR      *
                             596 ********************************************************************
0004A0  4CA3                 598 XIO   TBTR  (R4,IN)                CLEAR INTERRUPT RECEIVED CNTL BIT
0004A2  1252                 599       JON   XIOCK                  BRANCH IF ON
0004A4  6E0D 0018            600       MVW   R6,LSTIO               SAVE IAR FOR RETRY IF REQUESTED
0004A8  402E 0018 0004       601       SWI   4,LSTIO                POINT AT CORRECT INSTRUCTION
0004AE  4324 0000            602       MVA   $PID,R3                LOAD ADDRESS OF START OF PROG
0004B2  CB2F 0018            603       SW    R3,LSTIO               SUB TO OBTAIN LISTING ADDRESS
0004B6  4324 0022            604       MVA   DCBUF,R3               SET UP TO ADRS TO MOVE DCB TABLE
0004BA  6D08 0588            605       MVW   IODCB,R5               * AND THE FROM ADRS, ALONG WITH
0004BE  0F04                 606       MVBI  4,R7                   * THE NUMBER OF MOVES
0004C0  2D64                 607       MVFN  (R5),(R3)              MOVE 1 STATUS WORD AND ADJUST
0004C2  802B 0232 0060       608       CB    CPUTYPE,TYPE23         CHECK FOR PROCESSOR 23
0004C8  1803                 609       JNE   XIO5                   BRANCH NOT EQUAL
0004CA  4524 C000            610       MVWI  X'C000',R5             LOAD LOOP COUNT
0004CE  5001                 611       J     XIO6                   BRANCH
0004D0  75AA                 612 XIO5  SW    R5,R5                  LOAD LOOP COUNT
0004D2  4C92                 613 XIO6  TBTS  (R4,XI)                SET EXPECTED INTR CONTROL BIT
0004D4  680C 0022            614       IO    DCBUF                  ISSUE IO
0004D8  6F05 04FC            615       BNCC  7,XIOER                ERROR IF NOT CC=7
0004DC  6002                 616 XIO8  SVC   IDLE                   ALLOW OTHER PROG TIME
0004DE  4C03                 617       TBT   (R4,TM)                IS TERMINATE BIT ON
0004E0  6A00 0160            618       BON   $TERM                  BRANCH IF ON
0004E4  4CA3                 619       TBTR  (R4,IN)                HAS INTERRUPT BEEN RECEIVED
0004E6  1230                 620       JON   XIOCK                  * YES, CHECK IF ALL WAS SATISFACTORY
0004E8  4CAB                 621       TBTR  (R4,NI)                IS THERE GOING TO BE A INTERRUPT
0004EA  6AC0 0000            622       BON   (R6)                   BRANCH NO
0004EE  7DA1 0001            623       AWI   1,R5                   ADVANCE TIME OUT COUNT
0004F2  18F4                 624       JNZ   XIO8                   BCH IF TIME OUT NOT REACHED
0004F4  4C61                 625       TBTS  (R4,ER)                SET ON ERROR CONTROL BIT
0004F6  4C66                 626       TBTS  (R4,LI)                SET ON LOST INTERRUPT CONTROL BIT
0004F8  6802 05D2            627       B     $PRNT                  BRANCH TO PRINT ERROR
                             629 ********************************************************************
                             630 *                                                                  *
                             631 * SUBROUTINE                                                      *
                             632 *                                                                  *
                             633 *     I/O EXECUTE ERROR HANDLING ROUTINE                           *
                             634 *                                                                  *
                             635 * PURPOSE                                                         *
                             636 *                                                                  *
                             637 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE  *
                             638 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE *
                             639 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                          *
                             640 *                                                                  *
                             641 * CALLING SEQUENCE                                               *
                             642 *                                                                  *
                             643 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND       *
                             644 *                                                                  *
                             645 * RETURN CONTROL                                                  *
                             646 *                                                                  *
                             647 *     B     $PRNT                  DUMP STATUS BEFORE TERMINATION  *
                             648 *                                                                  *
                             649 ********************************************************************
0004FC  706E                 650 XIOER CPLSR R3                     SAVE CONDITION CODE ON I/O ERROR
0004FE  336A                 651       SRL   13,R3                  POSITION CC CODE TO BITS 13-15
000500  C328 0014            652       MVB   R3,$IOIN               * PUT IN LOG OUT AREA
000504  6802 05D2            653       B     $PRNT                  BRANCH TO PRINT ERROR
                             655 ********************************************************************
                             656 *                                                                  *
                             657 * SOUBROUTINE                                                     *
                             658 *                                                                  *
                             659 *     ERROR INTERRUPT              RUNS ON INTERRUPT LEVEL '$INTL' *
                             660 *                                                                  *
                             661 * PURPOSE                                                         *
                             662 *                                                                  *
                             663 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR *
                             664 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE   *
                             665 *     EXPECTED CODE.                                               *
                             666 *                                                                  *
                             667 * CALLING SEQUENCE                                               *
                             668 *                                                                  *
                             669 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT     *
                             670 *                                                                  *
                             671 * RETURN CONTROL                                                  *
                             672 *                                                                  *
                             673 *     SVC   EXIT                   RETURN TO USER VIA SUPVR        *
                             674 *                                                                  *
                             675 ********************************************************************
000508  706E                 676 INTER CPLSR R3                     SAVE INDICATORS
00050A  336A                 677       SRL   13,R3                  POSITION INDICATORS IN R3
00050C  4424 000E            678       MVA   OPTN1,R4               SET UP BASE ADRS
000510  4C61                 679       TBTS  (R4,ER)                SET ERROR ON I/O COMMAND CNTL BIT
000512  5007                 680       J     INTR1                  BRANCH
                             682 ********************************************************************
                             683 *                                                                  *
                             684 * SOUBROUTINE                                                     *
                             685 *                                                                  *
                             686 *     OKAY  INTERRUPT              RUNS ON INTERRUPT LEVEL '$INTL' *
                             687 *                                                                  *
                             688 * PURPOSE                                                         *
                             689 *                                                                  *
                             690 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                 *
                             691 *                                                                  *
                             692 * CALLING SEQUENCE                                               *
                             693 *                                                                  *
                             694 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED       *
                             695 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE      *
                             696 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE           *
                             697 *     COMMON SECTION IS HANDLED HERE.                              *
                             698 *                                                                  *
                             699 * RETURN CONTROL                                                  *
                             700 *                                                                  *
                             701 *     SVC   EXIT                   RETURN TO USER VIA SUPVR        *
                             702 *                                                                  *
                             703 ********************************************************************
000514  706E                 704 INTOK CPLSR R3                     SAVE INDICATORS
```

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 LOCTR  OBJECT TEXT          STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000516  336A                  705         SRL   13,R3                  POSITION INDICATORS IN R3
000518  4424  000E            706         MVA   OPTN1,R4               SET UP BASE ADRS
00051C  4C24                  707         TBT   (R4,XE)                IS AN ERROR EXPECTED
00051E  1001                  708         JOFF  INTR1                  BRANCH NO
000520  4C69                  709         TBTS  (R4,GI)                SET GOOD INTERRUPT BIT
000522  4C63                  710 INTR1   TBTS  (R4,II)                SET   INTERRUPT RECEIVED
000524  C328  0015            711         MVB   R3,$IOIN+1             SAVE INTERRUPTING CC CODE
000528  6F0D  0016            712         MVW   R7,$ISB                SAVE INTR STATUS AND DEV ADRS
00052C  78B9                  713 INTR2   CPCL  R5                     COPY INTERRUPT LEVEL TO CHECK
00052E  3521                  714         SLL   4,R5                   POSITION INTR LEVEL AND PUT
000530  0501                  715         ABI   1,R5                   * IN 'I' BIT
000532  CD24  0056            716         CW    $INTL,R5               IS THIS THE CORRECT INTR LEVEL
000536  1004                  717         JE    INTR3                  * YES, GO EXIT THIS LEVEL
000538  3521                  718         SLL   4,R5                   SET LEVEL IN HIGH ORDER BYTE
00053A  6D0D  0020            719         MVW   R5,DEV3+2              STORE IN DEV4
00053E  4C65                  720         TBTS  (R4,LE)                SET INTR LEVEL ERROR CONTROL BIT
000540  4CA2                  721 INTR3   TBTR  (R4,XI)                WAS INTERRUPT EXPECTED
000542  1201                  722         JON   INTRX                  * YES, EXIT OFF THIS INTR LEVEL
000544  4C60                  723         TBTS  (R4,MI)                * NO, SET MYSTERY INTR CONTROL BIT
000546  6006                  724 INTRX   SVC   EXIT                   EXIT THIS LEVEL VIA SUPVR TO PGM
                              725 ********************************************************************
                              726 *                                                                  *
                              727 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT   *
                              728 *     HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN  *
                              729 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS. *
                              730 *                                                                  *
                              731 ********************************************************************
000548  4C20                  732 XIOCK   TBT   (R4,MI)                DID MYS INTERRUPT OCCUR
00054A  1208                  733         JON   XIOCQ                  BRANCH YES
00054C  4C25                  734         TBT   (R4,LE)                WAS AN INTR LEVEL ERROR FOUND
00054E  1002                  735         JOFF  XIOCM                  * NO, CONTINUE CHECKING
000550  4C61                  736         TBTS  (R4,ER)                SET ERROR CONTROL BIT ON
000552  500E                  737         J     XIOCU                  BRANCH
000554  4C24                  738 XIOCM   TBT   (R4,XE)                WAS AN ERROR EXPECTED
000556  1212                  739         JN    XIOGI                  * YES, EXIT THIS ROUTINE
000558  4C21                  740 XIOCV   TBT   (R4,ER)                WAS ERROR INTR CONTROL BIT ON
00055A  100C                  741         JOFF  XIOCX                  * NO, EXIT THIS ROUTINE
00055C  402F  000A 0004       742 XIOCQ   CWI   X'0004',$RTNE          IS ROUTINE NUM = 4
000562  1806                  743         JNE   XIOCU                  IF NO ERROR
000564  C320  0015            744         MVB   $IOIN+1,R3             GET CONDITION CODE
000568  F304                  745         CBI   X'04',R3               IS CC = ATTENTION
00056A  1802                  746         JNE   XIOCU                  ERROR IF NOT
00056C  6802  03E8            747         IN    RT06                   INVOKE ROUTINE SIX
000570  6802  05D2            748 XIOCU   B     $PRNT                  BRANCH TO PRINT ERROR
000574  CB25  0012            749 XIOCX   MVWZ  OPTN3,R3               CLEAR OUT OPTION 3 CNTL BITS
000578  68C2  0000            750         B     (R6)                   RETURN TO USER VIA REG 6
00057C  4C29                  751 XIOGI   TBT   (R4,GI)                IS GOOD INTERRUPT BIT ON
00057E  12F8                  752         JON   XIOCU                  BRANCH YES
000580  68C2  0000            753         B     (R6)                   RETURN
                              754 *
                              755 *           I/O   PARAMETER LIST
                              756 *
000584  004C                  757 IOBLK   DC    A($DVAD)               ADRS OF DEVICE ADRS
000586  04FC                  758 IOERR   DC    A(XIOER)               ERROR ROUTINE ADRS
000588  0000                  759 IODCB   DC    A(*-*)                 DCB ADRS OR LEVEL & INTR
00058A  0000                  760 IOMOD   DC    A(*-*)                 MODIFIER
00058C  0000                  761         DC    A(*-*)                 ADRS OF LAST SVC CALL
00058E  0000                  762 IORSP   DC    A(*-*)                 SECOND WORD OF LAST IDCB
                              763 *
                              764 *           INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                              765 *
000590  004C                  766 INTBL   DC    A($DVAD)               ADRS OF DEVICE ADRS
000592  0514                  767         DC    A(INTOK)               INTERRUPT OK RETURN ADRS
000594  0508                  768         DC    A(INTER)               INTERRUPT ERROR ADRS
000596  0003                  769 INTCC   DC    X'0003'                INTERRUPT CODE EXPECTED
                              770 ********************************************************************
                              771 *                                                                  *
                              772 * SUBROUTINE                                                       *
                              773 *                                                                  *
                              774 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE             *
                              775 *                                                                  *
                              776 * PURPOSE                                                          *
                              777 *                                                                  *
                              778 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND     *
                              779 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE *
                              780 *     TO INTERRUPT.                                                *
                              781 *                                                                  *
                              782 * CALLING SEQUENCE                                                 *
                              783 *                                                                  *
                              784 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                   *
                              785 *                                                                  *
                              786 * --> BAL   $CONC,R6               CLEAR DEV DEP STG AND CONNECT I/O BLK
                              787 * --> BAL   $CONR,R6               BCH TO CONNECT                  *
                              788 * --> BAL   $CONP,R6               PREPARE DEVICE ONLY             *
                              789 *                                                                  *
                              790 * RETURN CONTROL                                                   *
                              791 *                                                                  *
                              792 *     BXS   (R6)                   RETURN TO USER VIA REG 6        *
                              793 *                                                                  *
                              794 ********************************************************************
000598                        795 $CONR   EQU   *
000598  4724  0590            796         MVA   INTBL,R7               SET R7 TO CONTROL BLOCK AND
00059C  6014                  797         SVC   CICB                   * CONNECT IT TO THIS DEVICE
00059E  68C2  0000            798         B     (R6)                   RETURN
0005A2                        799 $CONC   EQU   *
0005A2  CB25  0012            800         MVWZ  OPTN3,R3               CLEAR OLD CONTROLS FOR NEW ROUTINE
0005A6  8828  0056 0588       801 $CONP   MVW   $INTL,IODCB            PUT IN LEVEL & INTR PARAMETER
0005AC  4724  0584            802 $CONU   MVA   IOBLK,R7               SET R7 TO CONTROL BLOCK TO PREPARE
0005B0  4020  0014 07FF       803         MVWI  X'07FF',$IOIN          INITIALIZE CONDITION CODE STORAGE
0005B6  CB25  0016            804         MVWZ  $ISB,R3                * AND CLEAR OLD ISB VALUE
0005BA  6E0D  0018            805         MVW   R6,LSTIO               SET UP ADDRESS THAT STARTED LAST I/O
0005BE  402E  0018 0004       806         SWI   4,LSTIO                DECREMENT TO POINT AT INSTRUCTION
0005C4  4324  0000            807         MVA   $PID,R3                LOAD ADDRESS OF START OF PROG
0005C8  CB2F  0018            808         SW    R3,LSTIO               SUB TO OBTAIN LISTING ADDRESS
0005CC  600C                  809         SVC   PREP                   * AND CALL ON SUPVR
0005CE  68C2  0000            810         B     (R6)                   RETURN
                              811 ********************************************************************
                              812 *                                                                  *
                              813 *                COMMON PRINT ERROR INTERFACE ROUTINE              *
                              814 *                                                                  *
                              815 * ----> R6      LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE *
                              816 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                              817 * ----> R4      LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE *
                              818 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                              819 * ----> R3      LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE    *
```



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 LOCTR  OBJECT TEXT          STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                              822 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                              823 * ----> PRNTRTN  THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST ) *
                              824 *                POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                              825 *                WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN *
                              826 *                                                                  *
                              827 ********************************************************************
0005D2  4624  0012            828 $PRNT   MVA   OPTN3,R6               LOAD ADDRESS OF OPTION WORD THREE
0005D6  6D08  181E            829         MVW   PRNTRTN,R5             LOAD ADDRESS OF COMMON PRNT ROUTINE
0005DA  4424  0000            830         MVA   $PID,R4                LOAD ADDRESS OF START OF PROG
0005DE  4324  0042            831         MVA   PCTR,R3                LOAD ADDRESS OF PASS COUNTER
0005E2  6FA3  0000            832         BAL   (R5),R7                BRANCH TO COMMON PRINT ROUTINE
0005E6  CE25  0012            833         MVWZ  OPTN3,R6               ZERO OUT ALL FLAGS
0005EA  4424  000E            834         MVA   OPTN1,R4               LOAD BASE ADDRESS FOR INDICATORS
0005EE  802B  0232 0060       835         CB    CPUTYPE,TYPE23         IS THIS A TYPE 23 PROCESSOR
0005F4  1803                  836         JNE   $PRN2                  BRANCH IF NO
0005F6  4524  E000            837         MVWI  X'E000',R5             INIT LOOP COUNTER
0005FA  5002                  838         J     $PRN1                  BRANCH
0005FC  4524  8000            839 $PRN2   MVWI  X'8000',R5             INIT LOOP COUNTER
000600  6002                  840 $PRN1   SVC   IDLE                   DELAY
000602  4C03                  841         TBT   (R4,TM)                SHOULD PROG TERMINATE
000604  6A00  0160            842         BON   $TERM                  BRANCH YES
000608  7DA1  0001            843         AWI   1,R5                   INCREMENT LOOP COUNTER
00060C  18F9                  844         JNZ   $PRN1                  BRANCH NOT ZERO
00060E  6802  00C8            845         B     $PENT                  BRANCH TO RESTART FROM BEGINING
                              847 ********************************************************************
                              848 *     ALPHANUMERIC BUFFER STORAGE                                  *
                              849 ********************************************************************
000612                        850 ALPHA   EQU   *
000612  20282129222A232B2      851         DC    S' (!)"*#+$'
00061B  2C252D262E272F40      852         DC    S',%-&.''/@'
000623  484149424A434B444      853         DC    S'HAIBJCKDL'
00062C  454D464E474F30383      854         DC    S'EMFNG0081'
000635  39323A333B343C353      855         DC    S'92:3;4<5=6'
00063F  3E373F50585159525      856         DC    S'>7?PXQYRZS'
000649  7B                    857         DC    X'7B'                  LEFT BRACKET
00064A  54                    858         DC    S'T'
00064B  5C                    859         DC    X'5C'                  REV. SLASH
00064C  55                    860         DC    S'U'
00064D  7D                    861         DC    X'7D'                  RIGHT BRACKET
00064E  56                    862         DC    S'V'
00064F  7E                    863         DC    X'7E'                  UP ARROW
000650  57                    864         DC    S'W'
000651  5F                    865         DC    X'5F'                  LEFT ARROW
000652  20                    866         DC    S' '                   BLANK
000653  00                    867         DC    X'00'                  END OF CHARACTER SET
000654  454E544552            868 $ENTR   DC    S'ENTER'
0000C8                        869         END   $PENT
```

CROSS-REFERENCE LISTING

DECLARED NAME ATTRIBUTES AND REFERENCES

```
    52  .REG.       ABSOLUTE. HEX VALUE(00000000)
                    386   399   468   473
     0  .R1.        ABSOLUTE. HEX VALUE(00000001)
                    263   263   286   286   288   290   303   303   309
                    317   331   334   337   340   343   346   362   369
                    370   389   393   395   396   416   416   436   438
                    439   443   460   461   462   470   471   482   483
                    550
     0  .R2.        ABSOLUTE. HEX VALUE(00000002)
                    250   269   332   335   338   341   344   347   370
                    392   393   434   435   436   444   469   470
     0  .R3.        ABSOLUTE. HEX VALUE(00000003)
                    171   174   179   443   602   603   604   607   650
                    651   652   676   677   704   705   711   745   746
                    750   802   806   809   810   831
     0  .R4.        ABSOLUTE. HEX VALUE(00000004)
                    160   161   163   190   191   195   196   285   291
                    367   382   384   414   424   428   429   478   556
                    598   613   617   619   621   625   626   678   679
                    706   707   709   710   720   721   723   733   735
                    737   739   741   752   830   834   841
     0  .R5.        ABSOLUTE. HEX VALUE(00000005)
                    172   174   222   223   224   225   226   297   299
                    299   420   422   426   605   607   610   612   612
                    623   713   714   715   716   718   719   829   832
                    837   839   843
     0  .R6.        ABSOLUTE. HEX VALUE(00000006)
                    181   182   188   192   221   227   228   248   262
                    264   265   282   283   284   287   294   300   301
                    304   305   306   310   311   312   313   318   329
                    352   381   390   391   397   401   402   403   413
                    417   431   432   433   455   457   458   459   465
                    466   472   474   475   480   481   485   600   622
                    751   754   800   807   812   828   833
     0  .R7.        ABSOLUTE. HEX VALUE(00000007)
                    173   175   176   178   186   203   207   210   211
                    254   333   336   339   342   345   348   350   371
                    606   712   798   804   832
    63  $CKPT       ADDRESS. HEX LOCATION(0000000C) IN CSECT(E40E0   ) LENGTH(2)
                    222   266   293   302   308   330   349   388   400
                    442   467   476
   801  $CONC       ADDRESS. HEX LOCATION(000005A2) IN CSECT(E40E0   ) LENGTH(1)
                    262   282   329   381   413   458
   803  $CONP       ADDRESS. HEX LOCATION(000005A6) IN CSECT(E40E0   ) LENGTH(6)
                    294
   797  $CONR       ADDRESS. HEX LOCATION(00000598) IN CSECT(E40E0   ) LENGTH(1)
                    248
   804  $CONU       ADDRESS. HEX LOCATION(000005AC) IN CSECT(E40E0   ) LENGTH(4)
                    284
   104  $DATA       ADDRESS. HEX LOCATION(0000001A) IN CSECT(E40E0   ) LENGTH(2)
                    223   224
   127  $DVAD       ADDRESS. HEX LOCATION(0000004C) IN CSECT(E40E0   ) LENGTH(2)
                     61   136   164   165   166   167   168   169   170
                    210   758   767
   130  $DVID       ADDRESS. HEX LOCATION(00000058) IN CSECT(E40E0   ) LENGTH(2)
                    256   259
   868  $ENTR       ADDRESS. HEX LOCATION(00000654) IN CSECT(E40E0   ) LENGTH(5)
                    469
   135  $HTOE       ADDRESS. HEX LOCATION(00000062) IN CSECT(E40E0   ) LENGTH(2)
                    176
   129  $INTL       ADDRESS. HEX LOCATION(00000056) IN CSECT(E40E0   ) LENGTH(2)
                    159   206   250   251   261   267   269   716   803
   101  $IOIN       ADDRESS. HEX LOCATION(00000014) IN CSECT(E40E0   ) LENGTH(2)
                    652   711   745   805
   102  $ISB        ADDRESS. HEX LOCATION(00000016) IN CSECT(E40E0   ) LENGTH(2)
                    712   806
   131  $MXSL       ADDRESS. HEX LOCATION(0000005A) IN CSECT(E40E0   ) LENGTH(2)
                    216
   139  $OUTN       ADDRESS. HEX LOCATION(0000006A) IN CSECT(E40E0   ) LENGTH(2)
                    178   185   186
   158  $PENT       ADDRESS. HEX LOCATION(000000C8) IN CSECT(E40E0   ) LENGTH(6)
                     60   217   232   484   845   869
   192  $PEN1       ADDRESS. HEX LOCATION(00000148) IN CSECT(E40E0   ) LENGTH(4)
                    162   189
    58  $PID        ADDRESS. HEX LOCATION(00000000) IN CSECT(E40E0   ) LENGTH(4)
                    602   809   830
   828  $PRNT       ADDRESS. HEX LOCATION(000005D2) IN CSECT(E40E0   ) LENGTH(4)
                    260   292   319   353   430   445   463   627   653
                    749
   840  $PRN1       ADDRESS. HEX LOCATION(00000600) IN CSECT(E40E0   ) LENGTH(2)
                    838   844
   839  $PRN2       ADDRESS. HEX LOCATION(000005FC) IN CSECT(E40E0   ) LENGTH(4)
                    836
   195  $PUPD       ADDRESS. HEX LOCATION(00000158) IN CSECT(E40E0   ) LENGTH(4)
                    270   316   354   383   385   404   415   440
   215  $PUP8       ADDRESS. HEX LOCATION(00000190) IN CSECT(E40E0   ) LENGTH(6)
                    197
   205  $RETI       ADDRESS. HEX LOCATION(0000016C) IN CSECT(E40E0   ) LENGTH(6)
                    202
   232  $RTAD       ADDRESS. HEX LOCATION(000001BC) IN CSECT(E40E0   ) LENGTH(2)
                    228
    62  $RTNE       ADDRESS. HEX LOCATION(0000000A) IN CSECT(E40E0   ) LENGTH(2)
                    192   215   216   221   464   743
   202  $TERM       ADDRESS. HEX LOCATION(00000160) IN CSECT(E40E0   ) LENGTH(6)
                    368   618   842
   210  $TER1       ADDRESS. HEX LOCATION(00000184) IN CSECT(E40E0   ) LENGTH(4)
                    205
   850  ALPHA       ADDRESS. HEX LOCATION(00000612) IN CSECT(E40E0   ) LENGTH(1)
                    392
    41  CICB        ABSOLUTE. HEX VALUE(00000014)
                    799
    54  CPUTYPE     ABSOLUTE. HEX VALUE(00000232)
                    295   418   608   835
   527  CRCTL       ADDRESS. HEX LOCATION(00000472) IN CSECT(E40E0   ) LENGTH(1)
                    362   387
   528  CRDA        ADDRESS. HEX LOCATION(00000473) IN CSECT(E40E0   ) LENGTH(1)
                    168
   526  CRDCB       ADDRESS. HEX LOCATION(00000472) IN CSECT(E40E0   ) LENGTH(1)
                    363   552
   107  DCBUF       ADDRESS. HEX LOCATION(00000022) IN CSECT(E40E0   ) LENGTH(2)
                    172   363   364   604   614
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DECLARED NAME ATTRIBUTES AND REFERENCES

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   108  DCB2        ADDRESS. HEX LOCATION(00000024) IN CSECT(E40E0   ) LENGTH(2)
                    306   312   434   460   482
   112  DCB6        ADDRESS. HEX LOCATION(0000002C) IN CSECT(E40E0   ) LENGTH(2)
                    175
   105  DEV3        ADDRESS. HEX LOCATION(0000001E) IN CSECT(E40E0   ) LENGTH(2)
                    225   226   258   259   317   318   444   719
   106  DEV4        ADDRESS. HEX LOCATION(00000020) IN CSECT(E40E0   ) LENGTH(2)
                    389   396
    89  ER          ABSOLUTE. HEX VALUE(00000021)
                    428   625   679   737   741
    42  EXIT        ABSOLUTE. HEX VALUE(00000006)
                    724
    39  E40E0       CSECT. START(00000000) LENGTH(1625) ESDID(0)
                     39
    97  GI          ABSOLUTE. HEX VALUE(00000029)
                    709   752
    44  HTOE        ABSOLUTE. HEX VALUE(0000001A)
                    177
   132  H0000       ADDRESS. HEX LOCATION(0000005C) IN CSECT(E40E0   ) LENGTH(2)
                    193
   133  H0001       ADDRESS. HEX LOCATION(0000005E) IN CSECT(E40E0   ) LENGTH(2)
                    215
    45  IDLE        ABSOLUTE. HEX VALUE(00000002)
                    289   366   423   456   477   616   840
    91  IN          ABSOLUTE. HEX VALUE(00000003)
                    291   424   478   598   619   710
   151  INARA       ADDRESS. HEX LOCATION(000000C6) IN CSECT(E40E0   ) LENGTH(2)
                    140   181
    72  IND         ABSOLUTE. HEX VALUE(0000000E)
                    190   384   414
   767  INTBL       ADDRESS. HEX LOCATION(00000590) IN CSECT(E40E0   ) LENGTH(2)
                    798
   770  INTCC       ADDRESS. HEX LOCATION(00000596) IN CSECT(E40E0   ) LENGTH(2)
                    194   249   315
   676  INTER       ADDRESS. HEX LOCATION(00000508) IN CSECT(E40E0   ) LENGTH(2)
                    769
   704  INTOK       ADDRESS. HEX LOCATION(00000514) IN CSECT(E40E0   ) LENGTH(2)
                    768
   724  INTRX       ADDRESS. HEX LOCATION(00000546) IN CSECT(E40E0   ) LENGTH(2)
                    722
   710  INTR1       ADDRESS. HEX LOCATION(00000522) IN CSECT(E40E0   ) LENGTH(2)
                    680   708
   721  INTR3       ADDRESS. HEX LOCATION(00000540) IN CSECT(E40E0   ) LENGTH(2)
                    717
   758  IOBLK       ADDRESS. HEX LOCATION(00000584) IN CSECT(E40E0   ) LENGTH(2)
                    203   207   254   350   804
   760  IODCB       ADDRESS. HEX LOCATION(00000588) IN CSECT(E40E0   ) LENGTH(2)
                    206   208   283   549   552   554   557   605   803
   759  IOERR       ADDRESS. HEX LOCATION(00000586) IN CSECT(E40E0   ) LENGTH(2)
                    158   202   205
   763  IORSP       ADDRESS. HEX LOCATION(0000058E) IN CSECT(E40E0   ) LENGTH(2)
                    256   258
   191  ISTTY       ADDRESS. HEX LOCATION(00000146) IN CSECT(E40E0   ) LENGTH(2)
                    183
   261  ITST4       ADDRESS. HEX LOCATION(00000202) IN CSECT(E40E0   ) LENGTH(6)
                    257   268
    93  LE          ABSOLUTE. HEX VALUE(00000025)
                    720   735
   535  LFDA        ADDRESS. HEX LOCATION(00000477) IN CSECT(E40E0   ) LENGTH(1)
                    166
   533  LFDCB       ADDRESS. HEX LOCATION(00000476) IN CSECT(E40E0   ) LENGTH(1)
                    554
    94  LI          ABSOLUTE. HEX VALUE(00000026)
                    429   626
   103  LSTIO       ADDRESS. HEX LOCATION(00000018) IN CSECT(E40E0   ) LENGTH(2)
                    600   601   603   807   808   810
    88  MI          ABSOLUTE. HEX VALUE(00000020)
                    723   733
   144  MSG01       ADDRESS. HEX LOCATION(00000074) IN CSECT(E40E0   ) LENGTH(32)
                    139
   148  MSG02       ADDRESS. HEX LOCATION(0000009A) IN CSECT(E40E0   ) LENGTH(40)
                    185
   145  MSG11       ADDRESS. HEX LOCATION(00000094) IN CSECT(E40E0   ) LENGTH(2)
                    137   179   184
   149  MSG21       ADDRESS. HEX LOCATION(000000C2) IN CSECT(E40E0   ) LENGTH(2)
                    184
    99  NI          ABSOLUTE. HEX VALUE(0000002B)
                    285   556   621
    65  OPTN1       ADDRESS. HEX LOCATION(0000000E) IN CSECT(E40E0   ) LENGTH(2)
                    160   195   678   706   834
    76  OPTN3       ADDRESS. HEX LOCATION(00000012) IN CSECT(E40E0   ) LENGTH(2)
                    352   431   433   480   750   802   828   833
    43  OUTIN       ABSOLUTE. HEX VALUE(00000001)
                    180   187
   124  PCTR        ADDRESS. HEX LOCATION(00000042) IN CSECT(E40E0   ) LENGTH(2)
                    193   831
    46  PREP        ABSOLUTE. HEX VALUE(0000000C)
                    209   811
    53  PRNTRTN     ABSOLUTE. HEX VALUE(0000181E)
                    829
    71  QUES        ABSOLUTE. HEX VALUE(0000000D)
                    161   163
   493  RDDA        ADDRESS. HEX LOCATION(0000045F) IN CSECT(E40E0   ) LENGTH(1)
                    165
   491  RDDCB       ADDRESS. HEX LOCATION(0000045E) IN CSECT(E40E0   ) LENGTH(1)
                    557
   521  REDA        ADDRESS. HEX LOCATION(0000046F) IN CSECT(E40E0   ) LENGTH(1)
                    164
   519  RESDW       ADDRESS. HEX LOCATION(0000046E) IN CSECT(E40E0   ) LENGTH(1)
                    252
    50  RESET       ABSOLUTE. HEX VALUE(00000008)
                    204   351
    47  RICB        ABSOLUTE. HEX VALUE(00000013)
                    212
    51  RID         ABSOLUTE. HEX VALUE(00000009)
                    255
   507  RPDA        ADDRESS. HEX LOCATION(00000467) IN CSECT(E40E0   ) LENGTH(1)
                    167
   248  RT01        ADDRESS. HEX LOCATION(000001C8) IN CSECT(E40E0   ) LENGTH(4)
                    233
   282  RT02        ADDRESS. HEX LOCATION(0000022C) IN CSECT(E40E0   ) LENGTH(4)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                     234
   317    RT021    ADDRESS. HEX LOCATION(000002AA) IN CSECT(E40E0   ) LENGTH(4)
                     307   314
   289    RT022    ADDRESS. HEX LOCATION(00000242) IN CSECT(E40E0   ) LENGTH(2)
                     290
   299    RT023    ADDRESS. HEX LOCATION(00000264) IN CSECT(E40E0   ) LENGTH(2)
                     296
   300    RT024    ADDRESS. HEX LOCATION(00000266) IN CSECT(E40E0   ) LENGTH(4)
                     298
   329    RT03     ADDRESS. HEX LOCATION(000002B6) IN CSECT(E40E0   ) LENGTH(4)
                     235
   381    RT04     ADDRESS. HEX LOCATION(00000322) IN CSECT(E40E0   ) LENGTH(4)
                     236
   393    RT041    ADDRESS. HEX LOCATION(00000352) IN CSECT(E40E0   ) LENGTH(2)
                     398
   399    RT042    ADDRESS. HEX LOCATION(00000364) IN CSECT(E40E0   ) LENGTH(2)
                     394
   388    RT043    ADDRESS. HEX LOCATION(0000033C) IN CSECT(E40E0   ) LENGTH(6)
                     399
   413    RT05     ADDRESS. HEX LOCATION(0000037C) IN CSECT(E40E0   ) LENGTH(4)
                     237
   423    RT051    ADDRESS. HEX LOCATION(0000039E) IN CSECT(E40E0   ) LENGTH(2)
                     421   427
   417    RT052    ADDRESS. HEX LOCATION(00000388) IN CSECT(E40E0   ) LENGTH(4)
                     441
   442    RT053    ADDRESS. HEX LOCATION(000003D8) IN CSECT(E40E0   ) LENGTH(6)
                     437
   431    RT054    ADDRESS. HEX LOCATION(000003B2) IN CSECT(E40E0   ) LENGTH(4)
                     425
   422    RT055    ADDRESS. HEX LOCATION(0000039A) IN CSECT(E40E0   ) LENGTH(4)
                     419
   455    RT06     ADDRESS. HEX LOCATION(000003E8) IN CSECT(E40E0   ) LENGTH(4)
                     748
   477    RT061    ADDRESS. HEX LOCATION(0000043E) IN CSECT(E40E0   ) LENGTH(2)
                     479   486
   470    RT062    ADDRESS. HEX LOCATION(00000424) IN CSECT(E40E0   ) LENGTH(2)
                     473
   456    RT063    ADDRESS. HEX LOCATION(000003EC) IN CSECT(E40E0   ) LENGTH(2)
                     457
   362    RT302    ADDRESS. HEX LOCATION(000002FE) IN CSECT(E40E0   ) LENGTH(4)
                     333   336   339   342   345   348   372
    49    TERM     ABSOLUTE. HEX VALUE(00000007)
                     213
    69    TM       ABSOLUTE. HEX VALUE(00000003)
                     196   367   617   841
   134    TYPE23   ADDRESS. HEX LOCATION(00000060) IN CSECT(E40E0   ) LENGTH(2)
                     295   418   608   835
   514    UNDA     ADDRESS. HEX LOCATION(0000046B) IN CSECT(E40E0   ) LENGTH(1)
                     170
   501    WDATA    ADDRESS. HEX LOCATION(00000464) IN CSECT(E40E0   ) LENGTH(2)
                     550
   499    WRCTL    ADDRESS. HEX LOCATION(00000462) IN CSECT(E40E0   ) LENGTH(1)
                     387
   500    WRDA     ADDRESS. HEX LOCATION(00000463) IN CSECT(E40E0   ) LENGTH(1)
                     169
   498    WRDCB    ADDRESS. HEX LOCATION(00000462) IN CSECT(E40E0   ) LENGTH(1)
                     549
    70    WRIT     ABSOLUTE. HEX VALUE(0000000C)
                     191   382
    92    XE       ABSOLUTE. HEX VALUE(00000024)
                     707   739
    90    XI       ABSOLUTE. HEX VALUE(00000022)
                     613   721
   598    XIO      ADDRESS. HEX LOCATION(000004A0) IN CSECT(E40E0   ) LENGTH(2)
                     551   553   555   558
   733    XIOCK    ADDRESS. HEX LOCATION(00000548) IN CSECT(E40E0   ) LENGTH(2)
                     599   620
   739    XIOCM    ADDRESS. HEX LOCATION(00000554) IN CSECT(E40E0   ) LENGTH(2)
                     736
   743    XIOCQ    ADDRESS. HEX LOCATION(0000055C) IN CSECT(E40E0   ) LENGTH(6)
                     734
   552    XIOCR    ADDRESS. HEX LOCATION(00000486) IN CSECT(E40E0   ) LENGTH(6)
                     390   401   465   474
   749    XIOCU    ADDRESS. HEX LOCATION(00000570) IN CSECT(E40E0   ) LENGTH(4)
                     738   744   747   753
   750    XIOCX    ADDRESS. HEX LOCATION(00000574) IN CSECT(E40E0   ) LENGTH(4)
                     742
   650    XIOER    ADDRESS. HEX LOCATION(000004FC) IN CSECT(E40E0   ) LENGTH(2)
                     158   253   365   615   759
   752    XIOGI    ADDRESS. HEX LOCATION(0000057C) IN CSECT(E40E0   ) LENGTH(2)
                     740
   554    XIOLF    ADDRESS. HEX LOCATION(0000048E) IN CSECT(E40E0   ) LENGTH(6)
                     391   402   403   466   475
   556    XIORD    ADDRESS. HEX LOCATION(00000496) IN CSECT(E40E0   ) LENGTH(2)
                     265   301   305   311   432   459   481
   549    XIOWR    ADDRESS. HEX LOCATION(0000047A) IN CSECT(E40E0   ) LENGTH(6)
                     264   287   304   310   397   417   472   485
   612    XIO5     ADDRESS. HEX LOCATION(000004D0) IN CSECT(E40E0   ) LENGTH(2)
                     609
   613    XIO6     ADDRESS. HEX LOCATION(000004D2) IN CSECT(E40E0   ) LENGTH(2)
                     611
   616    XIO8     ADDRESS. HEX LOCATION(000004DC) IN CSECT(E40E0   ) LENGTH(2)
                     300   624
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                    COPYRIGHT IBM CORP 1976
                             3 ************************************************************************
                             4 *                                                                      *
                             5 *                    ***       PREREQUISITES        ***               *
                             6 *                                                                      *
                             7 *                              NONE                                    *
                             8 *                                                                      *
                             9 ************************************************************************
                            10 *                                                                      *
                            11 *                    ***       MODIFICATIONS        ***               *
                            12 *                                                                      *
                            13 *                    CHANGES MADE TO ROUTINES 2, 3, 4 AND 6.           *
                            14 *                                                                      *
                            15 ************************************************************************
                            16 *                                                                      *
                            17 *                    ***     REA'S INCORPORATED     ***               *
                            18 *                                                                      *
                            19 *                              NONE                                    *
                            20 *                                                                      *
                            21 ************************************************************************
                            22 *                                                                      *
                            23 *                    ***    SPECIAL INSTRUCTIONS    ***               *
                            24 *                                                                      *
                            25 *                              NONE                                    *
                            26 *                                                                      *
                            27 ************************************************************************
                            28 *                                                                      *
                            29 *                    ***       E. C. HISTORY        ***               *
                            30 *                                                                      *
                            31 *          DATE 01OCT76  DATE 06MAY77  DATE 15SEP77  DATE 09DEC77      *
                            32 *          E.C. 578468   E.C. 578756   E.C. 754882   E.C. 755104        *
                            33 *                                                                      *
                            34 ************************************************************************
 000000                     36 E44E0 START X'0000'
                            37 *             SUPERVISOR EQUATES
 000014                     38 CICB   EQU   20                    CONNECT INTERRUPT CONTROL BLOCK
 000006                     39 EXIT   EQU   6                     EXIT INTERRUPT LEVEL
 000002                     40 IDLE   EQU   2                     SHARE PROGRAM TIME WITH OTHER PGMS
 00000C                     41 PREP   EQU   12                    PREPARE DEVICE
 000013                     42 RICB   EQU   19                    RELEASE INTERRUPT CONTROL BLOCK
 00001A                     43 HTOE   EQU   26                    CONVERT HEX TO CHAR.
 00000A                     44 START  EQU   10                    START CYCLE STEAL COMMAND
 000007                     45 TERM   EQU   7                     TERMINATE THIS PROGRAM
 000008                     46 RESET  EQU   8                     DEVISE RESET
 000009                     47 RID    EQU   9                     DEVISE READ ID
 000000                     48 REG    EQUR  0                     WORK REGISTER
 00181E                     49 PRNTRTN EQU  X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
 000232                     50 CPUTYPE EQU  X'0232'               ADDRESS OF PROCESSOR TYPE
                            51 *
                            52 *             PROGRAM HEADING AND CONTROL WORDS
                            53 *
 000000  F4F4F0P0           54 $PID   DC    C'4400'               PROGRAM IDENTIFICATION
 000004  0000               55        DC    XL2'0000'             CURRENT PROGRAM LEVEL
 000006  0062               56        DC    A($PENT)              START EXECUTION ADDRESS
 000008  004C               57        DC    A($DVAD)              -> TO DEV ADDRESS TABLE
 00000A  0000               58 $RTNE  DC    A(*-*)                ROUTINE NUMBER BEING RUN
 00000C  0000               59 $CKPT  DC    A(*-*)                LAST CHECK POINT PASSED
 00000E  0000               61 OPTN1  DC    X'0000'               PROGRAM OPTION CONTROL WORD 1
                            62 *
                            63 * BIT FUNCTION              EQU       BIT FUNCTION                 EQU
                            64 *
 000003                     65 TM     EQU   3                     TERMINATE PROGRAM
 00000E                     66 IND    EQU   14                    INDICATOR
 00000F                     67 DIR    EQU   15                    SEEK DIRECTION INDICATOR
                            68 *
 000010  0000               69 OPTN2  DC    X'0000'               PROGRAM OPTION CONTROL WORD 2
 000012  0000               70 OPTN3  DC    X'0000'               PROGRAM OPTION CONTROL WORD 3
                            71 *
                            72 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                            73 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                            74 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                            75 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                            76 *
                            77 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                            78 *  5  WRONG INTR LEVEL      LE       13  N.U.
                            79 *  6  LOAS INTERRUPT        LI       14  N.U.
                            80 *  7  CS STATUS IN PROGR    CS       15  N.U.
                            81 *                          BIT     HEX
 000020                     82 MI     EQU   32      0       8     MYSTERY INTERRUPT HAPPENED
 000021                     83 ER     EQU   33      1       4     ERROR RECEIVED ON INTERRUPT
 000022                     84 XI     EQU   34      2       2     EXPECTED INTERRUPT CONTROL BIT
 000023                     85 IN     EQU   35      3       1     INTERRUPT RECEIVED CONTROL BIT
 000024                     86 XE     EQU   36      4       8     EXPECTED ERROR RESPONSE
 000025                     87 LE     EQU   37      5       4     INTERRUPT ON WRONG LEVEL ERROR
 000026                     88 LI     EQU   38      6       2     LOST INTERRUPT
 000027                     89 CS     EQU   39      7       1     CYCLE STEAL IN PROGRESS
 000028                     90 CE     EQU   40      8       8     CYCLE STEAL STATUS INERRRUPT ERROR
 000029                     91 GI     EQU   41      9       4     GOOD INTERRUPT RECEIVED (EXPECTED ER)
 00002A                     92 PE     EQU   42      10      2     PROBABLE ERROR EXPECTED
 00002B                     93 NI     EQU   43      11      1     NO INTR. EXPECTED UNPREPED DEV.
 000014  0000               95 $IOIN  DC    A(*-*)                I/O AND INTR CONDITION CODES
 000016  0000               96 $ISB   DC    A(*-*)                R7, INTR STATUS BYTE & DEV ADRS
 000018  0000               97 $LSTIO DC    A(*-*)                ADRS OF LAST I/O
 00001A  00000000           98 DEV1   DC    2A(*-*)               DEVICE DEPENDENDT DATA
 00001E  00000000           99 DEV3   DC    2A(*-*)               *  DEV1-DEV2-DEV3-DEV4
 000022  0000              100 DCBUF  DC    A(*-*)                LAST DCB TABLE, CONTROL WORD
 000024  0000              101 DCB2   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000026  0000              102 DCB3   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000028  0000              103 DCB4   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002A  0000              104 DCB5   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002C  0000              105 DCB6   DC    A(*-*)                LAST DCB TABLE, CHAIN ADRS
 00002E  0000              106 DCB7   DC    A(*-*)                LAST DCB TABLE, BYTE COUNT
 000030  0000              107 DCB8   DC    A(*-*)                LAST DCB TABLE, BUFFER ADDRESS
 000032                    108 CSBUF  EQU   *                     CYCLE STEAL DATA BUFFER
 000032  0000              109 CSTL1  DC    A(*-*)                CYCLE STEAL BUFFER, RESIDUAL ADRS
 000034  0000              110 CSTL2  DC    A(*-*)                CYCLE STEAL WD 2, DEVICE DEPEND
 000036  0000              111 CSTL3  DC    A(*-*)                CYCLE STEAL WD 3, DEVICE DEPEND
 000038  0000              112 CSTL4  DC    A(*-*)                CYCLE STEAL WD 4, DEVICE DEPEND
 00003A  0000              113 CSTL5  DC    A(*-*)                CYCLE STEAL WD 5, DEVICE DEPEND
 00003C  0000              114 CSTL6  DC    A(*-*)                CYCLE STEAL WD 6, DEVICE DEPEND
 00003E  0000              115 CSTL7  DC    A(*-*)                CYCLE STEAL WD 7, DEVICE DEPEND
 000040  0000              116 CSTL8  DC    A(*-*)                CYCLE STEAL WD 8, DEVICE DEPEND
 000042  00000000          117 PCTR   DC    2A(*-*)               PASS COUNTER
 000046  00000000          118 ECTR   DC    2A(*-*)               ERROR COUNTER
 00004A  0005              119 ERNUM  DC    X'0005'               NUM OF TIMES DEV IS ALLOWED AN ERROR
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                    COPYRIGHT IBM CORP 1976
 00004C  0044              120 $DVAD DC    X'0044'               DEVICE ADDRESS BEING TESTED
 00004E  0000000000000000  121       DC    XL8'00'
 000056  0011              122 $INTL DC    X'0011'               INTERRUPT LEVEL REQUESTED
 000058  0406              123 $DVID DC    X'0406'               DEVICE IDENTIFICATION
 00005A  0006              124 $MXSL DC    A(06)                 MAXIMUM SELECTABLE ROUTINES
 00005C  0000              125 H0000 DC    X'0000'               CONSTANT
 00005E  0001              126 H0001 DC    X'0001'               HEX WORD CONSTANT
 000060  2300              127 TYPE23 DC   X'2300'               CONSTANT TO CHECK PROCESSOR AGAINST
                           129 ************************************************************************
                           130 *
                           131 *             PROGRAM CONTROL FUNCTIONS
                           132 *
                           133 ************************************************************************
 000062  4020 06FA 062E    134 $PENT MVA   XIOER,IOERR           REINIT ERROR POINTER ADDRESS
 000068  4020 0056 0011    135       MVWI  X'0011',$INTL         INIT INTERRUPT LEVEL
 00006E  A82A 005C 0042    136       AD    H0000,PCTP            ADVANCE PASS COUNTER BY 1
 000074  CE25 000A         137       MVWZ  $RTNE,R6              CLEAR OLD ROUTINE NUMBER
 000078  4424 000E         138 $PUPD MVA   OPTN1,R4              R4 MUST BE SET TO 'OPTN1'
 00007C  4C03              139 $PUP2 TBT   (R4,TM)               IS TERMINATE PGM REQUESTED
 00007E  102C              140       JZ    $PUP8                 * NO, CONTINUE CHECKING
                           141 *
                           142 *             TERMINATE CONTROL BIT FOUND ON
                           143 *
 000080  4020 06FA 00B4    144 $TERM MVA   $RETI,IOERR           RESET IO ERROR POINTER
 000086  4020 06FC 0510    145       MVA   CRDCB,IODCB           LOAD ADDRESS OF CLEAR SCREEN INTO BLK
 00008C  4724 06F8         146       MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
 000090  6008              147       SVC   RESET                 ISSUE SVC
 000092  CF25 06FE         148       MVWZ  IOMOD,R7              ZERO MODIFIER FIELD
 000096  4020 06FA 00A4    149       MVA   $RETN,IOERR           RESET IO ERROR ADDRESS
 00009C  4724 06F8         150       MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
 0000A0  4C62              151       TBTS  (R4,XI)               SET EXPECTED INTERRUPT
 0000A2  600A              152       SVC   START                 ISSUE SVC
 0000A4  4524 0000         153 $RETN MVWI  X'0000',R5            INIT WORK REG
 0000A8  4CA3              154 $RETC TBTR  (R4,IN)               TEST FOR INTERRUPT RECEIVED
 0000AA  1204              155       JON   $RETI                 BRANCH IF YES
 0000AC  6002              156       SVC   IDLE                  DELAY
 0000AE  7DA1 0001         157       AWI   1,R5                  INCREMENT R5
 0000B2  18FA              158       JNZ   $RETC                 BRANCH IF NOT ZERO
 0000B4  4020 06FA 00CC    159 $RETI MVA   $TER1,IOERR           RESET IO ERROR ADDRESS
 0000BA  8828 0056 06FC    160       MVW   $INTL,IODCB           GET LAST INTERRUPT LEVEL PREPED TO
 0000C0  402D 06FC 0001    161       RBTWI X'0001',IODCB         TURN OFF 'I' BIT
 0000C6  4724 06F8         162       MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
 0000CA  600C              163       SVC   PREP                  ISSUE SVC
 0000CC  C720 004C         164 $TER1 MVB   $DVAD,R7             LOAD DEV ADDRESS
 0000D0  7FE4 FF00         165       RBTWI X'FF00',R7            RESET HIGH ORDER BITS
 0000D4  6013              166       SVC   RICB                  ISSUE SVC
 0000D6  6007              167       SVC   TERM                  ISSUE SVC TO TERM
                           169 *
 0000D8  A828 005E 000A    170 $PUP8 AW    H0001,$RTNE           ADVANCE ROUTINE NUMBER
 0000DE  882B 005A 000A    171       CW    $MXSL,$RTNE           CHECK FOR LAST AUTOMATIC ROUTINE
 0000E4  10BE              172       JE    $PENT                 * BCH AND START WITH RTN 1
                           173 *
                           174 *             GET RTN NUMBER AND BCH TO THAT RTN
                           175 *
 0000E6  6E08 000A         176 $PSEL MVW   $RTNE,R6              MOVE RTN NUMBER IN REG
 0000EA  CD25 000C         177       MVWZ  $CKPT,R5              ZERO CHECKPOINT
 0000EE  CD25 001A         178       MVWZ  DEV1,R5               ZERO DEV1
 0000F2  CD25 001C         179       MVWZ  DEV1+2,R5                       DEV2
 0000F6  CD25 001E         180       MVWZ  DEV3,R5                                 DEV3
 0000FA  CD25 0020         181       MVWZ  DEV3+2,R5                               DEV4
 0000FE  3609              182       SLL   1,R6                  DOUBLE R6 FOR BRANCH TABLE
 000100  68D2 0104         183       B     (R6,$RTAD)*           BCH VIA RTN TABLE
                           184 *
                           185 *             TABLE OF ROUTINE ADDRESSES
                           186 *
 000104  0062              187 $RTAD DC    A($PENT)              NO RTN SELECTED
 000106  0110              188       DC    A(RT01)               ROUTINE ADDRESS
 000108  01AE              189       DC    A(RT02)                     ''
 00010A  025C              190       DC    A(RT03)                     ''
 00010C  02B2              191       DC    A(RT04)                     ''
 00010E  0308              192       DC    A(RT05)                     ''
                           193 *                    END OF ROUTINE ADDRESSES
                           195 ************************************************************************
                           196 *    CHANNEL INTERFACE TEST                                            *
                           197 *                                                                      *
                           198 *    TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS       *
                           199 *    THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO   *
                           200 *    AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS   *
                           201 *    COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS        *
                           202 *    EXCEPT LEVEL THREE.                                               *
                           203 ************************************************************************
 000110  6E03 070C         204 RT01  BAL   $CONR,R6              ISSUE A CONNECT I/O BLOCK
 000114  4020 0520 0080    205       MVWI  X'80',WRCTL           SET UP CONTROL WORD FOR TESTING
 00011A  4020 052C 0000    206       MVWI  0,WRBCT               SET UP ZERO BYTE COUNT TO CK FOR INTR
 000120  6A08              207       MVW   $INTL,R2              SAVE CURRENT INTR LEVEL
 000124  4020 0056 FFF1    208       MVWI  X'FFF1',$INTL         SET UP INTERRUPT LEVEL FOR PREP
 00012A  4029 0056 0010    209 ITST2 AWI   X'10',$INTL           ADV INTR LEVEL, STARTING AT 0
 000130  6E03 0716         210       BAL   $CONC,R6              GO PREPARE ON NEW LEVEL
 000134  4724 06F8         211       MVA   IOBLK,R7              SET UP POINTER TO CONTROL BLOCK
 000138  6008              212       SVC   RESET                 CALL SUPVR TO ISSUE RESET
 00013A  4724 06F8         213 ITST4 MVA   IOBLK,R7             SET UP POINTER TO CONTROL BLOCK
 00013E  6009              214       SVC   RID                   CALL SUPVR TO ISSUE READ ID
 000140  882B 0702 0058    215       CW    IORSP,$DVID           IS ID RECEIVED AS EXPECTED
 000146  1008              216       JE    ITST5                 * YES, CONTINUE
 000148  8828 0702 001E    217       MVW   IORSP,DEV3            MOVE RECEIVED ID INTO DEV3
 00014E  8828 0058 0020    218       MVW   $DVID,DEV3+2          MOVE EXPECTED ID INTO DEV4
 000154  6802 07E4         219       B     $PRNT                 BRANCH TO PRINT ERROR
 000158  6E03 0570         220 ITST5 BAL   XIOWR,R6              EXEC NO-OP TO GET AN INTR
 00015C  4029 0056 0001    221       AWI   1,$CKPT               INCREMENT CHECKPOINT
 000162  402F 0056 0021    222       CWI   X'21',$INTL           HAS INTR LEVEL COME DOWN TO 2
 000168  18E0              223       JNE   ITST2                 * NO, BCH AND CONTINUE TEST
 00016A  6A0D 0056         224       MVW   R2,$INTL              RESTORE INTR LEVEL BEFORE EXIT
 00016E  6E03 0716         225       BAL   $CONC,R6              SET UP FOR START I/O ON CORRECT LEV.
 000172  6E03 0594         226 ITSTA BAL   XIODG,R6              SET UP FOR START DIAG. READ
 000176  4224 08D4         227 ITSTC MVA   RDBUF,R2              SET UP TO CHECK CHECKSUM
 00017A  6B0D 08D4         228       MVW   RDBUF,R1              SET UP TO CHECK CHECKSUM VALUE
 00017E  690B 08D6         229       XW    RDBUF+2,R1            * AGAINST SHOULD BE
 000182  7921 0001         230       AWI   1,R1                  CHECK FOR A VALID CHECKSUM
 000186  1005              231       JZ    ITST9                 BCH IF OKAY
 000188  9028 08D4 001E    232       MVD   RDBUF,DEV3            MOVE INCORRECT VALUE INTO DEV3 DEV4
 00018E  6802 07E4         233       B     $PRNT                 BRANCH TO PRINT ERROR
 000192  6908 08D8         234 ITST9 MVW   RDBUF+4,R1           SET UP TO CHECK CHECKSUM VALUE
 000196  690B 08DA         235       XW    RDBUF+6,R1            * AGAINST SHOULD BE
 00019A  7921 0001         236       AWI   1,R1                  CHECK FOR A VALID CHECKSUM
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
00019E  1005                237         JZ    ITST7               BCH IF OKAY
0001A0  9028 08D8 001E      238         MVD   RDBUF+4,DEV3        MOVE INCORRECT VALUE INTO DEV3 DEV4
0001A6  6802 07E4           239         B     $PRNT               BRANCH TO PRINT ERROR
0001AA  6802 0078           240 ITST7   B     $PUPD               RETURN TO CALL NEXT PROGRAM
                            241 ********************************************************************
                            242 *     RIPPLE DISPLAY                                               *
                            243 *                                                                  *
                            244 *     TO VERIFY THAT ALL CHARACTERS CAN BE DISPLAYED IN ALL POSITIONS.*
                            245 *     EACH LINE ON THE CRT IN WRITTEN AND READ BACK                *
                            246 *     TO VERIFY THAT THE CRT STORAGE IS WORKING.                   *
                            247 ********************************************************************
0001AE  6E03 0716           248 RT02    BAL   $CONC,R6            PREPARE DEVISE ON PROPER LEVEL
0001B2  6E03 058C           249         BAL   XIOCR,R6            CLEAR THE SCREEN
0001B6  4124 0834           250         MVA   ALPHA,R1            SET UP BUFFER ADRS IN REG 1
0001BA  4224 0884           251         MVA   WRBUF,R2            SET WRITE BUFFER ADRS
0001BE  0F50                252         MVBI  80,R7               SET UP THE COUNT TO MOVE
0001C0  2944                253         MVFN  (R1),(R2)           MOVE ALPHA FIELD INTO BUFFER
0001C2  6E03 082A           254         BAL   SETWR,R6            SET UP WRITE DCB CHAINED TO READ DCB
0001C6  800C0000000000000002 255         DC    X'800C0000000000002000'
0001D0  0530                256         DC    A(RDDCB)
0001D2  0001                257         DC    X'0001'
0001D4  0834                258         DC    A(ALPHA)
0001D6  6E03 0824           259         BAL   SETRD,R6            SET UP READ DCB
0001DA  2000000000000000002 260         DC    X'2000000000000000002000'
0001E4  0000                261         DC    A(0000)
0001E6  0001                262         DC    X'0001'
0001E8  08D4                263         DC    A(RDBUF)
0001EA  7922 0001           264         SWI   X'0001',R1          POINT R1 AT LAST CHAR
0001EE  690D 052E           265         MVW   R1,WRADR            POINT AT WR BUF
0001F2  4124 0834           266         MVA   ALPHA,R1            SET UP R1 TO START OF BUF
0001F6  4029 000C 0001      267         AWI   1,$CKPT             INCREMENT CHKPOINT
0001FC  8828 0524 0522      268 RIPL2   MVW   WRPRE,WRPOS         USE THE SAME CURSOR ADRS FOR POS
000202  6E03 0570           269 RIPL3   BAL   XIOWR,R6            GO XEQ WRITE I/O COMMAND
000206  6E03 0746           270         BAL   CMPU,R6             GO COMPARE DATA
00020A  C924 052E           271         CW    WRADR,R1            TEST WR BUF START ADDADRS
00020E  1003                272         JE    RIPL4               BR IF POINTING AT START
000210  402E 052E 0001      273         SWI   X'0001',WRADR       RESET WRITE START ADDRESS
000216  402F 0524 0730      274 RIPL4   CWI   X'0730',WRPRE       IS WRPRE POINTING AT END.
00021C  1A0F                275         JNH   RIPL6               BR IF YES
00021E  402F 052C 0050      276         CWI   X'0050',WRBCT       HAS BYTE COUNT REACHED MAX
000224  1007                277         JE    RIPL5               BRANCH IF YES
000226  4029 052C 0001      278         AWI   X'0001',WRBCT       INCREMENT BYTE COUNT
00022C  4029 053C 0001      279         AWI   X'0001',RDBCT       IN BOTH WRITE AND READ
000232  50B4                280         J     RIPL2               JUMP TO CONTINUE
000234  4029 0524 0001      281 RIPL5   AWI   X'0001',WRPRE       ADVANCE CURSOR ADDRESS
00023A  50E0                282         J     RIPL7               BRANCH TO CONTINUE
00023C  402F 052C 0001      283 RIPL6   CWI   X'0001',WRBCT       TEST BYTE COUNT
000242  100A                284         JE    RIPL7               BR IF END
000244  4029 0524 0001      285         AWI   X'0001',WRPRE       ADVANCE CURSOR
00024A  402E 052C 0001      286         SWI   X'0001',WRBCT       DECREMENT BYTE COUNT
000250  402E 053C 0001      287         SWI   X'0001',RDBCT       DECREMENT BYTE COUNT
000256  5002                288         J     RIPL2               JUMP TO CONTINUE
000258  6802 0078           289 RIPL7   B     $PUPD               BRANCH TO CONTINUE
                            290 ********************************************************************
                            291 *     SHIFT UP TEST                                                *
                            292 *                                                                  *
                            293 *     DATA WILL BE WRITTEN ON THE BOTTOM LINE AND SHIFTED UP. WHEN THE*
                            294 *     DATA HAS REACHED THE TOP LINE IT WILL BE COMPARED TO VERIFY NO  *
                            295 *     CHARACTER HAS BEEN CHANGED IN THE SHIFT OPERATION.           *
                            296 ********************************************************************
00025C  6E03 0716           297 RT03    BAL   $CONC,R6            PREPARE DEVISE ON CORRECT LEVEL
000260  6E03 058C           298         BAL   XIOCR,R6            CLEAR SCREEN
000264  0818                299 SHUP1   MVBI  24,REG              SET UP LINE COUNTER
000266  4124 0834           300         MVA   ALPHA,R1            SET UP BUFFER ADRS IN REG 1
00026A  4224 0884           301         MVA   WRBUF,R2            SET WRITE BUFFER ADRS
00026E  0F50                302         MVBI  80,R7               SET UP THE COUNT TO MOVE
000270  2944                303         MVFN  (R1),(R2)           MOVE ALPHA FIELD INTO BUFFER
000272  6E03 082A           304         BAL   SETWR,R6            SET UP WRITE DCB
000276  000F0730073000730   305         DC    X'000F0730073000730001'
000280  0000                306         DC    A(0000)
000282  0050                307         DC    X'0050'
000284  0884                308         DC    A(WRBUF)
000286  4020 000C 0001      309 SHUP4   MVWI  1,$CKPT             SET CHECKPOINT TO ONE
00028C  6E03 0570           310         BAL   XIOWR,R6            GO XEQ WRITE I/O COMMAND
000290  802B 0232 0060      311         CB    CPUTYPE,TYPE23      CHECK FOR PROCESSOR 23
000296  1803                312         JNE   SHUP2               BRANCH NOT EQUAL
000298  4524 0155           313         MVWI  341,R5              LOAD LOOP COUNT
00029C  5002                314         J     SHUP3               BRANCH
00029E  4524 0555           315 SHUP2   MVWI  1365,R5             SET UP IDLE LOOP FOR WAIT
0002A2  6002                316 SHUP3   SVC   IDLE                DELAY
0002A4  BDFE                317         JCT   SHUP3,R5            BRANCH UNTIL DONE
0002A6  4029 052E 0001      318         AWI   1,WRADR             CHANGE THE BUFFER START ADDRESS
0002AC  B8EC                319         JCT   SHUP4,REG           * BCH IF NOT FINISHED
0002AE  6802 0078           320         B     $PUPD               RETURN TO CONTINUE
                            321 ********************************************************************
                            322 *     SHIFT DOWN TEST                                              *
                            323 *                                                                  *
                            324 *     DATA WILL BE WRITTEN ON THE TOP LINE AND SHIFTED DOWN. WHEN THE *
                            325 *     DATA HAS REACHED THE BOTTOM LINE IT WILL BE COMPARED TO VERIFY  *
                            326 *     NO CHARACTER HAS BEEN CHANGED IN THE SHIFT OPERATION.        *
                            327 ********************************************************************
0002B2  6E03 0716           328 RT04    BAL   $CONC,R6            PREPARE DEVISE ON PROPER LEVEL
0002B6  6E03 058C           329         BAL   XIOCR,R6            CLEAR SCREEN
0002BA  0818                330 SHDN1   MVBI  24,REG              SET UP LINE COUNTER
0002BC  4124 0834           331         MVA   ALPHA,R1            SET UP BUFFER ADRS IN REG 1
0002C0  4224 0884           332         MVA   WRBUF,R2            SET WRITE BUFFER ADRS
0002C4  0F50                333         MVBI  80,R7               SET UP THE COUNT TO MOVE
0002C6  2944                334         MVFN  (R1),(R2)           MOVE ALPHA FIELD INTO BUFFER
0002C8  6E03 082A           335         BAL   SETWR,R6            SET UP WRITE DCB
0002CC  000D0000000000730001 336         DC    X'000D0000000000730001'
0002D6  0000                337         DC    A(0000)
0002D8  0050                338         DC    X'0050'
0002DA  0884                339         DC    A(WRBUF)
0002DC  4020 000C 0001      340 SHDN4   MVWI  1,$CKPT             SET CHECKPOINT TO ONE
0002E2  6E03 0570           341         BAL   XIOWR,R6            GO XEQ WRITE I/O COMMAND
0002E6  802B 0232 0060      342         CB    CPUTYPE,TYPE23      CHECK FOR PROCESSOR 23
0002EC  1803                343         JNE   SHDN2               BRANCH NOT EQUAL
0002EE  4524 0155           344         MVWI  341,R5              LOAD LOOP COUNT
0002F2  5002                345         J     SHDN3               BRANCH
0002F4  4524 0555           346 SHDN2   MVWI  1365,R5             SET UP IDLE LOOP FOR WAIT
0002F8  6002                347 SHDN3   SVC   IDLE                DELAY
0002FA  BDFE                348         JCT   SHDN3,R5            BRANCH UNTIL DONE
0002FC  4029 052E 0001      349         AWI   1,WRADR             CHANGE THE BUFFER START ADDRESS
000302  B8EC                350         JCT   SHDN4,REG           * BCH IF NOT FINISHED
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000304  6802 0078           351         B     $PUPD               RETURN TO CONTINUE
                            352 ********************************************************************
                            353 *     ERROR TEST                                                   *
                            354 *                                                                  *
                            355 *     THIS ROUTINE WILL FORCE ERRORS THAT THE ATTACHMENT WILL REJECT, *
                            356 *     AND THE PROPER RESPONSE WILL BE CHECKED. THE RESIDUAL ADDRESS *
                            357 *     WILL BE CHECKED FOR EACH TYPE OF ERROR.                      *
                            358 *                                                                  *
                            359 *     THE FOLLOWING ERRORS ARE FORCED:                             *
                            360 *     1.   INVALID CONTROL BIT, READ WITH BYTE COUNT = 0           *
                            361 *     2.   POST CURSOR ADDRESS TOO LARGE                           *
                            362 *     3.   PRE CURSOR ADDRESS TOO LARGE                            *
                            363 *     4.   SHIFT COUNT TOO LARGE                                   *
                            364 *     5.   HIGH ADDRESS TOO LARGE                                  *
                            365 *     6.   LOW ADDRESS TOO LARGE                                   *
                            366 *     7.   SHIFT COUNT TOO LARGE                                   *
                            367 *     8.   BYTE COUNT TOO LARGE                                    *
                            368 ********************************************************************
000308  6E03 0716           369 RT05    BAL   $CONC,R6            PREPARE DEVISE ON PROPER LEVEL
00030C  6E03 058C           370         BAL   XIOCR,R6            CLEAR SCREEN
000310  6E03 082A           371         BAL   SETWR,R6            SET UP WRITE DCB
000314  000D0781078120200   372         DC    X'000D0781078120200040000800'
000322  0884                373         DC    A(WRBUF)
000324  4020 079C 0570      374         MVA   XIOWR,ERCAL+2       SET UP ADDRESS FOR I/O ERROR ROUTINE
00032A  6A03 0792           375         BAL   ERTST,R2            BRANCH TO ISSUE ERROR
00032E  000D                376         DC    A(13)               DISP TO ERROR ADDRESS
000330  6A03 04E6           377         BAL   DCBCK,R2            CHECK DCB CHECK VALUE
000334  00B0                378         DC    X'00B0'             *  FOR X'00B0'
000336  4020 052C 0063      379         MVWI  99,WRBCT            PUT IN GOOD BYTE COUNT
00033C  6A03 0792           380         BAL   ERTST,R2            BRANCH TO ISSUE ERROR
000340  0003                381         DC    A(3)                DISP TO ERROR ADDRESS
000342  6A03 04E6           382         BAL   DCBCK,R2            CHECK DCB CHECK VALUE
000346  0020                383         DC    X'0020'             *  FOR X'0020'
000348  4020 0522 0000      384         MVWI  0,WRPOS             PUT IN GOOD POS CURSOR ADRS
00034E  6A03 0792           385         BAL   ERTST,R2            BRANCH TO ISSUE ERROR
000352  0005                386         DC    A(5)                DISP OF ERROR ADDRESS
000354  6A03 04E6           387         BAL   DCBCK,R2            CHECK DCB CHECK VALUE
000358  0020                388         DC    X'0020'             *  FOR X'0020'
00035A  4020 0524 0000      389         MVWI  0,WRPRE             PUT IN GOOD PRE CURSOR ADRS
000360  6A03 0792           390         BAL   ERTST,R2            BRANCH TO ISSUE ERROR
000364  0007                391         DC    A(7)                DISP OF ERROR ADDRESS
000366  6A03 04E6           392         BAL   DCBCK,R2            CHECK DCB CHECK VALUE
00036A  0060                393         DC    X'0060'             *  FOR X'0060
00036C  4020 0526 0780      394         MVWI  X'0780',WRHLA       PUT IN GOOD HIGH ADRS
000372  6A03 0792           395         BAL   ERTST,R2            BRANCH TO ISSUE ERROR
000376  0007                396         DC    A(7)                DISP OF ERROR ADDRESS
000378  6A03 04E6           397         BAL   DCBCK,R2            CHECK DCB CHECK VALUE
00037C  0030                398         DC    X'0030'             *  FOR X'0030'
00037E  4020 0526 0707      399         MVWI  X'0707',WRHLA       PUT IN GOOD HIGH ADRS, HIGH = LOW
000384  6A03 0792           400         BAL   ERTST,R2            BRANCH TO ISSUE ERROR
000388  0007                401         DC    A(7)                DISP OF ERROR ADDRESS
00038A  6A03 04E6           402         BAL   DCBCK,R2            CHECK DCB CHECK VALUE
00038E  0060                403         DC    X'0060'             *  FOR X'0060'
000390  4020 0526 0907      404         MVWI  X'0907',WRHLA       PUT IN GOOD HIGH ADRS, LOW GT HIGH
000396  6A03 0792           405         BAL   ERTST,R2            BRANCH TO ISSUE ERROR
00039A  0007                406         DC    A(7)                DISP OF ERROR ADDRESS
00039C  6A03 04E6           407         BAL   DCBCK,R2            CHECK DCB CHECK VALUE
0003A0  0050                408         DC    X'0050'             *  FOR X'0050'
0003A2  4020 0526 0607      409         MVWI  X'0607',WRHLA       PUT IN BAD  HIGH AND LOW ADRS
0003A8  6A03 0792           410         BAL   ERTST,R2            BRANCH TO ISSUE ERROR
0003AC  0009                411         DC    A(9)                DISP OF ERROR ADDRESS
0003AE  6A03 04E6           412         BAL   DCBCK,R2            CHECK DCB CHECK VALUE
0003B2  0040                413         DC    X'0040'             *  FOR X'0040'
0003B4  4020 0526 000A      414         MVWI  X'000A',WRHLA       SET UP SMALL WINDOW
0003BA  6A03 0792           415         BAL   ERTST,R2            BRANCH TO ISSUE ERROR
0003BE  0009                416         DC    A(9)                DISP OF ERROR ADDRESS
0003C0  6A03 04E6           417         BAL   DCBCK,R2            CHECK DCB CHECK VALUE
0003C4  0080                418         DC    X'0080'             *  FOR X'0080'
0003C6  4020 0528 0000      419         MVWI  0,WRSHF             PUT IN ZERO SHIFT COUNT
0003CC  6A03 0792           420         BAL   ERTST,R2            BRANCH TO ISSUE ERROR
0003D0  0009                421         DC    A(9)                DISP OF ERROR ADDRESS
0003D2  6A03 04E6           422         BAL   DCBCK,R2            CHECK DCB CHECK VALUE
0003D6  0070                423         DC    X'0070'             *  FOR X'0070'
0003D8  4020 0528 0003      424         MVWI  X'0003',WRSHF       PUT IN SHIFT LARGER THAN THE WINDOW
0003DE  6A03 0792           425         BAL   ERTST,R2            BRANCH TO ISSUE ERROR
0003E2  0009                426         DC    A(9)                DISP OF ERROR ADDRESS
0003E4  6A03 04E6           427         BAL   DCBCK,R2            CHECK DCB CHECK VALUE
0003E8  0090                428         DC    X'0090'             *  FOR X'0090'
0003EA  4020 0528 0002      429         MVWI  2,WRSHF             PUT IN GOOD SHIFT COUNT
0003F0  4020 0524 0720      430         MVWI  X'720',WRPRE        SET UP PRE CURSOR ADRS OPER CHECKS
0003F6  4020 0520 00BD      431         MVWI  X'BD',WRCTL         SET UP 'ERASE TO END OF FIELD'
0003FC  6A03 04CA           432         BAL   DCBSU,R2            SET UP FOR NEXT ERROR TEST
000400  6A03 04E6           433         BAL   DCBCK,R2            CHECK DCB CHECK VALUE
000404  0002                434         DC    X'0002'             *  FOR X'0002'
000406  4020 0520 00DD      435         MVWI  X'DD',WRCTL         SET UP 'ERASE TO END OF LINE'
00040C  6A03 04CA           436         BAL   DCBSU,R2            SET UP FOR NEXT ERROR TEST
000410  6A03 04E6           437         BAL   DCBCK,R2            CHECK DCB CHECK VALUE
000414  0003                438         DC    X'0003'             *  FOR X'0003'
000416  4020 0520 008D      439         MVWI  X'8D',WRCTL         SET UP 'ERASE TO END OF SCREEN'
00041C  4020 0524 077F      440         MVWI  X'77F',WRPRE        SET UP LEN TO INDICATE END OF SCREEN
000422  6A03 04CA           441         BAL   DCBSU,R2            SET UP FOR NEXT ERROR TEST
000426  6A03 04E6           442         BAL   DCBCK,R2            CHECK DCB CHECK VALUE
00042A  0003                443         DC    X'0005'             *  FOR X'0003'
00042C  6802 0078           444         B     $PUPD               RETURN TO CONTINUE
                            445 ********************************************************************
                            446 *     MANUAL INTERFACE TEST                                        *
                            447 *                                                                  *
                            448 *     THE OPERATOR IS EXPECTED TO WRITE DATA ON THE TOP LINE OF THE  *
                            449 *     CRT. WHEN THE ENTER KEY IS DEPRESSED THE DATA WHICH WAS JUST *
                            450 *     ENTERED WILL BE DISPLAYED ON THE SECOND LINE OF THE CRT.     *
                            451 ********************************************************************
000430  4CA0                452 RT06    TBTR  (R4,MI)             RESET MYSTERY BIT
000432  4CA1                453         TBTR  (R4,ER)             RESET ERROR RECEIVED BIT
000434  4CCE                454         TBTV  (R4,IND)            INVERT INDICATOR
000436  6A00 0062           455         BON   $PENT               IF ON BRANCH TO CONTINUE TESTING
00043A  6E03 0716           456         BAL   $CONC,R6            PREPARE DEVISE ON PROPER LEVEL
00043E  6E03 058C           457         BAL   XIOCR,R6            CLEAR SCREEN
000442  4C20                458 RT062   TBT   (R4,MI)             DID INTERRUPT OCCUR
000444  6A00 068E           459         BON   XIOCK               BRANCH IF YES
000448  4C03                460         TBT   (R4,TM)             IS TERMINATE BIT ON
00044A  6A00 0080           461         BON   $TERM               BRANCH IF YES
00044E  6002                462         SVC   IDLE                DELAY
000450  50F8                463         J     RT062               BRANCH
000452  CE25 0012           464 RT061   MVWZ  OPTN3,R6            ZERO OPTION WORD THREE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

000456  4020 000C 0001      470         MVWI  1,$CKPT               SET CHECKPOINT TO ONE
00045C  6E03 05A2           471         BAL   XIOR6,R6              BRANCH TO READ TOP LINE
000460  4724 0050           472         MVWI  80,R7                 INIT R7 WITH LENGTH OF MOVE
000464  C120 0884           473         MVB   WRBUF,R1              LOAD R1 WITH BYTE TO WRITE
000468  4224 0884           474         MVA   WRBUF,R2              LOAD TO ADDRESS
00046C  294C                475         FFN   R1,(R2)               INIT BUFFER
00046E  4124 0018           476         MVWI  24,R1                 INIT R1 WITH NUM OF LINES
000472  4020 000C 0002      477         MVWI  2,$CKPT               SET CHECKPOINT TO TWO
000478  6E03 05AA           478 RT060   BAL   XIOW6,R6              BRANCH TO WRITE SECOND LINE
00047C  B9FD                479         JCT   RT060,R1              BRANCH FOR COUNT
00047E  50E1                480         J     RT062                 WAIT FOR NEXT INTERRUPT
000480  CE25 0012           481 RT063   MVWZ  OPTN3,R6              ZERO OPTION WORD THREE
000484  4724 04C4           482         MVA   $HTOE,R7              LOAD ADDRESS OF CONTROL BLOCK
000488  601A                483         SVC   HTOE                  ISSUE SVC
00048A  4724 0050           484         MVWI  X'0050',R7            LOAD LINE LENGTH
00048E  0A40                485         MVBI  C' ',R2               INIT R2 TO BLANK
000490  4324 0884           486         MVA   WRBUF,R3              LOAD ADDRESS OF WRITE BUFFER
000494  2A6C                487         FFN   R2,(R3)               BLANK WRITE BUFFER
000496  4724 0014           488         MVWI  MSGLN,R7              INIT R7 TO MSG LEN
00049A  4224 04B0           489         MVA   PFMSG,R2              LOAD ADDRESS OF MSG
00049E  4324 0884           490         MVA   WRBUF,R3              LOAD ADDRESS OF WRITE BUFFER
0004A2  2A68                491         MVFN  (R2),(R3)             MOVE MESSAGE
0004A4  4020 000C 0002      492         MVWI  2,$CKPT               SET CHECKPOINT TO TWO
0004AA  6E03 05AA           493         BAL   XIOW6,R6              BRANCH TO WRITE DATA ON SECOND LINE
0004AE  50C9                494         J     RT062                 WAIT FOR NEXT INTERRUPT
0004B0  C9D5E3C5D9E4D7E34   495 PFMSG   DC    C'INTERUPT ISB = '    MAG USED FOR INTERRUPTS
0004BF  40404040            496 MSGPF   DC    CL5'    '             ISB GOES HERE
0004C4                      497 MSGND   EQU   *                       END OF MSG
000014                      498 MSGLN   EQU   MSGND-PFMSG             LENGTH OF MSG
0004C4  0002                499 $HTOE   DC    A(2)                  CONTROL BLOCK FOR HEX TO EBC
0004C6  0016                500         DC    A($ISB)
0004C8  04BF                501         DC    A(MSGPF)
                            503 *       SUBROUTINE TO SET UP THE NEXT ERROR TEST
0004CA  4C64                504 DCBSU   TBTS  (R4,XE)               SET EXPECTED ERROR CNTL BIT
0004CC  4029 000C 0001      505         AWI   4,CHKPT               BUMP CHECKPOINT BY ONE
0004D2  6E03 0570           506         BAL   XIOWR,R6              * AND GO EXECUTE THE WRITE COMMAND
0004D6  CE25 0012           507         MVWZ  OPTN3,R6              ZERO OPTION WORD THREE
0004DA  4C6A                508         TBTS  (R4,PE)               SET PROBABLE ERROR
0004DC  6E03 05BA           509         BAL   XIOCS-2,R6            * AND GO EXECUTE THE CS STATUS
0004E0  4CA7                510         TBTR  (R4,CS)               RESET BOTH CS STATUS
0004E2  4CA8                511         TBTR  (R4,CE)               *  BITS USED
0004E4  5200                512         BXS   (R2)                  RETURN TO USER VIA REG 2
                            514 *       SUBROUTINE TO CHECK THE DCB CK VALUE
0004E6  6908 0036           515 DCBCK   MVW   CSTL3,R1              GET CS STATUS TO CHECK
0004EA  7920 00FF           516         NWI   X'00FF',R1            REMOVE BITS 0-7 FOR CHECK
0004EE  C984                517         CW    (R2),R1               IS THE DCB CHECK VALUE OKAY
0004F0  6840 0002           518         BE    (R2,2)                * YES, RETURN
0004F4  8A08 0020           519         MVW   (R2),DEV3+2           LOAD EXPECTED VALUE INTO DEV4
0004F8  690D 001E           520         MVW   R1,DEV3               LOAD RECEIVED VALUE INTO DEV3
0004FC  6802 07E4           521 DCBCM   B     $PRNT                 PRINT ERROR
                            522 ********************************************************************
                            523 *       DCB BLOCKS FOR THE CRT                                     *
                            524 ********************************************************************
                            525 *
                            526 *       DIAGNOSTIC DATA CONTROL BLOCK
                            527 *
000500                      528 DGDCB   EQU   *                       USE FOR DCB REFERENCE ONLY
000500  2000                529         DC    X'2000'                 CONTROL WORD
000502  0000                530         DC    X'0000'                 POS CURSOR ADRS
000504  0000                531         DC    X'0000'                 PRE CURSOR ADRS
000506  0000                532         DC    X'0000'                 HIGH/LOW ADRS
000508  0000                533         DC    X'0000'                 PKB/SHIFT COUNT
00050A  0000                534         DC    X'0000'                 CHAIN ADRS
00050C  000A                535         DC    X'000A'                 BYTE COUNT
00050E  08D4                536         DC    A(RDBUF)                BUFFER ADRS
                            537 *
                            538 *       CLEAR CRT SCREEN DATA CONTROL BLOCK
                            539 *
000510                      540 CRDCB   EQU   *                       USE FOR DCB REFERENCE ONLY
000510  001C                541         DC    X'001C'                 CONTROL WORD
000512  0000                542         DC    X'0000'                 POS CURSOR ADRS
000514  0000                543         DC    X'0000'                 PRE CURSOR ADRS
000516  0000                544         DC    A(*-*)                  HIGH/LOW ADRS
000518  0000                545         DC    X'0000'                 PKB/SHIFT COUNT
00051A  0000                546         DC    A(*-*)                  CHAIN ADRS
00051C  0780                547         DC    X'0780'                 BYTE COUNT
00051E  0000                548         DC    A(*-*)                  BUFFER ADRS
                            549 *
                            550 *       WRITE DATA CONTROL BLOCK
                            551 *
000520                      552 ETST    EQU   *                       USE FOR DCB REFERENCE ONLY
000520                      553 WRDCB   EQU   *                       USE FOR DCB REFERENCE ONLY
000520  000C                554 WRCTL   DC    X'000C'                 CONTROL WORD
000522  0000                555 WRPOS   DC    A(*-*)                  POS CURSOR ADRS
000524  0000                556 WRPRE   DC    A(*-*)                  PRE CURSOR ADRS
000526  0000                557 WRHLA   DC    A(*-*)                  HIGH/LOW ADRS
000528  0000                558 WRSHF   DC    A(*-*)                  PKB/SHIFT COUNT
00052A  0000                559 WRCHN   DC    A(*-*)                  CHAIN ADRS
00052C  0000                560 WRBCT   DC    A(*-*)                  BYTE COUNT
00052E  0884                561 WRADR   DC    A(WRBUF)                BUFFER ADRS
                            562 *
                            563 *       READ DATA CONTROL BLOCK
                            564 *
000530                      565 RDDCB   EQU   *                       USE FOR DCB REFERENCE ONLY
000530  2000                566 RDCTL   DC    X'2000'                 CONTROL WORD
000532  0000                567 RDPOS   DC    A(*-*)                  POS CURSOR ADRS
000534  0000                568 RDPRE   DC    A(*-*)                  PRE CURSOR ADRS
000536  0000                569 RDHLA   DC    A(*-*)                  HIGH/LOW ADRS
000538  0000                570 RDSHF   DC    A(*-*)                  PKB/SHIFT COUNT
00053A  0000                571 RDCHN   DC    A(*-*)                  CHAIN ADDRESS
00053C  0000                572 RDBCT   DC    A(*-*)                  BYTE COUNT
00053E  08D4                573 RDADR   DC    A(RDBUF)                BUFFER ADRS
                            574 *
                            575 *       CYCLE STEAL DATA CONTROL BLOCK
                            576 *
000540                      577 CSDCB   EQU   *                       USE FOR DCB REFERENCE ONLY
000540  2000                578 CSCTL   DC    X'2000'                 CONTROL WORD
000542  0000                579 CSPOS   DC    X'0000'                 POST CURSOR ADRS, NOT USED
000544  0000                580 CSPRE   DC    X'0000'                 PRE CURSOR ADRS, NOT USED
000546  0000                581 CSHLA   DC    X'0000'                 HIGH/LOW ADRS, NOT USED
000548  2000                582 CSSHF   DC    X'2000'                 LOCK KYBD AND SHIFT COUNT
00054A  0000                583 CSCHN   DC    A(0000)                 CHAIN ADRS, NOT USED
00054C  0006                584 CSBCT   DC    X'0006'                 BYTE COUNT
00054E  0032                585 CSADR   DC    A(CSBUF)                BUFFER ADRS
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

000550  200C0000000000002   589 R6DCB DC    X'200C0000000000002000000000050'    RT06 READ DCB
00055E  0884                590         DC    A(WRBUF)
000560  000D0000000000730   591 W6DCB DC    X'000D0000000000730001000000050'    RT06 WRITE DCB
00056E  0884                592         DC    A(WRBUF)
                            594 ********************************************************************
                            595 *       SET UP PARAMETERS FOR AN I/O COMMAND                       *
                            596 *       TO LOAD THE DCB ADRS IN THE I/O CONTROL BLOCK AND PERFORM ANY  *
                            597 *       FUNCTION PRIOR TO GIVING THE 'SVC  START' COMMAND.         *
                            598 *                                                                  *
                            599 *       THIS ROUTINE HAS THE FOLLOWING ENTRIES:                    *
                            600 *                                                                  *
                            601 * -> BAL   XIOWR,R6                XEQ WRITE COMMAND              *
                            602 * -> BAL   XIORD,R6                XEQ READ COMMAND               *
                            603 * -> BAL   XIOCR,R6                XEQ CYCLE CLEAR SCREEN COMMAND *
                            604 * -> BAL   XIODG,R6                XEQ DIAGNOSTIC COMMAND         *
                            605 * -> BAL   XIOR6,R6                XEQ READ COMMAND FOR RT06      *
                            606 * -> BAL   XIOW6,R6                XEQ WRITE COMMAND FOR RT06     *
                            607 *                                                                  *
                            608 ********************************************************************
000570  4020 06FC 0520      609 XIOWR MVA   WRDCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
000576  501D                610         J     XIO                   BRANCH
000578  4020 06FC 0530      611 XIORD MVA   RDDCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
00057E  0B00                612         MVBI  0,R3                  SET UP CLEAR DATA
000580  4524 08D4           613         MVA   RDBUF,R5              SET UP READ BUFFER ADRS
000584  4724 0050           614         MVWI  X'0050',R7            SET UP BUFFER LENGTH
000588  2BAC                615         FFN   R3,(R5)               CLEAR READ BUFFER
00058A  5013                616         J     XIO                   BRANCH
00058C  4020 06FC 0510      617 XIOCR MVA   CRDCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
000592  500F                618         J     XIO                   BRANCH
000594  4020 06FC 0500      619 XIODG MVA   DGDCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
00059A  4020 06FE 000D      620         MVWI  X'0D',IOMOD           SET UP DIAGOSTIC MODIFIER
0005A0  5017                621         J     XIO1                  BRANCH
0005A2  4020 06FC 0550      622 XIOR6 MVA   R6DCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
0005A8  5004                623         J     XIO                   BRANCH
0005AA  4020 06FC 0560      624 XIOW6 MVA   W6DCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
0005B0  5000                625         J     XIO                   BRANCH
                            626 *                                 * R6 IS ALREADY SET UP TO DO A RETURN
                            628 ********************************************************************
                            629 *                                                                  *
                            630 * SOUBROUTINE                                                      *
                            631 *                                                                  *
                            632 *       EXECUTE INPUT AND OUTPUT COMMANDS                          *
                            633 *                                                                  *
                            634 * PURPOSE                                                          *
                            635 *                                                                  *
                            636 *       TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.           *
                            637 *       THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:           *
                            638 *                                                                  *
                            639 *       1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED *
                            640 *          THE I/O COMMAND.                                        *
                            641 *       2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS   *
                            642 *          ISSUED BY THIS SUBROUTINE.                              *
                            643 *       3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE     *
                            644 *          START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.       *
                            645 *       4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT  *
                            646 *          SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,  *
                            647 *          MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.              *
                            648 *       5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE    *
                            649 *          EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'.   *
                            650 *       6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING *
                            651 *          STARTS TO DETERMINE A LOST INTERRUPT.                   *
                            652 *       7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF  *
                            653 *          WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.  *
                            654 *       8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.             *
                            655 *       9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.  *
                            656 *      10. CHECK IF THERE WAS AN ERROR CONDITION,  IF NOT RETURN.   *
                            657 *      11. CHECK IS A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS    *
                            658 *          ISSUED BY THIS SUBROUTINE.                              *
                            659 *       12. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A     *
                            660 *          CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON, *
                            661 *          COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.  *
                            662 *                                                                  *
                            663 * CALLING SEQUENCE                                                 *
                            664 *                                                                  *
                            665 *       THIS ROUTINE HAS THE FOLLOWING ENTRIES:                    *
                            666 *                                                                  *
                            667 * --> B     XIO                     XEQ ANY CYCLE STEAL COMMAND, MOD=0   *
                            668 * --> BAL   XIOCS,R6                XEQ START CYCLE STEAL STATUS, MOD=F   *
                            669 *                                                                  *
                            670 * RETURN CONTROL                                                   *
                            671 *                                                                  *
                            672 *       BXS   (R6)                  RETURN TO USER NO ERROR        *
                            673 ********************************************************************
0005B2  CB25 06FE           675 XIO   MVWZ  IOMOD,R3                SET MOF OF 0 FOR CYCLE STEAL OP
0005B6  500C                676         J     XIO1                  BRANCH
0005B8  4CA8                677         TBTR  (R4,CE)               RESET CS STATUS INTER ERROR INDICAT.
0005BA  4C67                678         TBTS  (R4,CS)               SET 'CYCLE STEAL STATUS' IN PROGRESS
0005BC  4020 06FC 0540      679 XIOCS MVA   CSDCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
0005C2  4020 06FE 000F      680         MVWI  X'000F',IOMOD         SET CYCLE STEAL MODIFIER
0005C8  4C27                681         TBT   (R4,CS)               IS CS IN PROGRESS, ERROR CONDITION
0005CA  1216                682         JON   XIO2                  * YES, BYPASS SAVING  I/O ADRS
0005CC  4CA3                683         TBTR  (R4,IN)               HAS INTERRUPT OCCURED
0005CE  125F                684         JON   XIOCK                 BRANCH YES
0005D0  6E0D 0018           685 XIO1  MVW   R6,LSTIO                SAVE IAR
0005D4  402E 0018 0004      686         SWI   4,LSTIO               DECREMENT TO LOCATE INSTRUCTION
0005DA  4324 0000           687         MVA   $PID,R3               LOAD PROG START ADDRESS
0005DE  CB2F 0018           688         SW    R3,LSTIO              SUB TO OBTAIN LISTING ADDRESS
0005E2  4324 0022           689         MVA   DCBUF,R3              SET UP TO ADRS TO MOVE DCB TABLE
0005E6  6D08 06FC           690         MVW   IODCB,R5              * AND THE FROM ADRS, ALONG WITH
0005EA  0F10                691         MVBI  16,R7                 * THE NUMBER OF MOVES
0005EC  2D64                692         MVFN  (R5),(R3)             MOVE DCB TABLE
0005EE  0BFF                693         MVBI  255,R3                CLEAR CYCLE STATUS BUFFER
0005F0  4524 0032           694         MVA   CSBUF,R5              *  TO ALL ONES  *
0005F4  0F10                695         MVBI  16,R7                 *
0005F6  2BAC                696         FFN   R3,(R5)               *
                            697 *
0005F8  4CA3                698 XIO2  TBTR  (R4,IN)                 CLEAR INTERRUPT RECEIVED CNTL BIT
0005FA  1249                699         JON   XIOCK                 BRANCH IF ON
0005FC  4724 06F8           700         MVA   IOBLK,R7              SET UP CONTROL BLOCK FOR SUPVR
000600  802B 0232 0060      701         CB    CPUTYPE,TYPE23        CHECK FOR PROCESSOR 23
000606  1803                702         JNE   XIO5                  BRANCH NOT EQUAL
000608  4524 C000           703         MVWI  X'C000',R5            LOAD LOOP COUNT
00060C  5001                704         J     XIO6                  BRANCH
00060E  75AA                705 XIO5  SW    R5,R5                 LOAD LOOP COUNT
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000610  4C62                 706 XIO6  TBTS  (R4,XI)               SET EXPECTED INTR CONTROL BIT
000612  600A                 707       SVC   START                 CALL SUPVR FOR I/O COMMAND
000614  6002                 708 XIO8  SVC   IDLE                  ALLOW OTHER PROG TIME
000616  4C03                 709       TBT   (R4,TM)               IS TERMINATE BIT ON
000618  6A00 0080            710       BON   $TERM                 BRANCH IF ON
00061C  4CA3                 711       TBTR  (R4,IN)               HAS INTERRUPT BEEN RECEIVED
00061E  1237                 712       JON   XIOCK                 * YES, CHECK IF ALL WAS SATISFACTORY
000620  7DA1 0001            713       AWI   1,R5                  ADVANCE TIME OUT COUNT
000624  18F7                 714       JNC   XIO8                  BCH IF TIME OUT NOT REACHED
000626  4C61                 715       TBTS  (R4,ER)               SET ON ERROR CONTROL BIT
000628  4C66                 716       TBTS  (R4,LI)               SET ON LOST INTERRUPT CONTROL BIT
00062A  6802 07E4            717       B     $PRNT                 BRANCH TO PRINT ERROR
                             719 ********************************************************************
                             720 *                                                                  *
                             721 * SUBROUTINE                                                       *
                             722 *                                                                  *
                             723 *     I/O EXECUTE ERROR HANDLING ROUTINE                           *
                             724 *                                                                  *
                             725 * PURPOSE                                                          *
                             726 *                                                                  *
                             727 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE  *
                             728 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE*
                             729 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                          *
                             730 *                                                                  *
                             731 * CALLING SEQUENCE                                                 *
                             732 *                                                                  *
                             733 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND       *
                             734 *                                                                  *
                             735 * RETURN CONTROL                                                   *
                             736 *                                                                  *
                             737 *     B     $PRNT                 DUMP STATUS BEFORE TERMINATION   *
                             738 *                                                                  *
                             739 ********************************************************************
00062E  706E                 740 XIOER CPLSR R3                     SAVE CONDITION CODE ON I/O ERROR
000630  336A                 741       SRL   13,R3                 POSITION CC CODE TO BITS 13-15
000632  C328 0014            742       MVB   R3,$IOIN              * PUT IN LOG OUT AREA
000636  6802 07E4            743       B     $PRNT                 BRANCH TO PRINT ERROR
                             745 ********************************************************************
                             746 *                                                                  *
                             747 * SOUBROUTINE                                                      *
                             748 *                                                                  *
                             749 *     ERROR INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'  *
                             750 *                                                                  *
                             751 * PURPOSE                                                          *
                             752 *                                                                  *
                             753 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR *
                             754 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE   *
                             755 *     EXPECTED CODE.                                               *
                             756 *                                                                  *
                             757 * CALLING SEQUENCE                                                 *
                             758 *                                                                  *
                             759 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT     *
                             760 *                                                                  *
                             761 * RETURN CONTROL                                                   *
                             762 *                                                                  *
                             763 *     SVC   EXIT                  RETURN TO USER VIA SUPVR         *
                             764 *                                                                  *
                             765 ********************************************************************
00063A  706E                 766 INTER CPLSR R3                     SAVE INDICATORS
00063C  336A                 767       SRL   13,R3                 POSITION INDICATORS IN R3
00063E  4424 000E            768       MVA   OPTN1,R4              SET UP BASE ADRS
000642  4C27                 769       TBT   (R4,CS)               IS CS IN PROGRESS
000644  1006                 770       JOFF  INTET                 * NO
000646  4C68                 771       TBTS  (R4,CE)               TURN ON CYCLE STEAL INTER ERROR
000648  6F0D 0040            772       MVW   R7,CSTL8              SAVE CS ERR ISB VALUE, BITS 0-7
00064C  C328 0041            773       MVB   R3,CSTL8+1            * AND THE COND CODE
000650  5009                 774       J     INTR1                 BRANCH
000652  4C61                 775 INTET TBTS  (R4,ER)               SET ERROR ON I/O COMMAND CNTL BIT
000654  5007                 776       J     INTR1                 BRANCH
                             778 ********************************************************************
                             779 *                                                                  *
                             780 * SOUBROUTINE                                                      *
                             781 *                                                                  *
                             782 *     OKAY  INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'  *
                             783 *                                                                  *
                             784 * PURPOSE                                                          *
                             785 *                                                                  *
                             786 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                 *
                             787 *                                                                  *
                             788 * CALLING SEQUENCE                                                 *
                             789 *                                                                  *
                             790 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED       *
                             791 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE      *
                             792 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE           *
                             793 *     COMMON SECTION IS HANDLED HERE.                              *
                             794 *                                                                  *
                             795 * RETURN CONTROL                                                   *
                             796 *                                                                  *
                             797 *     SVC   EXIT                  RETURN TO USER VIA SUPVR         *
                             798 *                                                                  *
                             799 ********************************************************************
000656  706E                 800 INTOK CPLSR R3                     SAVE INDICATORS
000658  336A                 801       SRL   13,R3                 POSITION INDICATORS IN R3
00065A  4424 000E            802       MVA   OPTN1,R4              SET UP BASE ADRS
00065E  4C24                 803       TBT   (R4,XE)               TEST EXPECTED ERROR BIT
000660  1001                 804       JOFF  INTR1                 BRANCH IF OFF
000662  4C69                 805       TBTS  (R4,GI)               SET GOOD INTERRUPT BIT
000664  4C63                 806 INTR1 TBTS  (R4,IN)               SET  INTERRUPT RECEIVED
000666  4C27                 807       TBT   (R4,CS)               IS 'CS IN PROGRESS' ON
000668  1204                 808       JON   INTR2                 * YES, BCH AROUND UPDATE
00066A  C328 0015            809       MVB   R3,$IOIN+1            SAVE INTERRUPTING CC CODE
00066E  6F0D 0016            810       MVW   R7,$ISB               SAVE INTR STATUS AND DEV ADRS
000672  78B9                 811 INTR2 CPCL  R5
000674  3521                 812       SLL   4,R5                  POSITION INTR LEVEL AND PUT
000676  0501                 813       ABI   1,R5                  * IN 'I' BIT
000678  CD24 0056            814       CW    $INTL,R5              IS THIS THE CORRECT INTR LEVEL
00067C  1004                 815       JE    INTR3                 * YES, GO EXIT THIS LEVEL
00067E  3521                 816       SLL   4,R5                  POSITION RECEIVED LEVEL
000680  6D0D 0020            817       MVW   R5,DEV3*2             STORE INTO DEV4
000684  4C65                 818       TBTS  (R4,LE)               SET INTR LEVEL ERROR CONTROL BIT
000686  4CA2                 819 INTR3 TBTR  (R4,XI)               WAS INTERRUPT EXPECTED
000688  1201                 820       JON   INTRX                 * YES, EXIT OFF THIS INTR LEVEL
00068A  4C60                 821       TBTS  (R4,NI)               * NO, SET MYSTERY INTR CONTROL BIT
00068C  6006                 822 INTRX SVC   EXIT                  EXIT THIS LEVEL VIA SUPVR TO PGM
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                             824 ********************************************************************
                             825 *                                                                  *
                             826 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT   *
                             827 *     HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN *
                             828 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.*
                             829 *                                                                  *
                             830 ********************************************************************
00068E  4C20                 831 XIOCK TBT   (R4,MI)               TEST MYSTERY INTERRUPT
000690  12A                  832       JON   ATTEN                 BRANCH IF ON
000692  4C25                 833 XIORT TBT   (R4,LE)               WAS AN INTR LEVEL ERROR FOUND
000694  1002                 834       JOFF  XIOCM                 * NO, CONTINUE CHECKING
000696  4C61                 835       TBTS  (R4,ER)               SET ERROR CONTROL BIT ON
000698  5010                 836       J     XIOCU                 POSITION LEVEL TO BITS 12-15
00069A  4CAA                 837 XIOCM TBTR  (R4,PE)               WAS THIS A PROPABLE ERROR
00069C  6AC0 0000            838       BON   (R6)                  BRANCH IF YES
0006A0  4C24                 839       TBT   (R4,XE)               WAS AN ERROR EXPECTED
0006A2  1226                 840       JN    XIOGI                 * YES, CONTINUE CHECKING
0006A4  4C27                 841       TBT   (R4,CS)               WAS AUTO CS IN PROGRESS
0006A6  1005                 842       JOFF  XIOCV                 * NO, CONTINUE CHECKING
0006A8  4C28                 843       TBT   (R4,CE)               IS CS IN AN ERR CONDITION
0006AA  6800 07D2            844       BOFF  CSRTN                 * NO, BCH
0006AE  6802 07E4            845       B     $PRNT                 GO PRINT CS ERROR
0006B2  4C21                 846 XIOCV TBT   (R4,ER)               WAS ERROR INTR CONTROL BIT ON
0006B4  1004                 847       JOFF  XIOCX                 * NO, EXIT THIS ROUTINE
0006B6  6802 05B8            848 XIOCQ B     XIOCS-4               * AVAILABLE, GO AND GET IT
0006BA  6802 07E4            849 XIOCU B     $PRNT                 PRINT ERROR
0006BE  CB25 0012            850 XIOCX MVWZ  OPTN3,R3              CLEAR OUT OPTION 3 CNTL BITS
0006C2  68C2 0000            851       B     (R6)                  RETURN TO USER VIA REG 6
0006C6  C520 0016            852 ATTEN MVB   $ISB,R5               LOAD INTERRUPT CC
0006CA  F501                 853       CBI   1,R5                  WAS IT A ONE
0006CC  1807                 854       JNE   XIOCC                 BRANCH NO
0006CE  4020 000A 0006       855       MVWI  X'0006',$RTNE         CHANGE ROUTINE NUMBER
0006D4  CD25 000C            856       MVWZ  $CKPT,R5              ZERO CHECKPOINT
0006D8  6802 0430            857       B     RT06                  BRANCH
0006DC  F500                 858 XIOCC CBI   0,R5                  WAS IT A ZERO
0006DE  1802                 859       JNE   XIOMI                 BRANCH NO
0006E0  6802 0452            860       B     RT061                 BRANCH
0006E4  4027 000A 0006       861 XICMI CWI   X'0006',$RTNE         IS ROUTINE NUMBER EQUAL TO SIX
0006EA  6800 0480            862       BE    RT063                 YES BRANCH
0006EE  50D1                 863       J     XIORT                 BRANCH
0006F0  4C29                 864 XIOGI TBT   (R4,GI)               WAS GOOD INTERRUPT RECEIVED
0006F2  12E3                 865       JON   XIOCU                 BRANCH YES
0006F4  68C2 0000            866       B     (R6)                  RETURN VIA R6
                             868 *
                             869 *              I/O   PARAMETER LIST
                             870 *
0006F8  004C                 871 IOBLK DC    A($DVAD)              ADRS OF DEVICE ADRS
0006FA  062E                 872 IOERR DC    A(XIOER)              ERROR ROUTINE ADRS
0006FC  0000                 873 IODCB DC    A(*-*)                DCB ADRS OR LEVEL & INTR
0006FE  0000                 874 IOMOD DC    A(*-*)                MODIFIER
000700  0000                 875       DC    A(*-*)                ADRS OF LAST SVC CALL
000702  0000                 876 IORSP DC    A(*-*)                SECOND WORD OF LAST IDCB
                             877 *
                             878 *              INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                             879 *
000704  004C                 880 INTBL DC    A($DVAD)              ADRS OF DEVICE ADRS
000706  0656                 881       DC    A(INTOK)              INTERRUPT OK RETURN ADRS
000708  063A                 882       DC    A(INTER)              INTERRUPT ERROR ADRS
00070A  0003                 883 INTCC DC    X'0003'               INTERRUPT CODE EXPECTED
                             885 ********************************************************************
                             886 *                                                                  *
                             887 * SUBROUTINE                                                       *
                             888 *                                                                  *
                             889 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE             *
                             890 *                                                                  *
                             891 * PURPOSE                                                          *
                             892 *                                                                  *
                             893 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND     *
                             894 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE*
                             895 *     TO INTERRUPT.                                                *
                             896 *                                                                  *
                             897 * CALLING SEQUENCE                                                 *
                             898 *                                                                  *
                             899 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                   *
                             900 *                                                                  *
                             901 * --> BAL   $CONC,R6                CLEAR DEV DEP STG AND CONNECT I/O BLK
                             902 * --> BAL   $CONB,R6                BCH TO CONNECT                *
                             903 * --> BAL   $CONP,R6                PREPARE DEVICE ONLY           *
                             904 *                                                                  *
                             905 * RETURN CONTROL                                                   *
                             906 *                                                                  *
                             907 *     BXS   (R6)                    RETURN TO USER VIA REG 6      *
                             908 *                                                                  *
                             909 ********************************************************************
00070C                       910 $CONR EQU   *
00070C  4724 0704            911       MVA   INTBL,R7              SET R7 TO CONTROL BLOCK AND
000710  6014                 912       SVC   CICB                  * CONNECT IT TO THIS DEVICE
000712  68C2 0000            913       B     (R6)                  RETURN
000716                       914 $CONC EQU   *
000716  CB25 0012            915       MVWZ  OPTN3,R3              CLEAR OLD CONTROLS FOR NEW ROUTINE
00071A  8828 0056 06FC       916 $CONP MVW   $INTL,IODCB           PUT IN LEVEL & INTR PARAMETER
000720  4724 06F8            917       MVA   IOBLK,R7              SET R7 TO CONTROL BLOCK TO PREPARE
000724  4020 0014 07FF       918       MVWI  X'07FF',$IOIN         INITIALIZE CONDITION CODE STORAGE
00072A  CB25 0016            919       MVWZ  $ISB,R3               * AND CLEAR OLD ISB VALUE
00072E  6E0D 0018            920       MVW   R6,LSTIO              SET UP ADDRESS THAT STARTED LAST I/O
000732  402E 0018 0004       921       SWI   4,LSTIO               DECREMENT TO POINT AT INSTRUCTION
000738  4324 0000            922       MVA   $PID,R3               LOAD ADDRESS OF START OF PROG
00073C  CB2F 0018            923       SW    R3,LSTIO              SUB TO OBTAIN LISTING ADDRESS
000740  600C                 924       SVC   PREP                  * AND CALL ON SUPVR
000742  68C2 0000            925       B     (R6)                  RETURN
                             927 ********************************************************************
                             928 *                                                                  *
                             929 * SUBROUTINE                                                       *
                             930 *                                                                  *
                             931 *     COMMON COMPARE ROUTINE                                       *
                             932 *                                                                  *
                             933 * PURPOSE                                                          *
                             934 *                                                                  *
                             935 *     THIS ROUTINE WILL ALLOW A COMMON COMPARE OF DATA THAT WAS     *
                             936 *     WRITTEN AND THEN READ BACK. IF THE COMPARE HAS BEEN DONE, THE*
                             937 *     ERROR LOGGING PORTION MAY BE USED BY ENTERING AT 'CMPP'.     *
                             938 *     THE READ BYTE COUNT IS USED FOR THE FIELD LENGTH.            *
                             939 *                                                                  *
                             940 * CALLING SEQUENCE                                                 *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           941 *                                                             *
                           942 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:              *
                           943 *                                                             *
                           944 * --> BAL   CMPU,R6                 USE COMMON COMPARE FOR UNEQUAL VALUE*
                           945 * --> BAL   CMPP,R6                 USE LOGGING PORTION OF COMPARE RTN  *
                           946 *                                                             *
                           947 * RETURN CONTROL                                             *
                           948 *                                                             *
                           949 *     BXS   (R6)                    RETURN TO USER VIA REG 6  *
                           950 * OR  B     $PRNT                   PRINT ERROR               *
                           951 *                                                             *
                           952 ***************************************************************
                           953 *
                           954 *          COMPARE DATA FOR UNEQUAL
                           955 *
000746  6D08 052E          956 CMPU  MVW   WRADR,R5                SET UP WRITE BUFFER ADRS
00074A  6B08 053E          957       MVW   RDADR,R3                SET UP READ BUFFER ADRS
00074E  6F08 053C          958       MVW   RDBCT,R7                SET UP BYTE COUNT FOR COMPARE
000752  68C0 0000          959       BZ    (R6)                    RETURN TO CALLER, BYTE COUNT ZERO
000756  2BA6               960       CFNEN (R3),(R5)               COMPARE DATA
000758  68C0 0000          961       BE    (R6)                    BCH IF DATA THE SAME AND RETURN
                           962 *
                           963 *          PRINT COMPARE ERROR
                           964 *
00075C  4C61               965       TBTS  (R4,ER)                 SET ERROR CNTN BIT BECAUSE OF CMP ERR
00075E  7724               966 CMPP  MVW   R7,R1                   GET BYTE COUNT TO CONVERT
000760  C1E0  FFFE         967       MVB   (R3,-2),R1              GET LAST GOOD COMPARE
000764  3141               968       SLL   8,R1                    POSITION FIRST BYTE
000766  71B4               969       MVW   R1,R7                   SAVE BYTE FOR NOW
000768  C1E0  FFFF         970       MVB   (R3,-1),R1              GET BYTE THAT FAILED
00076C  7920  00FF         971       NWI   X'00FF',R1              REMOVE BIT 0-7
000770  7721               972       OW    R7,R1                   * AND GET 1 ST BYTE BACK
000772  690D  001A         973       MVW   R1,DEV1                 STORE INTO DEV1
000776  7564               974       MVW   R5,R3                   MOVE ADRS TO OTHER REG
000778  C1E0  FFFE         975       MVB   (R3,-2),R1              GET LAST GOOD COMPARE
00077C  3141               976       SLL   8,R1                    POSITION FIRST BYTE
00077E  71B4               977       MVW   R1,R7                   SAVE BYTE FOR NOW
000780  C1E0  FFFF         978       MVB   (R3,-1),R1              GET BYTE THAT FAILED
000784  7920  00FF         979       NWI   X'00FF',R1              REMOVE BIT 0-7
000788  7721               980       OW    R7,R1                   * AND GET 1 ST BYTE BACK
00078A  690D  001C         981       MVW   R1,DEV1+2               STORE INTO DEV2
00078E  6802  07E4         982       B     $PRNT                   BRANCH TO PRINT ERROR
                           983 ***************************************************************
                           984 *                                                             *
                           985 * SUBROUTINE                                                  *
                           986 *                                                             *
                           987 *     SPECIAL ERROR CHECKING OF THE DCB                       *
                           988 *                                                             *
                           989 * PURPOSE                                                     *
                           990 *                                                             *
                           991 *     TO SET THE CONTROL BITS BEFORE ISSUEING THE I/O COMMAND,*
                           992 *     TESTING TO VERIFY THAT THE ERROR DID OCCUR, AND VERIFYING*
                           993 *     THAT THE RESIDUAL ADDRESS IS WHAT IT SHOULD BE.         *
                           994 *                                                             *
                           995 * CALLING SEQUENCE                                           *
                           996 *                                                             *
                           997 * --> BAL   ERTST,R2                USE COMMON ERROR TEST SUBRTN        *
                           998 *     DC    A(1)                    DISPLACEMENT FOR RESIDUAL ADRS      *
                           999 *                                                             *
                          1000 * RETURN CONTROL                                            *
                          1001 *                                                           *
                          1002 *     BXS   (R2,2)                  RETURN TO USER VIA REG 2            *
                          1003 *                                                             *
                          1004 ***************************************************************
000792  4C64              1005 ERTST TBTS  (R4,XE)                 SET EXPECTED ERROR FOR EACH FAULT
000794  4029  900C 0001   1006       AWI   1,$CKPT                 INCREMENT CHECKPOINT
00079A  6E03  0000        1007 ERCAL BAL   *-*,R6                 GO XEQ I/O COMMAND
00079E  4C21              1008       TBT   (R4,ER)                 DID ERROR CONTROL BIT GET SET
0007A0  1202              1009       JON   ERTSV                   * YES,GO CKECK RESIDUAL ADDRESS
0007A2                    1010 CSADE EQU   *
0007A2  6802  07E4        1011       B     $PRNT                   BRANCH TO PRINT ERROR
                          1012 *
0007A6  AA08  0702        1013 ERTSV AW    (R2),IORSP              DEVELOP DCB ERROR ADDRESS
0007AA  8828  0702 07D0   1014       MVW   IORSP,ERTSZ             SAVE DCB ADRS FROM SUPER BLOCK
0007B0  CE25  0012        1015       MVWZ  OPTN3,R6                ZERO OPTION WORD THREE
0007B4  4C6A              1016       TBTS  (R4,PE)                 SET PROBABLE ERROR
0007B6  6E03  05B8        1017       BAL   XIOCS-4,R6              REQUEST START CYCLE STEAL STAUTS
0007BA  882B  0032 07D0   1018       CW    CSTL1,ERTSZ             TEST FOR CORRECT RESIDUAL ADDRS
0007C0  1004              1019       JE    ERTSX                   RESIDUAL ADDRESS OK
0007C2  8828  07D0 0020   1020       MVW   ERTSZ,DEV3+2            'WAS' RESIDUAL ADDRESS
0007C8  50EC              1021       J     CSADE                   BRANCH
0007CA  4CA7              1022 ERTSX TBTR  (R4,CS)                 RESET CS IN PROGRESS CNTL BIT
0007CC  4CA1              1023       TBTR  (R4,ER)                 RESET ERROR RECEIVED CONTROL BIT
0007CE  5201              1024       BXS   (R2,2)                  OK, RETURN TO CALLER
                          1025 *
0007D0  0000              1026 ERTSZ DC    A(*-*)                  EXPECTED RESIDUAL ADDRESS SAVE AREA
0007D2                    1027 CSRTN EQU   *
0007D2  6D08  0036        1028       MVW   CSTL3,R5                GET CURRENT STATUS WORD
0007D6  1002              1029       JZ    CCRTP                   BCH IF NOTHING WRONG
0007D8  6802  07E4        1030       B     $PRNT                   IF ERROR GO PRINT
0007DC  4C21              1031 CCRTP TBT   (R4,ER)                 RESET THE ERROR CONDITION
0007DE  6A00  07E4        1032       BON   $PRNT                   IF ON GO PRINT
0007E2  5600              1033       BXS   (R6)                    RETURN IF NO ERRORS
                          1034 ***************************************************************
                          1035 *                  COMMON PRINT ERROR INTERFACE ROUTINE       *
                          1036 *                                                             *
                          1037 * ----> R6         LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE  *
                          1038 *                  BRANCH IS TAKEN TO PRINT THE ERROR         *
                          1039 * ----> R4         LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE  *
                          1040 *                  BRANCH IS TAKEN TO PRINT THE ERROR         *
                          1041 * ----> R3         LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE       *
                          1042 *                  BRANCH IS TAKEN TO PRINT THE ERROR         *
                          1043 * ----> PRNTRTN THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST ) *
                          1044 *                  POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                          1045 *                  WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN     *
                          1046 *                                                             *
                          1047 ***************************************************************
0007E4  4624  0012        1048 $PRNT MVA   OPTN3,R6                LOAD ADDRESS OF OPTION WORD THREE
0007E8  6D08  181E        1049       MVW   PRNTRTN,R5              LOAD ADDRESS OF COMMON PRNT ROUTINE
0007EC  4424  0000        1050       MVA   $PID,R4                 LOAD ADDRESS OF START OF PROG
0007F0  4324  0042        1051       MVA   PCTR,R3                 LOAD ADDRESS OF PASS COUNTER
0007F4  6FA3  0000        1052       BAL   (R5),R7                 BRANCH TO COMMON PRINT ROUTINE
0007F8  CE25  0012        1053       MVWZ  OPTN3,R6                ZERO OUT ALL FLAGS
0007FC  4424  000E        1054       MVA   OPTN1,R4                LOAD BASE ADDRESS FOR INDICATORS
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000800  802B 0232 0060     1055       CB    CPUTYPE,TYPE23          IS THIS A TYPE 23 PROCESSOR
000806  1803               1056       JNE   $PRN2                   BRANCH IF NO
000808  4524 E000          1057       MVWI  X'E000',R5              INIT LOOP COUNTER
00080C  5002               1058       J     $PRN1                   BRANCH
00080E  4524 8000          1059 $PRN2 MVWI  X'8000',R5              INIT LOOP COUNTER
000812  6002               1060 $PRN1 SVC   IDLE                    DELAY
000814  4C03               1061       TBT   (R4,TM)                 SHOULD PROG TERMINATE
000816  6A00 0080          1062       BON   $TERM                   BRANCH YES
00081A  7DA1 0001          1063       AWI   1,R5                    INCREMENT LOOP COUNTER
00081E  18F9               1064       JNZ   $PRN1                   BRANCH NOT ZERO
000820  6802 0062          1065       B     $PENT                   BRANCH TO RESTART FROM BEGINING
                           1066 ***************************************************************
                           1067 *     MOVE DCB VALUE INTO DCB STORAGE ALREADY DEFINED         *
                           1068 *     TO MOVE THE STRING OF DC TO SET UP THE WRITE DCB        *
                           1069 *                                                             *
                           1070 *     BAL   SETRD,R6                BCH TO SET UP DCB         *
                           1071 *     BAL   SETRD,R6                BCH TO SET UP DCB         *
                           1072 ***************************************************************
000824  4524 0530          1073 SETRD MVA   RDDCB,R5                SET UP READ DCB ADRS AND USE
000828  5002               1074       J     SETWR+4                 * EXSISTING CODE TO FINISH
00082A  4524 0520          1075 SETWR MVA   WRDCB,R5                SET UP WRITE DCB ADRS
00082E  0F10               1076       MVBI  16,R7                   INIT R7 TO LENGTH OF DCB
000830  2EA4               1077       MVFN  (R6),(R5)               MOVE DCB
000832  5600               1078       BXS   (R6)                    RETURN
                           1079       ALIGN WORD
                           1080 ***************************************************************
                           1081 *          ALPHANUMERIC BUFFER STORAGE, KEYBOARD PATTERN      *
                           1082 ***************************************************************
000834  4040404040404040   1083 ALPHA DC    C'                '
000841  7C6C5C4C6061D8E6C  1084       DC    C'@%*<-/QWERTYUIOPASDFGHJKLZXCVBNM,.#,$,-0+ '
00086B  5D4AE04F           1085       DC    X'5D4AE04F'             LF PAR,CENT,BACK SL,OR
00086F  F1F2F3506E7A5E5F7  1086       DC    C'123&6>::¬''456'
00087B  6F7F7E5A           1087       DC    X'6F7F7E5A'             ?,QUOTES,=,EXCLAIM
00087F  4DF7F8F940         1088       DC    C'(789 '
000884                     1089 WRBUF EQU   *                       MAXIMUM WRITE BUFFER
000884  4040404040404040   1090       DC    CL80'  '
0008D4                     1091 RDBUF EQU   *                       MAXIMUM READ BUFFER
0008D4  4040404040404040   1092       DC    CL80'  '
000062                     1093       END   $PENT
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
48	.REG.	ABSOLUTE. HEX VALUE(00000000) 301 321 333 353
0	.R1.	ABSOLUTE. HEX VALUE(00000001) 228 229 230 234 235 236 251 254 265 266 267 272 302 305 334 337 473 475 476 479 515 516 517 520 966 967 968 969 970 971 972 973 975 976 977 978 979 980 981
0	.R2.	ABSOLUTE. HEX VALUE(00000002) 207 224 227 252 254 303 305 335 337 379 381 384 386 389 391 394 396 399 401 404 406 409 411 414 416 419 421 424 426 429 431 436 437 440 441 445 446 474 475 485 487 489 491 512 517 518 519 1014 1025
0	.R3.	ABSOLUTE. HEX VALUE(00000003) 486 487 490 491 612 615 675 687 688 689 692 693 696 740 741 742 766 767 773 800 801 809 850 915 919 922 923 957 960 967 970 974 975 978 1054
0	.R4.	ABSOLUTE. HEX VALUE(00000004) 138 139 151 154 457 458 459 463 465 504 508 510 511 677 678 681 683 698 706 709 711 715 716 768 769 771 775 802 803 805 806 807 818 819 821 831 833 835 837 839 841 843 846 864 965 1006 1009 1017 1023 1024 1033 1053 1057 1064
0	.R5.	ABSOLUTE. HEX VALUE(00000005) 153 157 177 178 179 180 181 315 317 319 347 349 351 613 615 690 692 694 696 703 705 705 713 811 812 813 814 816 817 852 853 856 858 956 960 974 1030 1052 1055 1060 1062 1066 1077 1079 1081
0	.R6.	ABSOLUTE. HEX VALUE(00000006) 137 176 182 183 204 210 220 225 226 249 250 255 260 270 271 299 300 306 312 331 332 338 344 373 374 375 461 462 469 471 478 481 493 506 507 509 685 838 851 866 913 920 925 959 961 1008 1016 1018 1035 1051 1056 1081 1082
0	.R7.	ABSOLUTE. HEX VALUE(00000007) 146 148 150 162 164 165 211 213 253 304 336 472 482 484 488 614 691 695 700 772 810 911 917 958 966 969 972 977 980 1055 1080
59	$CKPT	ADDRESS. HEX LOCATION(0000000C) IN CSECT(E44E0) LENGTH(2) 177 221 268 311 343 470 477 492 505 856 1007
914	$CONC	ADDRESS. HEX LOCATION(00000716) IN CSECT(E44E0) LENGTH(1) 210 225 249 299 331 373 461
910	$CONR	ADDRESS. HEX LOCATION(0000070C) IN CSECT(E44E0) LENGTH(1) 204
120	$DVAD	ADDRESS. HEX LOCATION(0000004C) IN CSECT(E44E0) LENGTH(2) 57 164 871 880
123	$DVID	ADDRESS. HEX LOCATION(00000058) IN CSECT(E44E0) LENGTH(2) 215 218
499	$HTOE	ADDRESS. HEX LOCATION(000004C4) IN CSECT(E44E0) LENGTH(2) 482
122	$INTL	ADDRESS. HEX LOCATION(00000056) IN CSECT(E44E0) LENGTH(2) 135 160 207 208 209 222 224 814 916
95	$IOIN	ADDRESS. HEX LOCATION(00000014) IN CSECT(E44E0) LENGTH(2) 742 809 918
96	$ISB	ADDRESS. HEX LOCATION(00000016) IN CSECT(E44E0) LENGTH(2) 500 810 852 919
124	$MXSL	ADDRESS. HEX LOCATION(0000005A) IN CSECT(E44E0) LENGTH(2) 171
134	$PENT	ADDRESS. HEX LOCATION(00000062) IN CSECT(E44E0) LENGTH(6) 56 172 187 460 1068 1098
54	$PID	ADDRESS. HEX LOCATION(00000000) IN CSECT(E44E0) LENGTH(4) 687 922 1053
1051	$PRNT	ADDRESS. HEX LOCATION(000007E4) IN CSECT(E44E0) LENGTH(4) 219 233 239 521 717 743 845 849 982 1012 1032 1034
1063	$PRN1	ADDRESS. HEX LOCATION(00000812) IN CSECT(E44E0) LENGTH(2) 1061 1067
1062	$PRN2	ADDRESS. HEX LOCATION(0000080E) IN CSECT(E44E0) LENGTH(4) 1059
138	$PUPD	ADDRESS. HEX LOCATION(00000078) IN CSECT(E44E0) LENGTH(4) 240 290 322 354 448
170	$PUP8	ADDRESS. HEX LOCATION(000000D8) IN CSECT(E44E0) LENGTH(6) 140
154	$RETC	ADDRESS. HEX LOCATION(000000A8) IN CSECT(E44E0) LENGTH(2) 158
159	$RETI	ADDRESS. HEX LOCATION(000000B4) IN CSECT(E44E0) LENGTH(6) 144 155
153	$RETN	ADDRESS. HEX LOCATION(000000A4) IN CSECT(E44E0) LENGTH(4) 149
187	$RTAD	ADDRESS. HEX LOCATION(00000104) IN CSECT(E44E0) LENGTH(2) 183
58	$RTNE	ADDRESS. HEX LOCATION(0000000A) IN CSECT(E44E0) LENGTH(2) 137 170 171 176 855 861
144	$TERM	ADDRESS. HEX LOCATION(00000080) IN CSECT(E44E0) LENGTH(6) 466 710 1065
164	$TER1	ADDRESS. HEX LOCATION(000000CC) IN CSECT(E44E0) LENGTH(4) 159
1087	ALPHA	ADDRESS. HEX LOCATION(00000834) IN CSECT(E44E0) LENGTH(13) 251 259 267 302 334
852	ATTEN	ADDRESS. HEX LOCATION(000006C6) IN CSECT(E44E0) LENGTH(4) 832
1033	CCRTP	ADDRESS. HEX LOCATION(000007DC) IN CSECT(E44E0) LENGTH(2) 1031
90	CE	ABSOLUTE. HEX VALUE(00000028) 511 677 771 843
38	CICB	ABSOLUTE. HEX VALUE(00000014) 912
956	CMPU	ADDRESS. HEX LOCATION(00000746) IN CSECT(E44E0) LENGTH(4) 271
50	CPUTYPE	ABSOLUTE. HEX VALUE(00000232) 313 345 701 1058
541	CRDCB	ADDRESS. HEX LOCATION(00000510) IN CSECT(E44E0) LENGTH(1) 145 617

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
89	CS	ABSOLUTE. HEX VALUE(00000027) 510 678 681 769 807 841 1023
1011	CSADE	ADDRESS. HEX LOCATION(000007A2) IN CSECT(E44E0) LENGTH(1) 1022
108	CSBUF	ADDRESS. HEX LOCATION(00000032) IN CSECT(E44E0) LENGTH(1) 587 694
579	CSDCB	ADDRESS. HEX LOCATION(00000540) IN CSECT(E44E0) LENGTH(1) 679
1029	CSRTN	ADDRESS. HEX LOCATION(000007D2) IN CSECT(E44E0) LENGTH(1) 844
109	CSTL1	ADDRESS. HEX LOCATION(00000032) IN CSECT(E44E0) LENGTH(2) 1019
111	CSTL3	ADDRESS. HEX LOCATION(00000036) IN CSECT(E44E0) LENGTH(2) 515 1030
116	CSTL8	ADDRESS. HEX LOCATION(00000040) IN CSECT(E44E0) LENGTH(2) 772 773
515	DCBCK	ADDRESS. HEX LOCATION(000004E6) IN CSECT(E44E0) LENGTH(4) 381 386 391 396 401 406 411 416 421 426 431 437 441 446
504	DCBSU	ADDRESS. HEX LOCATION(000004CA) IN CSECT(E44E0) LENGTH(2) 436 440 445
100	DCBUF	ADDRESS. HEX LOCATION(00000022) IN CSECT(E44E0) LENGTH(2) 689
98	DEV1	ADDRESS. HEX LOCATION(0000001A) IN CSECT(E44E0) LENGTH(2) 178 179 973 981
99	DEV3	ADDRESS. HEX LOCATION(0000001E) IN CSECT(E44E0) LENGTH(2) 180 181 217 218 232 238 519 520 817 1021
529	DGDCB	ADDRESS. HEX LOCATION(00000500) IN CSECT(E44E0) LENGTH(1) 619
83	ER	ABSOLUTE. HEX VALUE(00000021) 458 715 775 835 846 965 1009 1024 1033
1008	ERCAL	ADDRESS. HEX LOCATION(0000079A) IN CSECT(E44E0) LENGTH(4) 378
1006	ERTST	ADDRESS. HEX LOCATION(00000792) IN CSECT(E44E0) LENGTH(2) 379 384 389 394 399 404 409 414 419 424 429
1014	ERTSV	ADDRESS. HEX LOCATION(000007A6) IN CSECT(E44E0) LENGTH(4) 1010
1023	ERTSX	ADDRESS. HEX LOCATION(000007CA) IN CSECT(E44E0) LENGTH(2) 1020
1027	ERTSZ	ADDRESS. HEX LOCATION(000007D0) IN CSECT(E44E0) LENGTH(2) 1015 1019 1021
39	EXIT	ABSOLUTE. HEX VALUE(00000006) 822
36	E44E0	CSECT. START(00000000) LENGTH(2340) ESDID(0) 36
91	GI	ABSOLUTE. HEX VALUE(00000029) 805 864
43	HTOE	ABSOLUTE. HEX VALUE(0000001A) 483
125	H0000	ADDRESS. HEX LOCATION(0000005C) IN CSECT(E44E0) LENGTH(2) 136
126	H0001	ADDRESS. HEX LOCATION(0000005E) IN CSECT(E44E0) LENGTH(2) 170
40	IDLE	ABSOLUTE. HEX VALUE(00000002) 156 318 350 467 708 1063
85	IN	ABSOLUTE. HEX VALUE(00000023) 154 683 698 711 806
66	IND	ABSOLUTE. HEX VALUE(0000000E) 459
880	INTBL	ADDRESS. HEX LOCATION(00000704) IN CSECT(E44E0) LENGTH(2) 911
766	INTER	ADDRESS. HEX LOCATION(0000063A) IN CSECT(E44E0) LENGTH(2) 882
775	INTET	ADDRESS. HEX LOCATION(00000652) IN CSECT(E44E0) LENGTH(2) 770
800	INTOK	ADDRESS. HEX LOCATION(00000656) IN CSECT(E44E0) LENGTH(2) 881
822	INTRX	ADDRESS. HEX LOCATION(0000068C) IN CSECT(E44E0) LENGTH(2) 820
806	INTR1	ADDRESS. HEX LOCATION(00000664) IN CSECT(E44E0) LENGTH(2) 774 776 804
811	INTR2	ADDRESS. HEX LOCATION(00000672) IN CSECT(E44E0) LENGTH(2) 808
819	INTR3	ADDRESS. HEX LOCATION(00000686) IN CSECT(E44E0) LENGTH(2) 815
871	IOBLK	ADDRESS. HEX LOCATION(000006F8) IN CSECT(E44E0) LENGTH(2) 146 150 162 211 213 700 917
873	IODCB	ADDRESS. HEX LOCATION(000006FC) IN CSECT(E44E0) LENGTH(2) 145 160 161 609 611 617 619 622 624 679 690 916
872	IOERR	ADDRESS. HEX LOCATION(000006FA) IN CSECT(E44E0) LENGTH(2) 134 144 149 159
874	IOMOD	ADDRESS. HEX LOCATION(000006FE) IN CSECT(E44E0) LENGTH(2) 148 620 675 680
876	IORSP	ADDRESS. HEX LOCATION(00000702) IN CSECT(E44E0) LENGTH(2) 215 217 1014 1015
209	ITST2	ADDRESS. HEX LOCATION(0000012A) IN CSECT(E44E0) LENGTH(6) 223
220	ITST5	ADDRESS. HEX LOCATION(00000158) IN CSECT(E44E0) LENGTH(4) 216
240	ITST7	ADDRESS. HEX LOCATION(000001AA) IN CSECT(E44E0) LENGTH(4) 237
234	ITST9	ADDRESS. HEX LOCATION(00000192) IN CSECT(E44E0) LENGTH(4) 231
87	LE	ABSOLUTE. HEX VALUE(00000025) 818 833
88	LI	ABSOLUTE. HEX VALUE(00000026) 716
97	LSTIO	ADDRESS. HEX LOCATION(00000018) IN CSECT(E44E0) LENGTH(2) 685 686 688 920 921 923
82	MI	ABSOLUTE. HEX VALUE(00000020) 457 463 821 831
498	MSGLN	ABSOLUTE. HEX VALUE(00000014) 488
497	MSGND	ADDRESS. HEX LOCATION(000004C4) IN CSECT(E44E0) LENGTH(1) 498
496	MSGPF	ADDRESS. HEX LOCATION(000004BF) IN CSECT(E44E0) LENGTH(5) 501
61	OPTN1	ADDRESS. HEX LOCATION(0000000E) IN CSECT(E44E0) LENGTH(2)

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		138 768 802 1057
70	OPTN3	ADDRESS. HEX LOCATION(00000012) IN CSECT(E44E0) LENGTH(2)
		469 481 507 850 915 1016 1051 1056
117	PCTR	ADDRESS. HEX LOCATION(00000042) IN CSECT(E44E0) LENGTH(2)
		136 1054
92	PE	ABSOLUTE. HEX VALUE(0000002A)
		508 837 1017
495	PFMSG	ADDRESS. HEX LOCATION(000004B0) IN CSECT(E44E0) LENGTH(15)
		489 498
41	PREP	ABSOLUTE. HEX VALUE(0000000C)
		163 924
49	PRNTRTN	ABSOLUTE. HEX VALUE(0000181E)
		1052
575	RDADR	ADDRESS. HEX LOCATION(0000053E) IN CSECT(E44E0) LENGTH(2)
		957
574	RDBCT	ADDRESS. HEX LOCATION(0000053C) IN CSECT(E44E0) LENGTH(2)
		280 288 958
1096	RDBUF	ADDRESS. HEX LOCATION(000008D4) IN CSECT(E44E0) LENGTH(1)
		227 228 229 232 234 235 238 264 537
		575 613
567	RDDCB	ADDRESS. HEX LOCATION(00000530) IN CSECT(E44E0) LENGTH(1)
		257 611 1077
46	RESET	ABSOLUTE. HEX VALUE(00000008)
		147 212
42	RICB	ABSOLUTE. HEX VALUE(00000013)
		166
47	RID	ABSOLUTE. HEX VALUE(00000009)
		214
269	RIPL2	ADDRESS. HEX LOCATION(000001FC) IN CSECT(E44E0) LENGTH(6)
		281 283 289
275	RIPL4	ADDRESS. HEX LOCATION(00000216) IN CSECT(E44E0) LENGTH(6)
		273
282	RIPL5	ADDRESS. HEX LOCATION(00000234) IN CSECT(E44E0) LENGTH(6)
		278
284	RIPL6	ADDRESS. HEX LOCATION(0000023C) IN CSECT(E44E0) LENGTH(6)
		276
290	RIPL7	ADDRESS. HEX LOCATION(00000258) IN CSECT(E44E0) LENGTH(4)
		285
204	RT01	ADDRESS. HEX LOCATION(00000110) IN CSECT(E44E0) LENGTH(4)
		188
249	RT02	ADDRESS. HEX LOCATION(000001AE) IN CSECT(E44E0) LENGTH(4)
		189
299	RT03	ADDRESS. HEX LOCATION(0000025C) IN CSECT(E44E0) LENGTH(4)
		190
331	RT04	ADDRESS. HEX LOCATION(000002B2) IN CSECT(E44E0) LENGTH(4)
		191
373	RT05	ADDRESS. HEX LOCATION(00000308) IN CSECT(E44E0) LENGTH(4)
		192
457	RT06	ADDRESS. HEX LOCATION(00000430) IN CSECT(E44E0) LENGTH(2)
		857
478	RT060	ADDRESS. HEX LOCATION(00000478) IN CSECT(E44E0) LENGTH(4)
		479
469	RT061	ADDRESS. HEX LOCATION(00000452) IN CSECT(E44E0) LENGTH(4)
		660
463	RT062	ADDRESS. HEX LOCATION(00000442) IN CSECT(E44E0) LENGTH(2)
		468 480 494
481	RT063	ADDRESS. HEX LOCATION(00000480) IN CSECT(E44E0) LENGTH(4)
		862
589	R6DCB	ADDRESS. HEX LOCATION(00000550) IN CSECT(E44E0) LENGTH(14)
		622
1077	SETRD	ADDRESS. HEX LOCATION(00000824) IN CSECT(E44E0) LENGTH(4)
		260
1079	SETHR	ADDRESS. HEX LOCATION(0000082A) IN CSECT(E44E0) LENGTH(4)
		255 306 338 375 1078
349	SHDN2	ADDRESS. HEX LOCATION(000002F4) IN CSECT(E44E0) LENGTH(4)
		346
350	SHDN3	ADDRESS. HEX LOCATION(000002F8) IN CSECT(E44E0) LENGTH(2)
		348 351
343	SHDN4	ADDRESS. HEX LOCATION(000002DC) IN CSECT(E44E0) LENGTH(6)
		353
317	SHUP2	ADDRESS. HEX LOCATION(0000029E) IN CSECT(E44E0) LENGTH(4)
		314
318	SHUP3	ADDRESS. HEX LOCATION(000002A2) IN CSECT(E44E0) LENGTH(2)
		316 319
311	SHUP4	ADDRESS. HEX LOCATION(00000286) IN CSECT(E44E0) LENGTH(6)
		321
44	START	ABSOLUTE. HEX VALUE(0000000A)
		152 707
45	TERM	ABSOLUTE. HEX VALUE(00000007)
		167
65	TM	ABSOLUTE. HEX VALUE(00000003)
		139 465 709 1064
127	TYPE23	ADDRESS. HEX LOCATION(00000060) IN CSECT(E44E0) LENGTH(2)
		313 345 701 1058
562	WRADR	ADDRESS. HEX LOCATION(0000052E) IN CSECT(E44E0) LENGTH(2)
		266 272 274 320 352 956
561	WRBCT	ADDRESS. HEX LOCATION(0000052C) IN CSECT(E44E0) LENGTH(2)
		206 277 279 284 287 383
1094	WRBUF	ADDRESS. HEX LOCATION(00000884) IN CSECT(E44E0) LENGTH(1)
		252 303 310 335 342 377 473 474 486
		490 562 590 592
555	WRCTL	ADDRESS. HEX LOCATION(00000520) IN CSECT(E44E0) LENGTH(2)
		205 435 439 443
554	WRDCB	ADDRESS. HEX LOCATION(00000520) IN CSECT(E44E0) LENGTH(1)
		609 1079
558	WRHLA	ADDRESS. HEX LOCATION(00000526) IN CSECT(E44E0) LENGTH(2)
		398 403 408 413 418
556	WRPOS	ADDRESS. HEX LOCATION(00000522) IN CSECT(E44E0) LENGTH(2)
		269 388
557	WRPRE	ADDRESS. HEX LOCATION(00000524) IN CSECT(E44E0) LENGTH(2)
		269 275 282 286 393 434 444
559	WRSHF	ADDRESS. HEX LOCATION(00000528) IN CSECT(E44E0) LENGTH(2)
		423 428 433
591	W6DCB	ADDRESS. HEX LOCATION(00000560) IN CSECT(E44E0) LENGTH(14)
		624
86	XE	ABSOLUTE. HEX VALUE(00000024)
		504 803 839 1006
84	XI	ABSOLUTE. HEX VALUE(00000022)
		151 706 819
675	XIO	ADDRESS. HEX LOCATION(000005B2) IN CSECT(E44E0) LENGTH(4)
		610 616 618 623 625

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
858	XIOCC	ADDRESS. HEX LOCATION(000006DC) IN CSECT(E44E0) LENGTH(2)
		854
831	XIOCK	ADDRESS. HEX LOCATION(0000068E) IN CSECT(E44E0) LENGTH(2)
		464 684 699 712
837	XIOCM	ADDRESS. HEX LOCATION(0000069A) IN CSECT(E44E0) LENGTH(2)
		834
617	XIOCR	ADDRESS. HEX LOCATION(0000058C) IN CSECT(E44E0) LENGTH(6)
		250 300 332 374 462
679	XIOCS	ADDRESS. HEX LOCATION(000005BC) IN CSECT(E44E0) LENGTH(6)
		509 848 1018
849	XIOCU	ADDRESS. HEX LOCATION(000006BA) IN CSECT(E44E0) LENGTH(4)
		836 865
846	XIOCV	ADDRESS. HEX LOCATION(000006B2) IN CSECT(E44E0) LENGTH(2)
		842
850	XIOCX	ADDRESS. HEX LOCATION(000006BE) IN CSECT(E44E0) LENGTH(4)
		847
619	XIODG	ADDRESS. HEX LOCATION(00000594) IN CSECT(E44E0) LENGTH(6)
		226
740	XIOER	ADDRESS. HEX LOCATION(0000062E) IN CSECT(E44E0) LENGTH(2)
		134 872
864	XIOGI	ADDRESS. HEX LOCATION(000006F0) IN CSECT(E44E0) LENGTH(2)
		840
861	XIOMI	ADDRESS. HEX LOCATION(000006E4) IN CSECT(E44E0) LENGTH(6)
		859
833	XIORT	ADDRESS. HEX LOCATION(00000692) IN CSECT(E44E0) LENGTH(2)
		863
622	XIOR6	ADDRESS. HEX LOCATION(000005A2) IN CSECT(E44E0) LENGTH(6)
		471
609	XIOWR	ADDRESS. HEX LOCATION(00000570) IN CSECT(E44E0) LENGTH(6)
		220 270 312 344 378 506
624	XIOW6	ADDRESS. HEX LOCATION(000005AA) IN CSECT(E44E0) LENGTH(6)
		478 493
685	XIO1	ADDRESS. HEX LOCATION(000005D0) IN CSECT(E44E0) LENGTH(4)
		621 676
698	XIO2	ADDRESS. HEX LOCATION(000005F8) IN CSECT(E44E0) LENGTH(2)
		682
705	XIO5	ADDRESS. HEX LOCATION(0000060E) IN CSECT(E44E0) LENGTH(2)
		702
706	XIO6	ADDRESS. HEX LOCATION(00000610) IN CSECT(E44E0) LENGTH(2)
		704
708	XIO8	ADDRESS. HEX LOCATION(00000614) IN CSECT(E44E0) LENGTH(2)
		714

********** LAST PAGE **********

REA
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
                             3 ************************************************************************
                             4 *                                                                      *
                             5 *                    ***       PREREQUISITES       ***                 *
                             6 *                                 NONE                                 *
                             7 *                                                                      *
                             8 ************************************************************************
                             9 *                                                                      *
                            10 *                    ***       MODIFICATIONS       ***                 *
                            11 *                                                                      *
                            12 *                  CHANGES TO DATA PATERN OF ROUTINE 3 AND 4           *
                            13 *                                                                      *
                            14 ************************************************************************
                            15 *                                                                      *
                            16 *                    ***     REA'S INCORPORATED    ***                 *
                            17 *                                 NONE                                 *
                            18 *                                                                      *
                            19 ************************************************************************
                            20 *                                                                      *
                            21 *                    ***    SPECIAL INSTRUCTIONS   ***                 *
                            22 *                                 NONE                                 *
                            23 *                                                                      *
                            24 ************************************************************************
                            25 *                                                                      *
                            26 *                    ***       E. C. HISTORY       ***                 *
                            27 *                                                                      *
                            28 *          DATE 15SEP77  DATE 09DEC77  DATE          DATE             *
                            29 *          E.C. 754882   E.C. 755104   E.C.          E.C.             *
                            30 *                                                                      *
                            31 ************************************************************************
 000000                     32 E45E0 START X'0000'
                            33 *          SUPERVISOR EQUATES
 000014                     34 CICB   EQU  20                    CONNECT INTERRUPT CONTROL BLOCK
 000006                     35 EXIT   EQU  6                     EXIT INTERRUPT LEVEL
 000002                     36 IDLE   EQU  2                     SHARE PROGRAM TIME WITH OTHER PGMS
 00000C                     37 PREP   EQU  12                    PREPARE DEVICE
 000013                     38 RICB   EQU  19                    RELEASE INTERRUPT CONTROL BLOCK
 00001A                     39 HTOE   EQU  26                    CONVERT HEX TO CHAR.
 00000A                     40 START  EQU  10                    START CYCLE STEAL COMMAND
 000007                     41 TERM   EQU  7                     TERMINATE THIS PROGRAM
 000008                     42 RESET  EQU  8                     DEVISE RESET
 000009                     43 RID    EQU  9                     DEVISE READ ID
 000000                     44 REG    EQUR 0                     WORK REGISTER
 00181E                     45 PRNTRTN EQU X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
 000232                     46 CPUTYPE EQU X'0232'               ADDRESS OF PROCESSOR TYPE
                            47 *
                            48 *          PROGRAM HEADING AND CONTROL WORDS
                            49 *
 000000  F4F5F0F0           50 $PID   DC   C'4500'               PROGRAM IDENTIFICATION
 000004  0000               51        DC   XL2'0000'            CURRENT PROGRAM LEVEL
 000006  0062               52        DC   A($PENT)             START EXECUTION ADDRESS
 000008  004C               53        DC   A($DVAD)             -> TO DEV ADDRESS TABLE
 00000A  0000               54 $RTNE  DC   A(*-*)               ROUTINE NUMBER BEING RUN
 00000C  0000               55 $CKPT  DC   A(*-*)               LAST CHECK POINT PASSED
 00000E  0000               56 OPTN1  DC   X'0000'              PROGRAM OPTION CONTROL WORD 1
                            57 *
                            58 * BIT FUNCTION                EQU      BIT FUNCTION                EQU
                            59 *
 000003                     60 TH     EQU  3                     TERMINATE PROGRAM
 00000E                     61 IND    EQU  14                    INDICATOR
 00000F                     62 DIR    EQU  15                    SEEK DIRECTION INDICATOR
                            63 *
 000010  0000               64 OPTN2  DC   X'0000'              PROGRAM OPTION CONTROL WORD 2
 000012  0000               65 OPTN3  DC   X'0000'              PROGRAM OPTION CONTROL WORD 3
                            66 *
                            67 *  0  HYSTERY INTERRUPT     HI        8  CS STATUS INTERRUPT ERR CE
                            68 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                            69 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                            70 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                            71 *
                            72 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                            73 *  5  WRONG INTR LEVEL      LE       13  N.U.
                            74 *  6  LOAS INTERRUPT        LI       14  N.U.
                            75 *  7  CS STATUS IN PROGR    CS       15  N.U.
                            76 *                      BIT   HEX
 000020                     77 HI     EQU  32      0     8     HYSTERY INTERRUPT HAPPENED
 000021                     78 ER     EQU  33      1     4     ERROR RECEIVED ON INTERRUPT
 000022                     79 XI     EQU  34      2     2     EXPECTED INTERRUPT CONTROL BIT
 000023                     80 IN     EQU  35      3     1     INTERRUPT RECEIVED CONTROL BIT
 000024                     81 XE     EQU  36      4     8     EXPECTED ERROR RESPONSE
 000025                     82 LE     EQU  37      5     4     INTERRUPT ON WRONG LEVEL ERROR
 000026                     83 LI     EQU  38      6     2     LOST INTERRUPT
 000027                     84 CS     EQU  39      7     1     CYCLE STATUS IN PROGRESS
 000028                     85 CE     EQU  40      8     8     CYCLE STEAL STATUS INERRRUPT ERROR
 000029                     86 GI     EQU  41      9     4     GOOD INTERRUPT RECEIVED (EXPECTED ER)
 00002A                     87 PE     EQU  42      10    2     PROBABLE ERROR EXPECTED
 00002B                     88 NI     EQU  43      11    1     NO INTR. EXPECTED UNPREPED DEV.
 000014  0000               89 $IOIN  DC   A(*-*)              I/O AND INTR CONDITION CODES
 000016  0000               90 $ISB   DC   A(*-*)              R7, INTR STATUS BITE & DEV ADRS
 000018  0000               91 LSTIO  DC   A(*-*)              ADRS OF LAST I/O + 4 BYTES
 00001A  00000000           92 DEV1   DC   2A(*-*)             DEVICE DEPENDENT DATA
 00001E  00000000           93 DEV3   DC   2A(*-*)             *  DEV1-DEV2-DEV3-DEV4
 000022  0000               94 DCBUF  DC   A(*-*)              LAST DCB TABLE, CONTROL WORD
 000024  0000               95 DCB2   DC   A(*-*)              LAST DCB TABLE, DEV DEP WORD
 000026  0000               96 DCB3   DC   A(*-*)              LAST DCB TABLE, DEV DEP WORD
 000028  0000               97 DCB4   DC   A(*-*)              LAST DCB TABLE, DEV DEP WORD
 00002A  0000               98 DCB5   DC   A(*-*)              LAST DCB TABLE, DEV DEP WORD
 00002C  0000               99 DCB6   DC   A(*-*)              LAST DCB TABLE, CHAIN ADRS
 00002E  0000              100 DCB7   DC   A(*-*)              LAST DCB TABLE, BYTE COUNT
 000030  0000              101 DCB8   DC   A(*-*)              LAST DCB TABLE, BUFFER ADDRESS
 000032                    102 CSBUF  EQU  *                   CYCLE STEAL DATA BUFFER
 000032  0000              103 CSTL1  DC   A(*-*)              CYCLE STEAL BUFFER, RESIDUAL ADRS
 000034  0000              104 CSTL2  DC   A(*-*)              CYCLE STEAL WD 2, DEVICE DEPEND
 000036  0000              105 CSTL3  DC   A(*-*)              CYCLE STEAL WD 3, DEVICE DEPEND
 000038  0000              106 CSTL4  DC   A(*-*)              CYCLE STEAL WD 4, DEVICE DEPEND
 00003A  0000              107 CSTL5  DC   A(*-*)              CYCLE STEAL WD 5, DEVICE DEPEND
 00003C  0000              108 CSTL6  DC   A(*-*)              CYCLE STEAL WD 6, DEVICE DEPEND
 00003E  0000              109 CSTL7  DC   A(*-*)              CYCLE STEAL WD 7, DEVICE DEPEND
 000040  0000              110 CSTL8  DC   A(*-*)              CYCLE STEAL WD 8, DEVICE DEPEND
 000042  00000000          111 PCTR   DC   2A(*-*)             PASS COUNTER
 000046  00000000          112 ECTR   DC   2A(*-*)             ERROR COUNTER
 00004A  0005              113 ERNUM  DC   X'0005'             NUM OF TIMES DEV IS ALLOWED AN ERROR
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
 00004C  0045              114 $DVAD DC   X'0045'              DEVICE ADDRESS BEING TESTED
 00004E  0000000000000000  115        DC   XL8'00'
 000056  0011              116 $INTL DC   X'0011'              INTERRUPT LEVEL REQUESTED
 000058  040E              117 $DVID DC   X'040E'              DEVICE IDENTIFICATION
 00005A  0006              118 $MXSL DC   A(06)                MAXIMUM SELECTABLE ROUTINES
 00005C  0000              119 H0000 DC   X'0000'              CONSTANT
 00005E  0001              120 H0001 DC   X'0001'              HEX WORD CONSTANT
 000060  2300              121 TYPE23 DC  X'2300'              CONSTANT TO CHECK PROCESSOR AGAINST
                           122 ************************************************************************
                           123 *                                                                      *
                           124 *                    PROGRAM CONTROL FUNCTIONS                         *
                           125 *                                                                      *
                           126 ************************************************************************
 000062  4020 0614 0572    127 $PENT MVA  XIOER,IOERR          REINIT ERROR POINTER ADDRESS
 000068  4020 0056 0011    128       MVWI X'0011',$INTL        INIT INTERRUPT LEVEL
 00006E  A82A 005C 0042    129       AD   H0000,PCTR           ADVANCE PASS COUNTER BY 1
 000074  CE25 000A         130       MVWZ $RTNE,R6             CLEAR OLD ROUTINE NUMBER
 000078  4424 000E         131 $PUPD MVA  OPTN1,R4             R4 MUST BE SET TO 'OPTN1'
 00007C  4C03              132 $PUP2 TBT  (R4,TH)              IS TERMINATE PGM REQUESTED
 00007E  102C              133       JZ   $PUP8                * NO, CONTINUE CHECKING
                           134 *
                           135 *          TERMINATE CONTROL BIT FOUND ON
                           136 *
 000080  4020 0614 00B4    137 $TERM MVA  $RETI,IOERR          RESET IO ERROR POINTER
 000086  4020 0616 0484    138       MVA  CICB,IODCB           LOAD ADDRESS OF CLEAR SCREEN INTO BLK
 00008C  4724 0612         139       MVA  IOBLK,R7             LOAD ADDRESS OF CONTROL BLOCK
 000090  6008              140       SVC  RESET                ISSUE SVC
 000092  CF25 0618         141       MVWZ IOMOD,R7             ZERO MODIFIER FIELD
 000096  4020 0614 00A4    142       MVA  $RETN,IOERR          RESET IO ERROR ADDRESS
 00009C  4724 0612         143       MVA  IOBLK,R7             LOAD ADDRESS OF CONTROL BLOCK
 0000A0  4C62              144       TBTS (R4,XI)              SET EXPECTED INTERRUPT
 0000A2  600A              145       SVC  START                ISSUE SVC
 0000A4  4524 0000         146 $RETN MVWI X'0000',R5           INIT WORK REG
 0000A8  4CA3              147 $RETC TBTR (R4,IN)              TEST FOR INTERRUPT RECEIVED
 0000AA  1204              148       JON  $RETI                BRANCH IF YES
 0000AC  6002              149       SVC  IDLE                 DELAY
 0000AE  7DA1 0001         150       AHI  1,R5                 INCREMENT R5
 0000B2  18FA              151       JNZ  $RETC                BRANCH IF NOT ZERO
 0000B4  4020 0614 00CC    152 $RETI MVA  $TER1,IOERR          RESET IO ERROR ADDRESS
 0000BA  8828 0056 0616    153       MVW  $INTL,IODCB          GET LAST INTERRUPT LEVEL PREPED TO
 0000C0  402D 0616 0001    154       RBTWI X'0001',IODCB       TURN OFF 'I' BIT
 0000C6  4724 0612         155       MVA  IOBLK,R7             LOAD ADDRESS OF CONTROL BLOCK
 0000CA  600C              156       SVC  PREP                 ISSUE SVC
 0000CC  C720 004C         157 $TER1 MVB  $DVAD,R7             LOAD DEV ADDRESS
 0000D0  7FE4 FF00         158       RBTWI X'FF00',R7          RESET HIGH ORDER BITS
 0000D4  6013              159       SVC  RICB                 ISSUE SVC
 0000D6  6007              160       SVC  TERM                 ISSUE SVC TO TERM
                           161 *
 0000D8  A828 005E 000A    162 $PUP8 AW   H0001,$RTNE          ADVANCE ROUTINE NUMBER
 0000DE  882B 005A 000A    163       CW   $MXSL,$RTNE          CHECK FOR LAST AUTOMATIC ROUTINE
 0000E4  10BE              164       JE   $PENT                * BCH AND START WITH RTN 1
                           165 *
                           166 *          GET RTN NUMBER AND BCH TO THAT RTN
                           167 *
 0000E6  6E08 000A         168 $PSEL MVW  $RTNE,R6             MOVE RTN NUMBER IN REG
 0000EA  CD25 000C         169       MVWZ $CKPT,R5             ZERO CHECKPOINT
 0000EE  CD25 001A         170       MVWZ DEV1,R5              ZERO DEV1
 0000F2  CD25 001C         171       MVWZ DEV1+2,R5                  DEV2
 0000F6  CD25 001E         172       MVWZ DEV3,R5                    DEV3
 0000FA  CD25 0020         173       MVWZ DEV3+2,R5                  DEV4
 0000FE  3609              174       SLL  1,R6                 DOUBLE R6 FOR BRANCH TABLE
 000100  68D2 0104         175       B    (R6,$RTAD)*          BCH VIA RTN TABLE
                           176 *
                           177 *          TABLE OF ROUTINE ADDRESSES
                           178 *
 000104  0062              179 $RTAD DC   A($PENT)             NO RTN SELECTED
 000106  0110              180       DC   A(RT01)              ROUTINE ADDRESS
 000108  0172              181       DC   A(RT02)                    ''
 00010A  0220              182       DC   A(RT03)                    ''
 00010C  0298              183       DC   A(RT04)                    ''
 00010E  0316              184       DC   A(RT05)                    ''
                           185 *                    END OF ROUTINE ADDRESSES
                           186 ************************************************************************
                           187 *     CHANNEL INTERFACE TEST                                           *
                           188 *                                                                      *
                           189 *     TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS      *
                           190 *     THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO  *
                           191 *     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS  *
                           192 *     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS       *
                           193 *     EXCEPT LEVEL THREE.                                              *
                           194 ************************************************************************
 000110  6E03 0626         195 RT01  BAL  $CONB,R6              ISSUE A CONNECT I/O BLOCK
 000114  4020 0494 0080    196       MVWI X'80',WRCTL          SET UP CONTROL WORD FOR TESTING
 00011A  4020 04A0 0000    197       MVWI 0,WRBCT              SET UP ZERO BYTE COUNT TO CK FOR INTR
 000120  6A08 0056         198       MVW  $INTL,R2             SAVE CURRENT INTR LEVEL
 000124  4020 0056 FFF1    199       MVWI X'FFF1',$INTL        SET UP INTERRUPT LEVEL FOR PREP
 00012A  4029 0056 0010    200 ITST2 AWI  X'10',$INTL          ADV INTR LEVEL, STARTING AT 0
 000130  6E03 0630         201       BAL  $CONC,R6             GO PREPARE ON NEW LEVEL
 000134  4724 0612         202       MVA  IOBLK,R7             SET UP POINTER TO CONTROL BLOCK
 000138  6008              203       SVC  RESET                CALL SUPVR TO ISSUE RESET
 00013A  4724 0612         204 ITST4 MVA  IOBLK,R7             SET UP POINTER TO CONTROL BLOCK
 00013E  6009              205       SVC  RID                  CALL SUPVR TO ISSUE READ ID
 000140  882B 061C 0058    206       CW   IORSP,$DVID          IS ID RECEIVED AS EXPECTED
 000146  1008              207       JE   ITST5                * YES, CONTINUE
 000148  8828 061C 001E    208       MVW  IORSP,DEV3           MOVE RECEIVED ID INTO DEV3
 00014E  8828 0058 0020    209       MVW  $DVID,DEV3+2         MOVE EXPECTED ID INTO DEV4
 000154  6802 06FE         210       B    $PRNT                BRANCH TO PRINT ERROR
 000158  6E03 04C4         211 ITST5 BAL  XIOUB,R6             EXEC NO-OP TO GET AN INTR
 00015C  4029 000C 0001    212       AWI  1,$CKPT              INCREMENT CHECKPOINT
 000162  402F 0056 0021    213       CWI  X'21',$INTL          HAS INTR LEVEL COME DOWN TO 2
 000168  18E0              214       JNE  ITST2                * NO, BCH AND CONTINUE TEST
 00016A  6A0D 0056         215       MVW  R2,$INTL             RESTORE INTR LEVEL BEFORE EXIT
 00016E  6802 0078         216 ITST7 B    $PUPD                RETURN TO CALL NEXT PROGRAM
                           217 ************************************************************************
                           218 *     RIPPLE DISPLAY                                                   *
                           219 *                                                                      *
                           220 *     TO VERIFY THAT ALL CHARACTERS CAN BE DISPLAYED IN ALL POSITIONS. *
                           221 *     EACH LINE ON THE CRT IS WRITTEN AND READ BACK                    *
                           222 *     TO VERIFY THAT THE CRT STORAGE IS WORKING.                       *
                           223 ************************************************************************
 000172  6E03 0630         224 RT02  BAL  $CONC,R6              PREPARE DEVISE ON PROPER LEVEL
 000176  6E03 04E0         225       BAL  XIOCR,R6             CLEAR THE SCREEN
 00017A  4124 0754         226       MVA  ALPHA,R1             SET UP BUFFER ADRS IN REG 1
 00017E  4224 07A4         227       MVA  WRBUF,R2             SET WRITE BUFFER ADRS
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000182  0F50            238         MVBI  80,R7                   SET UP THE COUNT TO MOVE
000184  2944            239         MVFW  (R1),(R2)                MOVE ALPHA FIELD INTO BUFFER
000186  6E03 0744       240         BAL   SETWR,R6                 SET UP WRITE DCB CHAINED TO READ DCB
00018A  800C0000000000002 241       DC    X'800C0000000000002000'
000194  04A4            242         DC    A(RDDCB)
000196  0001            243         DC    X'0001'
000198  0754            244         DC    A(ALPHA)
00019A  6E03 073E       245         BAL   SETRD,R6                 SET UP READ DCB
00019E  20000000000000002 246       DC    X'2000000000000000002000'
0001A8  0000            247         DC    A(0000)
0001AA  0001            248         DC    X'0001'
0001AC  07F4            249         DC    A(RDBUF)
0001AE  7922 0001       250         SWI   X'0001',R1               POINT R1 AT LAST CHAR
0001B2  6905 04A2       251         MVW   R1,WRADR                 POINT AT WR BUF
0001B6  4124 0754       252         MVA   ALPHA,R1                 SET UP R1 TO START OF BUF
0001BA  4029 000C 0001  253         AWI   1,$CKPT                  INCREMENT CHECKPOINT
0001C0  8828 0498 0496  254 RIPL2   MVW   WRPRE,WRPOS              USE THE SAME CURSOR ADRS FOR POS
0001C6  6E03 04C4       255 RIPL3   BAL   XIOWR,R6                 GO XEQ WRITE I/O COMMAND
0001CA  6E03 0660       256         BAL   CMPU,R6                  GO COMPARE DATA
0001CE  C924 04A2       257         CW    WRADR,R1                 TEST WR BUF START ADDADRS
0001D2  1003            258         JE    RIPL4                    BR IF POINTING AT START
0001D4  402E 04A2 0001  259         SWI   X'0001',WRADR            RESET WRITE START ADDRESS
0001DA  402F 0498 0730  260 RIPL4   CWI   X'0730',WRPRE            IS WRPRE POINTING AT END
0001E0  1A0F            261         JNH   RIPL6                    BR IF YES
0001E2  402F 04A0 0050  262         CWI   X'0050',WRBCT            HAS BYTE COUNT REACHED MAX
0001E8  1007            263         JE    RIPL5                    BRANCH IF YES
0001EA  4029 04A0 0001  264         AWI   X'0001',WRBCT            INCREMENT BYTE COUNT
0001F0  4029 04B0 0001  265         AWI   X'0001',RDBCT            IN BOTH WRITE AND READ
0001F6  50E4            266         J     RIPL2                    JUMP TO CONTINUE
0001F8  4029 0498 0001  267 RIPL5   AWI   X'0001',WRPRE            ADVANCE CURSOR ADDRESS
0001FE  50E0            268         J     RIPL2                    BRANCH TO CONTINUE
000200  402F 04A0 0001  269 RIPL6   CWI   X'0001',WRBCT            TEST BYTE COUNT
000206  100A            270         JE    RIPL7                    BR IF END
000208  4029 0498 0001  271         AWI   X'0001',WRPRE            ADVANCE CURSOR
00020E  402E 04A0 0001  272         SWI   X'0001',WRBCT            DECREMENT BYTE COUNT
000214  402E 04B0 0001  273         SWI   X'0001',RDBCT            DECREMENT BYTE COUNT
00021A  50D2            274         J     RIPL2                    JUMP TO CONTINUE
00021C  6802 0078       275 RIPL7   B     $PUPD                    BRANCH TO CONTINUE
                        277 ********************************************************************
                        278 *     SHIFT UP TEST                                                *
                        279 *                                                                  *
                        280 *     DATA WILL BE WRITTEN ON THE BOTTOM LINE AND SHIFTED UP. WHEN THE*
                        281 *     DATA HAS REACHED THE TOP LINE IT WILL BE COMPARED TO VERIFY NO  *
                        282 *     CHARACTER HAS BEEN CHANGED IN THE SHIFT OPERATION.           *
                        283 ********************************************************************
000220  6E03 0630       284 RT03    BAL   $CONC,R6                 PREPARE DEVISE ON CORRECT LEVEL
000224  6E03 04E0       285         BAL   XIOCR,R6                 CLEAR SCREEN
000228  0818            286 SHUP1   MVBI  24,REG                   SET UP LINE COUNTER
00022A  4124 074E       287         MVA   ALPH1,R1                 SET UP BUFFER ADRS IN REG 1
00022E  4224 07A4       288         MVA   WRBUF,R2                 SET WRITE BUFFER ADRS
000232  0F50            289         MVBI  80,R7                    SET UP THE COUNT TO MOVE
000234  2944            290         MVFW  (R1),(R2)                MOVE ALPHA FIELD INTO BUFFER
000236  6E03 0744       291         BAL   SETWR,R6                 SET UP WRITE DCB
00023A  000F0730073000732 292       DC    X'000F0730073000732001'
000244  0000            293         DC    A(0000)
000246  0050            294         DC    X'0050'
000248  07A4            295         DC    A(WRBUF)
00024A  6E03 073E       296         BAL   SETRD,R6                 SET UP READ DCB
00024E  20000000000000002 297       DC    X'2000000000000000002000'
000258  0000            298         DC    A(0000)
00025A  0050            299         DC    X'0050'
00025C  07F4            300         DC    A(RDBUF)
00025E  4020 000C 0001  301 SHUP4   MVWI  1,$CKPT                  SET CHECKPOINT TO ONE
000264  6E03 04C4       302         BAL   XIOWR,R6                 GO XEQ WRITE I/O COMMAND
000268  4020 000C 0002  303         MVWI  2,$CKPT                  SET CHECKPOINT TO TWO
00026E  6E03 04CC       304 SHUP6   BAL   XIORD,R6                 GO READ LAST LINE OF DATA
000272  6E03 0660       305         BAL   CMPU,R6                  COMPARE LAST LINE TO BOTTOM LINE
000276  802B 0232 0060  306         CB    CPUTYPE,TYPE23           CHECK FOR PROCESSOR 23
00027C  1803            307         JNE   SHUP2                    BRANCH NOT EQUAL
00027E  4524 0155       308         MVWI  341,R5                   LOAD LOOP COUNT
000282  5002            309         J     SHUP3                    BRANCH
000284  4524 0555       310 SHUP2   MVWI  1365,R5                  LOAD LOOP COUNT
000288  6002            311 SHUP3   SVC   IDLE                     DELAY
00028A  BDFE            312         JCT   SHUP3,R5                 BRANCH UNTIL DONE
00028C  4029 0496 FFB0  313         AWI   -80,WRPOS                CHANGE THE SCREEN ADRS FOR NEXT READ
000292  B8E5            314         JCT   SHUP4,REG                * BCH IF NOT FINISHED
000294  6802 0078       315         B     $PUPD                    RETURN TO CONTINUE
                        317 ********************************************************************
                        318 *     SHIFT DOWN TEST                                              *
                        319 *                                                                  *
                        320 *     DATA WILL BE WRITTEN ON THE TOP LINE AND SHIFTED DOWN. WHEN THE *
                        321 *     DATA HAS REACHED THE BOTTOM LINE IT WILL BE COMPARED TO VERIFY  *
                        322 *     NO CHARACTER HAS BEEN CHANGED IN THE SHIFT OPERATION.        *
                        323 ********************************************************************
000298  6E03 0630       324 RT04    BAL   $CONC,R6                 PREPARE DEVISE ON PROPER LEVEL
00029C  6E03 04E0       325         BAL   XIOCR,R6                 CLEAR SCREEN
0002A0  0818            326 SHDN1   MVBI  24,REG                   SET UP LINE COUNTER
0002A2  4124 074E       327         MVA   ALPH1,R1                 SET UP BUFFER ADRS IN REG 1
0002A6  4224 07A4       328         MVA   WRBUF,R2                 SET WRITE BUFFER ADRS
0002AA  0F50            329         MVBI  80,R7                    SET UP THE COUNT TO MOVE
0002AC  2944            330         MVFW  (R1),(R2)                MOVE ALPHA FIELD INTO BUFFER
0002AE  6E03 0744       331         BAL   SETWR,R6                 SET UP WRITE DCB
0002B2  008D0000000000732 332       DC    X'008D0000000000732001'
0002BC  0000            333         DC    A(0000)
0002BE  0050            334         DC    X'0050'
0002C0  07A4            335         DC    A(WRBUF)
0002C2  6E03 073E       336         BAL   SETRD,R6                 SET UP READ DCB
0002C6  20000000000000002 337       DC    X'2000000000000000002000000000050'
0002D4  07F4            338         DC    A(RDBUF)
0002D6  4020 000C 0001  339 SHDN4   MVWI  1,$CKPT                  SET CHECKPOINT TO ONE
0002DC  6E03 04C4       340         BAL   XIOWR,R6                 GO XEQ WRITE I/O COMMAND
0002E0  4020 000C 0002  341         MVWI  2,$CKPT                  SET CHECKPOINT TO TWO
0002E6  6E03 04CC       342 SHDN6   BAL   XIORD,R6                 READ BOTTOM LINE OF DATA
0002EA  6E03 0660       343         BAL   CMPU,R6                  COMPARE THE TWO LINES
0002EE  802B 0232 0060  344         CB    CPUTYPE,TYPE23           CHECK FOR PROCESSOR 23
0002F4  1803            345         JNE   SHDN2                    BRANCH NOT EQUAL
0002F6  4524 0155       346         MVWI  341,R5                   LOAD LOOP COUNT
0002FA  5002            347         J     SHDN3                    BRANCH
0002FC  4524 0555       348 SHDN2   MVWI  1365,R5                  LOAD LOOP COUNT
000300  6002            349 SHDN3   SVC   IDLE                     ISSUE SVC
000302  BDFE            350         JCT   SHDN3,R5                 BRANCH BACK ON COUNT
000304  4029 0498 0050  351         AWI   080,WRPRE                CHANGE THE SCREEN ADRS FOR NEXT WRITE
00030A  4029 0496 0050  352         AWI   080,WRPOS                CHANGE THE SCREEN ADRS FOR NEXT READ
000310  B8E2            353         JCT   SHDN4,REG                * BCH IF NOT FINISHED
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000312  6802 0078       354         B     $PUPD                    RETURN TO CONTINUE
                        356 ********************************************************************
                        357 *     ERROR TEST                                                   *
                        358 *                                                                  *
                        359 *     THIS ROUTINE WILL FORCE ERRORS THAT THE ATTACHMENT WILL REJECT, *
                        360 *     AND THE PROPER RESPONSE WILL BE CHECKED. THE RESIDUAL ADDRESS  *
                        361 *     WILL BE CHECKED FOR EACH TYPE OF ERROR.                      *
                        362 *                                                                  *
                        363 *     THE FOLLOWING ERRORS ARE FORCED:                             *
                        364 *     1.  INVALID CONTROL BIT, READ WITH BYTE COUNT = 0            *
                        365 *     2.  POST CURSOR ADDRESS TOO LARGE                            *
                        366 *     3.  PRE CURSOR ADDRESS TOO LARGE                             *
                        367 *     4.  SHIFT COUNT TOO LARGE                                    *
                        368 *     5.  HIGH ADDRESS TOO LARGE                                   *
                        369 *     6.  LOW ADDRESS TOO LARGE                                    *
                        370 *     7.  SHIFT COUNT TOO LARGE                                    *
                        371 *     8.  BYTE COUNT TOO LARGE                                     *
                        372 ********************************************************************
000316  6E03 0630       373 RT05    BAL   $CONC,R6                 PREPARE DEVISE ON PROPER LEVEL
00031A  6E03 04E0       374         BAL   XIOCR,R6                 CLEAR SCREEN
00031E  6E03 0744       375         BAL   SETWR,R6                 SET UP WRITE DCB
000322  000D0781078120200 376       DC    X'000D0781078120200400000800'
000330  07A4            377         DC    A(WRBUF)
000332  4020 06B6 04C4  378         MVA   XIOBR,ERCAL+2            SET UP ADDRESS FOR I/O ERROR ROUTINE
000338  6A03 06AC       379         BAL   ERTST,R2                 BRANCH TO ISSUE ERROR
00033C  000F            380         DC    A(15)                    DISP TO ERROR ADDRESS
00033E  6A03 045A       381         BAL   DCBCK,R2                 CHECK DCB CHECK VALUE
000342  0020            382         DC    X'0020'                  * FOR X'00B0'
000344  4020 04A0 0063  383         MVWI  99,WRBCT                 PUT IN GOOD BYTE COUNT
00034A  6A03 06AC       384         BAL   ERTST,R2                 BRANCH TO ISSUE ERROR
00034E  000F            385         DC    A(15)                    DISP TO ERROR ADDRESS
000350  6A03 045A       386         BAL   DCBCK,R2                 CHECK DCB CHECK VALUE
000354  0020            387         DC    X'0020'                  * FOR X'0020'
000356  4020 0496 0000  388         MVWI  0,WRPOS                  PUT IN GOOD POS CURSOR ADRS
00035C  6A03 06AC       389         BAL   ERTST,R2                 BRANCH TO ISSUE ERROR
000360  000F            390         DC    A(15)                    DISP OF ERROR ADDRESS
000362  6A03 045A       391         BAL   DCBCK,R2                 CHECK DCB CHECK VALUE
000366  0020            392         DC    X'0020'                  * FOR X'0020'
000368  4020 0498 0000  393         MVWI  0,WRPRE                  PUT IN GOOD PRE CURSOR ADRS
00036E  6A03 06AC       394         BAL   ERTST,R2                 BRANCH TO ISSUE ERROR
000372  000F            395         DC    A(15)                    DISP OF ERROR ADDRESS
000374  6A03 045A       396         BAL   DCBCK,R2                 CHECK DCB CHECK VALUE
000378  0060            397         DC    X'0060'                  * FOR X'0060'
00037A  4020 049A 0780  398         MVWI  X'0780',WRHLA            PUT IN GOOD HIGH ADRS
000380  6A03 06AC       399         BAL   ERTST,R2                 BRANCH TO ISSUE ERROR
000384  000F            400         DC    A(15)                    DISP OF ERROR ADDRESS
000386  6A03 045A       401         BAL   DCBCK,R2                 CHECK DCB CHECK VALUE
00038A  0030            402         DC    X'0030'                  * FOR X'0030'
00038C  4020 049A 0707  403         MVWI  X'0707',WRHLA            PUT IN GOOD HIGH ADRS, HIGH = LOW
000392  6A03 06AC       404         BAL   ERTST,R2                 BRANCH TO ISSUE ERROR
000396  000F            405         DC    A(15)                    DISP OF ERROR ADDRESS
000398  6A03 045A       406         BAL   DCBCK,R2                 CHECK DCB CHECK VALUE
00039C  0060            407         DC    X'0060'                  * FOR X'0060'
00039E  4020 049A 0907  408         MVWI  X'0907',WRHLA            PUT IN GOOD HIGH ADRS, LOW GT HIGH
0003A4  6A03 06AC       409         BAL   ERTST,R2                 BRANCH TO ISSUE ERROR
0003A8  000F            410         DC    A(15)                    DISP OF ERROR ADDRESS
0003AA  6A03 045A       411         BAL   DCBCK,R2                 CHECK DCB CHECK VALUE
0003AE  0050            412         DC    X'0050'                  * FOR X'0050'
0003B0  4020 049A 0607  413         MVWI  X'0607',WRHLA            PUT IN BAD  HIGH AND LOW ADRS
0003B6  6A03 06AC       414         BAL   ERTST,R2                 BRANCH TO ISSUE ERROR
0003BA  000F            415         DC    A(15)                    DISP OF ERROR ADDRESS
0003BC  6A03 045A       416         BAL   DCBCK,R2                 CHECK DCB CHECK VALUE
0003C0  0040            417         DC    X'0040'                  * FOR X'0040'
0003C2  4020 049A 000A  418         MVWI  X'000A',WRHLA            SET UP SMALL WINDOW
0003C8  6A03 06AC       419         BAL   ERTST,R2                 BRANCH TO ISSUE ERROR
0003CC  000F            420         DC    A(15)                    DISP OF ERROR ADDRESS
0003CE  6A03 045A       421         BAL   DCBCK,R2                 CHECK DCB CHECK VALUE
0003D2  0080            422         DC    X'0080'                  * FOR X'0080'
0003D4  4020 049C 0000  423         MVWI  0,WRSHF                  PUT IN ZERO SHIFT COUNT
0003DA  6A03 06AC       424         BAL   ERTST,R2                 BRANCH TO ISSUE ERROR
0003DE  000F            425         DC    A(15)                    DISP OF ERROR ADDRESS
0003E0  6A03 045A       426         BAL   DCBCK,R2                 CHECK DCB CHECK VALUE
0003E4  0070            427         DC    X'0070'                  * FOR X'0070'
0003E6  4020 049C 0003  428         MVWI  X'0003',WRSHF            PUT IN SHIFT LARGER THAN THE WINDOW
0003EC  6A03 06AC       429         BAL   ERTST,R2                 BRANCH TO ISSUE ERROR
0003F0  000F            430         DC    A(15)                    DISP OF ERROR ADDRESS
0003F2  6A03 045A       431         BAL   DCBCK,R2                 CHECK DCB CHECK VALUE
0003F6  0090            432         DC    X'0090'                  * FOR X'0090'
0003F8  4020 049C 0002  433         MVWI  2,WRSHF                  PUT IN GOOD SHIFT COUNT
0003FE  4020 0498 0720  434         MVWI  X'720',WRPRE             SET UP PRE CURSOR ADRS OPER CHECKS
000404  4020 0494 00BD  435         MVWI  X'BD',WRCTL              SET UP 'ERASE TO END OF FIELD'
00040A  6A03 043E       436         BAL   DCBSU,R2                 SET UP FOR NEXT ERROR TEST
00040E  6A03 045A       437         BAL   DCBCK,R2                 CHECK DCB CHECK VALUE
000412  0002            438         DC    X'0002'                  * FOR X'0002'
000414  4020 0494 00DD  439         MVWI  X'DD',WRCTL              SET UP 'ERASE TO END OF LINE'
00041A  6A03 043E       440         BAL   DCBSU,R2                 SET UP FOR NEXT ERROR TEST
00041E  6A03 045A       441         BAL   DCBCK,R2                 CHECK DCB CHECK VALUE
000422  0003            442         DC    X'0003'                  * FOR X'0003'
000424  4020 0494 008D  443         MVWI  X'8D',WRCTL              SET UP 'ERASE TO END OF SCREEN'
00042A  4020 0498 077F  444         MVWI  X'77F',WRPRE             SET UP LEN TO INDICATE END OF SCREEN
000430  6A03 043E       445         BAL   DCBSU,R2                 SET UP FOR NEXT ERROR TEST
000434  6A03 045A       446         BAL   DCBCK,R2                 CHECK DCB CHECK VALUE
000438  0003            447         DC    X'0003'                  * FOR X'0003'
00043A  6802 0078       448         B     $PUPD                    RETURN TO CONTINUE
                        450 *       SUBROUTINE TO SET UP THE NEXT ERROR TEST
00043E  4C64            451 DCBSU   TBTS  (R4,XE)                  SET EXPECTED ERROR CNTL BIT
000440  4029 000C 0001  452         AWI   1,$CKPT                  BUMP CHECKPOINT BY ONE
000446  6E03 04C4       453         BAL   XIOWR,R6                 * AND GO EXECUTE THE WRITE COMMAND
00044A  CE25 0012       454         MVWZ  OPTN3,R6                 ZERO OPTION WORD THREE
00044E  4C6A            455         TBTS  (R4,PE)                  SET PROBABLE ERROR
000450  6E03 04FE       456         BAL   XIOCS-2,R6               * AND GO EXECUTE THE CS STATUS
000454  4CA7            457         TBTR  (R4,CS)                  RESET BOTH CS STATUS
000456  4CA8            458         TBTR  (R4,CE)                  * BITS USED
000458  5200            459         BXS   (R2)                     RETURN TO USER VIA REG 2
                        461 *       SUBROUTINE TO CHECK THE DCB CK VALUE
00045A  6908 0036       462 DCBCK   MVW   CSTL3,R1                 GET CS STATUS TO CHECK
00045E  7920 00FF       463         NWI   X'00FF',R1               REMOVE BITS 0-7 FOR CHECK
000462  C984            464         CW    (R2),R1                  IS THE DCB CHECK VALUE OKAY
000464  6840 0002       465         BE    (R2,2)                   * YES, RETURN
000468  8A08 0020       466         MVW   (R2),DEV3+2              LOAD EXPECTED VALUE INTO DEV4
00046C  6908 001E       467         MVW   R1,DEV3                  LOAD RECEIVED VALUE INTO DEV3
000470  6802 06FE       468 DCBCM   B     $PRNT                    PRINT ERROR
                        470 ********************************************************************
                        471 *       DCB BLOCKS FOR THE CRT                                     *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
                           472 ************************************************************************
                           473 *
                           474 *           DIAGNOSTIC DATA CONTROL BLOCK
                           475 *
000474                     476 DGDCB  EQU   *                   USE FOR DCB REFERENCE ONLY
000474  2000               477        DC    X'2000'             CONTROL WORD
000476  0000               478        DC    X'0000'             POS CURSOR ADRS
000478  0000               479        DC    X'0000'             PRE CURSOR ADRS
00047A  0000               480        DC    X'0000'             HIGH/LOW ADRS
00047C  0000               481        DC    X'0000'             PKB/SHIFT COUNT
00047E  0000               482        DC    X'0000'             CHAIN ADRS
000480  000A               483        DC    X'000A'             BYTE COUNT
000482  07F4               484        DC    A(RDBUF)            BUFFER ADRS
                           485 *
                           486 *           CLEAR CRT SCREEN DATA CONTROL BLOCK
                           487 *
000484                     488 CRDCB  EQU   *                   USE FOR DCB REFERENCE ONLY
000484  001C               489        DC    X'001C'             CONTROL WORD
000486  0000               490        DC    X'0000'             POS CURSOR ADRS
000488  0000               491        DC    X'0000'             PRE CURSOR ADRS
00048A  0000               492        DC    A(*-*)              HIGH/LOW ADRS
00048C  0000               493        DC    X'0000'             PKB/SHIFT COUNT
00048E  0000               494        DC    A(*-*)              CHAIN ADRS
000490  0780               495        DC    X'0780'             BYTE COUNT
000492  0000               496        DC    A(*-*)              BUFFER ADRS
                           497 *
                           498 *           WRITE DATA CONTROL BLOCK
                           499 *
000494                     500 ETST   EQU   *                   USE FOR DCB REFERENCE ONLY
000494                     501 WRDCB  EQU   *                   USE FOR DCB REFERENCE ONLY
000494  000C               502 WRCTL  DC    X'000C'             CONTROL WORD
000496  0000               503 WRPOS  DC    A(*-*)              POS CURSOR ADRS
000498  0000               504 WRPRE  DC    A(*-*)              PRE CURSOR ADRS
00049A  0000               505 WRHLA  DC    A(*-*)              HIGH/LOW ADRS
00049C  0000               506 WRSHF  DC    A(*-*)              PKB/SHIFT COUNT
00049E  0000               507 WRCHN  DC    A(*-*)              CHAIN ADRS
0004A0  0000               508 WRBCT  DC    A(*-*)              BYTE COUNT
0004A2  07A4               509 WRADR  DC    A(WRBUF)            BUFFER ADRS
                           511 *
                           512 *           READ DATA CONTROL BLOCK
                           513 *
0004A4                     514 RDDCB  EQU   *                   USE FOR DCB REFERENCE ONLY
0004A4  2000               515 RDCTL  DC    X'2000'             CONTROL WORD
0004A6  0000               516 RDPOS  DC    A(*-*)              POS CURSOR ADRS
0004A8  0000               517 RDPRE  DC    A(*-*)              PRE CURSOR ADRS
0004AA  0000               518 RDHLA  DC    A(*-*)              HIGH/LOW ADRS
0004AC  0000               519 RDSHF  DC    A(*-*)              PKB/SHIFT COUNT
0004AE  0000               520 RDCHN  DC    A(*-*)              CHAIN ADDRESS
0004B0  0000               521 RDBCT  DC    A(*-*)              BYTE COUNT
0004B2  07F4               522 RDADR  DC    A(RDBUF)            BUFFER ADRS
                           523 *
                           524 *           CYCLE STEAL DATA CONTROL BLOCK
                           525 *
0004B4                     526 CSDCB  EQU   *                   USE FOR DCB REFERENCE ONLY
0004B4  2000               527 CSCTL  DC    X'2000'             CONTROL WORD
0004B6  0000               528 CSPOS  DC    X'0000'             POST CURSOR ADRS, NOT USED
0004B8  0000               529 CSPRE  DC    X'0000'             PRE CURSOR ADRS, NOT USED
0004BA  0000               530 CSHLA  DC    X'0000'             HIGH/LOW ADRS, NOT USED
0004BC  2000               531 CSSHF  DC    X'2000'             LOCK KYBD AND SHIFT COUNT
0004BE  0000               532 CSCHN  DC    A(0000)             CHAIN ADRS, NOT USED
0004C0  0006               533 CSBCT  DC    X'0006'             BYTE COUNT
0004C2  0032               534 CSADR  DC    A(CSBUF)            BUFFER ADRS
                           536 ************************************************************************
                           537 *     SET UP PARAMETERS FOR AN I/O COMMAND                             *
                           538 *     TO LOAD THE DCB ADRS IN THE I/O CONTROL BLOCK AND PERFORM ANY    *
                           539 *     FUNCTION PRIOR TO GIVING THE 'SVC  START' COMMAND.               *
                           540 *                                                                      *
                           541 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                          *
                           542 *     .                                                                *
                           543 * ->  BAL   XIOWR,R6              XEQ WRITE COMMAND                  *
                           544 * ->  BAL   XIORD,R6              XEQ READ COMMAND                   *
                           545 * ->  BAL   XIOCR,R6              XEQ CYCLE CLEAR SCREEN COMMAND     *
                           546 * ->  BAL   XIODG,R6              XEQ DIAGNOSTIC COMMAND             *
                           547 * ->  BAL   XIOWD,R6              XEQ WRITE COMMAND FOR RT06         *
                           548 *                                                                      *
                           549 ************************************************************************
0004C4  4020 0616 0494     550 XIOWR  MVA   WRDCB,IODCB         SET UP CONTROL BLOCK FOR SVC CALL
0004CA  5015               551        J     XIO                 BRANCH
0004CC  4020 0616 04A4     552 XIORD  MVA   RDDCB,IODCB         SET UP CONTROL BLOCK FOR SVC CALL
0004D2  0B00               553        MVBI  0,R3                SET UP CLEAR DATA
0004D4  4524 07F4          554        MVA   RDBUF,R5            SET UP READ BUFFER ADRS
0004D8  4724 0050          555        MVWI  X'0050',R7          SET UP BUFFER LENGTH
0004DC  2BAC               556        FFN   R3,(R5)             CLEAR READ BUFFER
0004DE  500B               557        J     XIO                 BRANCH
0004E0  4020 0616 0484     558 XIOCR  MVA   CRDCB,IODCB         SET UP CONTROL BLOCK FOR SVC CALL
0004E6  5007               559        J     XIO                 BRANCH
0004E8  4020 0616 0474     560 XIODG  MVA   DGDCB,IODCB         SET UP CONTROL BLOCK FOR SVC CALL
0004EE  4020 0618 000D     561        MVWI  X'001',IOMOD        SET UP DIAGOSTIC MODIFIER
0004F4  500F               562        J     XIO1                BRANCH
                           563 *                                * R6 IS ALREADY SET UP TO DO A RETURN
                           565 ************************************************************************
                           566 *                                                                      *
                           567 * SOUBROUTINE                                                         *
                           568 *                                                                      *
                           569 *     EXECUTE INPUT AND OUTPUT COMMANDS                                *
                           570 *                                                                      *
                           571 * PURPOSE                                                             *
                           572 *                                                                      *
                           573 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.                 *
                           574 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:                 *
                           575 *                                                                      *
                           576 *     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED  *
                           577 *        THE I/O COMMAND.                                              *
                           578 *     2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS    *
                           579 *        ISSUED BY THIS SUBROUTINE.                                    *
                           580 *     3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE           *
                           581 *        START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.             *
                           582 *     4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT   *
                           583 *        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,  *
                           584 *        MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.                    *
                           585 *     5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE     *
                           586 *        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'.    *
                           587 *     6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING  *
                           588 *        STARTS TO DETERMINE A LOST INTERRUPT.                         *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
                           589 *     7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF   *
                           590 *        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.        *
                           591 *     8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.                   *
                           592 *     9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.       *
                           593 *    10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.         *
                           594 *    11. CHECK IS A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS     *
                           595 *        ISSUED BY THIS SUBROUTINE.                                    *
                           596 *    12. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A       *
                           597 *        CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON, *
                           598 *        COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.   *
                           599 *                                                                      *
                           600 * CALLING SEQUENCE                                                    *
                           601 *                                                                      *
                           602 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                          *
                           603 *                                                                      *
                           604 * --> B     XIO                   XEQ ANY CYCLE STEAL COMMAND, MOD=0 *
                           605 * --> BAL   XIOCS,R6              XEQ START CYCLE STEAL STATUS, MOD=F *
                           606 *                                                                      *
                           607 * RETURN CONTROL                                                      *
                           608 *                                                                      *
                           609 *     BXS   (R6)                  RETURN TO USER NO ERROR          *
                           610 ************************************************************************
0004F6  CB25 0618           612 XIO    MVWZ  IOMOD,R3           SET MOF OF 0 FOR CYCLE STEAL OP
0004FA  500C               613        J     XIO1                BRANCH
0004FC  4CA8               614        TBTR  (R4,CE)             RESET CS STATUS INTER ERROR INDICAT.
0004FE  4C67               615        TBTS  (R4,CS)             SET 'CYCLE STEAL STATUS' IN PROGRESS
000500  4020 0616 04B4     616 XIOCS  MVA   CSDCB,IODCB         SET UP  CONTROL BLOCK FOR SVC CALL
000506  4020 0618 000F     617        MVWI  X'000F',IOMOD       SET CYCLE STEAL MODIFIER
00050C  4C27               618        TBT   (R4,CS)             IS CS IN PROGRESS, ERROR CONDITION
00050E  1216               619        JON   XIO2                * YES, BYPASS SAVING I/O ADRS
000510  4CA3               620        TBTR  (R4,IN)             HAS INTERRUPT OCCURED
000512  125F               621        JON   XIOCK               BRANCH YES
000514  6E0D 0018          622 XIO1   MVW   R6,LSTIO            SAVE IAR
000518  402E 0018 0004     623        SWI   4,LSTIO             DECREMENT TO LOCATE INSTRUCTION
00051E  4324 0000          624        MVA   $PID,R3             LOAD PROG START ADDRESS
000522  CB2F 0018          625        SW    R3,LSTIO            SUB TO OBTAIN LISTING ADDRESS
000526  4324 0022          626        MVA   DCBUF,R3            SET UP TO ADRS TO MOVE DCB TABLE
00052A  6D08 0616          627        MVW   IODCB,R5            * AND THE FROM ADRS, ALONG WITH
00052E  0F10               628        MVBI  16,R7               * THE NUMBER OF MOVES
000530  2D64               629        MVFN  (R5),(R3)           MOVE DCB TABLE
000532  0BFF               630        MVBI  255,R3              CLEAR CYCLE STATUS BUFFER
000534  4524 0032          631        MVA   CSBUF,R5            *  TO ALL ONES  *
000538  0F10               632        MVBI  16,R7               *               *
00053A  2BAC               633        FFN   R3,(R5)             *               *
                           634 *
00053C  4CA3               635 XIO2   TBTR  (R4,IN)             CLEAR INTERRUPT RECEIVED CNTL BIT
00053E  1249               636        JON   XIOCK               BRANCH IF ON
000540  4724 0612          637        MVA   IOBLK,R7            SET UP CONTROL BLOCK FOR SUPVR
000544  802B 0232 0060     638        CB    CPUTYPE,TYPE23      CHECK FOR PROCESSOR 23
00054A  1803               639        JNE   XIO5                BRANCH NOT EQUAL
00054C  4524 C000          640        MVWI  X'C000',R5          LOAD LOOP COUNT
000550  5001               641        J     XIO6                BRANCH
000552  75AA               642 XIO5   SW    R5,R5               LOAD LOOP COUNT
000554  4C62               643 XIO6   TBTS  (R4,XI)             SET EXPECTED INTR CONTROL BIT
000556  600A               644        SVC   START               CALL SUPVR FOR I/O COMMAND
000558  6002               645 XIO8   SVC   IDLE                ALLOW OTHER PROG TIME
00055A  4C03               646        TBT   (R4,TM)             IS TERMINATE BIT ON
00055C  6A00 0080          647        BON   $TERM               BRANCH IF ON
000560  4CA3               648        TBTR  (R4,IN)             HAS INTERRUPT BEEN RECEIVED
000562  1237               649        JON   XIOCK               * YES, CHECK IF ALL WAS SATISFACTORY
000564  7DA1 0001          650        AWI   1,R5                ADVANCE TIME OUT COUNT
000568  18F7               651        JNZ   XIO8                BCH IF TIME OUT NOT REACHED
00056A  4C61               652        TBTS  (R4,ER)             SET ON ERROR CONTROL BIT
00056C  4C66               653        TBTS  (R4,LI)             SET ON LOST INTERRUPT CONTROL BIT
00056E  6802 06FE          654        B     $PRNT               BRANCH TO PRINT ERROR
                           656 ************************************************************************
                           657 *                                                                      *
                           658 * SUBROUTINE                                                          *
                           659 *                                                                      *
                           660 *     I/O EXECUTE ERROR HANDLING ROUTINE                               *
                           661 *                                                                      *
                           662 * PURPOSE                                                             *
                           663 *                                                                      *
                           664 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE      *
                           665 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE    *
                           666 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                              *
                           667 *                                                                      *
                           668 * CALLING SEQUENCE                                                    *
                           669 *                                                                      *
                           670 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND           *
                           671 *                                                                      *
                           672 * RETURN CONTROL                                                      *
                           673 *                                                                      *
                           674 *     B     $PRNT                 DUMP STATUS BEFORE TERMINATION     *
                           675 *                                                                      *
                           676 ************************************************************************
000572  706E               677 XIOER  CPLSR R3                  SAVE CONDITION CODE ON I/O ERROR
000574  336A               678        SRL   13,R3               POSITION CC CODE TO BITS 13-15
000576  C328 0014          679        MVB   R3,$IOIN            * PUT IN LOG OUT AREA
00057A  6802 06FE          680        B     $PRNT               BRANCH TO PRINT ERROR
                           682 ************************************************************************
                           683 *                                                                      *
                           684 * SOUBROUTINE                                                         *
                           685 *                                                                      *
                           686 *     ERROR INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'      *
                           687 *                                                                      *
                           688 * PURPOSE                                                             *
                           689 *                                                                      *
                           690 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR     *
                           691 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE       *
                           692 *     EXPECTED CODE.                                                   *
                           693 *                                                                      *
                           694 * CALLING SEQUENCE                                                    *
                           695 *                                                                      *
                           696 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT        *
                           697 *                                                                      *
                           698 * RETURN CONTROL                                                      *
                           699 *                                                                      *
                           700 *     SVC   EXIT                  RETURN TO USER VIA SUPVR          *
                           701 *                                                                      *
                           702 ************************************************************************
000578  706E               703 INTER  CPLSR R3                  SAVE INDICATORS
00057A  336A               704        SRL   13,R3               POSITION INDICATORS IN R3
00057C  4424 000E          705        MVA   OPTN1,R4            SET UP BASE ADRS
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000586  4C27                 706         TBT   (R4,CS)               IS CS IN PROGRESS
000588  1006                 707         JOFF  INTET                 * NO
00058A  4C68                 708         TBTS  (R4,CE)               TURN ON CYCLE STEAL INTER ERROR
00058C  6F0D 0040            709         MVW   R7,CSTL8              SAVE CS ERR ISB VALUE, BITS 0-7
000590  C328 0041            710         MVB   R3,CSTL8+1            * AND THE COND CODE
000594  5009                 711         J     INTR1                 BRANCH
000596  4C61                 712 INTET TBTS  (R4,ER)               SET ERROR ON I/O COMMAND CNTL BIT
000598  5007                 713         J     INTR1                 BRANCH
                             714 ********************************************************************
                             715 *                                                                  *
                             716 * SOUBROUTINE                                                      *
                             717 *                                                                  *
                             718 *     OKAY  INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'  *
                             719 *                                                                  *
                             720 * PURPOSE                                                          *
                             721 *                                                                  *
                             722 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                 *
                             723 *                                                                  *
                             724 * CALLING SEQUENCE                                                 *
                             725 *                                                                  *
                             726 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED       *
                             727 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE      *
                             728 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE           *
                             729 *     COMMON SECTION IS HANDLED HERE.                              *
                             730 *                                                                  *
                             731 * RETURN CONTROL                                                   *
                             732 *                                                                  *
                             733 *     SVC   EXIT                  RETURN TO USER VIA SUPVR         *
                             734 *                                                                  *
                             735 ********************************************************************
00059A  706E                 736 INTOK CPLSR R3                    SAVE INDICATORS
00059C  336A                 737         SRL   13,R3               POSITION INDICATORS IN R3
00059E  4424 000E            738         MVA   OPTN1,R4            SET UP BASE ADRS
0005A2  4C24                 739         TBT   (R4,XE)             TEST EXPECTED ERROR BIT
0005A4  1001                 740         JOFF  INTR1               BRANCH IF OFF
0005A6  4C69                 741         TBTS  (R4,GI)             SET GOOD INTERRUPT BIT
0005A8  4C63                 742 INTR1 TBTS  (R4,IN)             SET   INTERRUPT RECEIVED
0005AA  4C27                 743         TBT   (R4,CS)             IS 'CS IN PROGRESS' ON
0005AC  1204                 744         JON   INTR2               * YES, BCH AROUND UPDATE
0005AE  C328 0015            745         MVB   R3,$IOIN+1          SAVE INTERRUPTING CC CODE
0005B2  6F0D 0016            746         MVW   R7,$ISB             SAVE INTR STATUS AND DEV ADRS
0005B6  78B9                 747 INTR2 CPCL  R5                    COPY INTERRUPT LEVEL TO CHECK
0005B8  3521                 748         SLL   4,R5                POSITION INTR LEVEL AND PUT
0005BA  0501                 749         ABI   1,R5                * IN 'I' BIT
0005BC  CD24 0056            750         CW    $INTL,R5            IS THIS THE CORRECT INTR LEVEL
0005C0  1004                 751         JE    INTR3               * YES, GO EXIT THIS LEVEL
0005C2  3521                 752         SLL   4,R5                POSITION RECEIVED LEVEL
0005C4  6D0D 0020            753         MVW   R5,DEV3+2           STORE INTO DEV4
0005C8  4C65                 754         TBTS  (R4,LE)             SET INTR LEVEL ERROR CONTROL BIT
0005CA  4CA2                 755 INTR3 TBTR  (R4,XI)             WAS INTERRUPT EXPECTED
0005CC  1201                 756         JON   INTRX               * YES, EXIT OFF THIS INTR LEVEL
0005CE  4C60                 757         TBTS  (R4,MI)             * NO, SET MYSTERY INTR CONTROL BIT
0005D0  6006                 758 INTRX SVC   EXIT                  EXIT THIS LEVEL VIA SUPVR TO PGM
                             759 ********************************************************************
                             760 *
                             761 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                             762 *     HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN
                             763 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
                             764 *
                             765 ********************************************************************
0005D2  4C20                 766 XIOCK TBT   (R4,MI)               TEST MYSTERY INTERRUPT
0005D4  1202                 767         JON   XIOER               BRANCH IF ON
0005D6  4C25                 768 XIORT TBT   (R4,LE)               WAS AN INTR LEVEL ERROR FOUND
0005D8  1002                 769         JOFF  XIOCM               * NO, CONTINUE CHECKING
0005DA  4C61                 770 XIORR TBTS  (R4,ER)               SET ERROR CONTROL BIT ON
0005DC  5010                 771         J     XIOCU               POSITION LEVEL TO BITS 12-15
0005DE  4CAA                 772 XIOCM TBTR  (R4,PE)               WAS THIS A PROPABLE ERROR
0005E0  6AC0 0000            773         BON   (R6)                BRANCH IF YES
0005E4  4C24                 774         TBT   (R4,XE)             WAS AN ERROR EXPECTED
0005E6  1211                 775         JN    XIOGI               * YES, CONTINUE CHECKING
0005E8  4C27                 776         TBT   (R4,CS)             WAS AUTO CS IN PROGRESS
0005EA  1005                 777         JOFF  XIOCV               * NO, CONTINUE CHECKING
0005EC  4C28                 778         TBT   (R4,CE)             IS CS IN AN ERR CONDITION
0005EE  6800 06EC            779         BOFF  CSRTN               * NO, BCH
0005F2  6802 06FE            780         B     $PRNT               GO PRINT CS ERROR
0005F6  4C21                 781 XIOCV TBT   (R4,ER)               WAS ERROR INTR CONTROL BIT ON
0005F8  1004                 782         JOFF  XIOCX               * NO, EXIT THIS ROUTINE
0005FA  6802 04FC            783 XIOCO B     XIOCS-4               * AVAILABLE, GO AND GET IT
0005FE  6802 06FE            784 XIOCU B     $PRNT                 PRINT ERROR
000602  CB25 0012            785 XIOCX MVWZ  OPTN3,R3              CLEAR OUT OPTION 3 CNTL BITS
000606  68C2 0000            786         B     (R6)                RETURN TO USER VIA REG 6
00060A  4C29                 787 XIOGI TBT   (R4,GI)               WAS GOOD INTERRUPT RECEIVED
00060C  12F8                 788         JON   XIOCU               BRANCH YES
00060E  68C2 0000            789         B     (R6)                RETURN VIA R6
                             790 *
                             791 *           I/O   PARAMETER LIST
                             792 *
000612  004C                 793 IOBLK DC    A($DVAD)              ADRS OF DEVICE ADRS
000614  0572                 794 IOERR DC    A(XIOER)              ERROR ROUTINE ADRS
000616  0000                 795 IODCB DC    A(*-*)                DCB ADRS OR LEVEL & INTR
000618  0000                 796 IOMOD DC    A(*-*)                MODIFIER
00061A  0000                 797         DC    A(*-*)              ADRS OF LAST SVC CALL
00061C  0000                 798 IORSP DC    A(*-*)                SECOND WORD OF LAST IDCB
                             799 *
                             800 *           INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                             801 *
00061E  004C                 802 INTBL DC    A($DVAD)              ADRS OF DEVICE ADRS
000620  059A                 803         DC    A(INTOK)            INTERRUPT OK RETURN ADRS
000622  057E                 804         DC    A(INTER)            INTERRUPT ERROR ADRS
000624  0003                 805 INTCC DC    X'0003'               INTERRUPT CODE EXPECTED
                             806 ********************************************************************
                             807 *                                                                  *
                             808 * SUBROUTINE                                                       *
                             809 *                                                                  *
                             810 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE             *
                             811 *                                                                  *
                             812 * PURPOSE                                                          *
                             813 *                                                                  *
                             814 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND    *
                             815 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE *
                             816 *     TO INTERRUPT.                                                *
                             817 *                                                                  *
                             818 * CALLING SEQUENCE                                                 *
                             819 *                                                                  *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                             820 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                   *
                             821 *                                                                  *
                             822 * --> BAL   $CONC,R6              CLEAR DEV DEP STG AND CONNECT I/O BLK *
                             823 * --> BAL   $CONR,R6              BCH TO CONNECT                   *
                             824 * --> BAL   $CONP,R6              PREPARE DEVICE ONLY              *
                             825 *                                                                  *
                             826 * RETURN CONTROL                                                   *
                             827 *                                                                  *
                             828 *     BXS   (R6)                  RETURN TO USER VIA REG 6         *
                             829 *                                                                  *
                             830 ********************************************************************
000626                       831 $CONP EQU   *
000626  4724 061E            832         MVA   INTBL,R7            SET R7 TO CONTROL BLOCK AND
00062A  6014                 833         SVC   CICB                * CONNECT IT TO THIS DEVICE
00062C  68C2 0000            834         B     (R6)                RETURN
000630                       835 $CONC EQU   *
000630  CB25 0012            836         MVWZ  OPTN3,R3            CLEAR OLD CONTROLS FOR NEW ROUTINE
000634  8828 0056 0616       837 $CONP MVW   $INTL,IODCB          PUT IN LEVEL & INTR PARAMETER
00063A  4724 0612            838         MVA   IOBLK,R7            SET R7 TO CONTROL BLOCK TO PREPARE
00063E  4020 0014 07FF       839         MVWI  X'07FF',$IOIN       INITIALIZE CONDITION CODE STORAGE
000644  CB25 0016            840         MVWZ  $ISB,R3             * AND CLEAR OLD ISB VALUE
000648  6E0D 0018            841         MVW   R6,LSTIO            SET UP ADDRESS THAT STARTED LAST I/O
00064C  402E 0018 0004       842         SWI   4,LSTIO             DECREMENT TO POINT AT INSTRUCTION
000652  4324 0000            843         MVA   $PID,R3             LOAD ADDRESS OF START OF PROG
000656  CB2F 0018            844         SW    R3,LSTIO            SUB TO OBTAIN LISTING ADDRESS
00065A  600C                 845         SVC   PREP                * AND CALL ON SUPVR
00065C  68C2 0000            846         B     (R6)                RETURN
                             847 ********************************************************************
                             848 *                                                                  *
                             849 * SUBROUTINE                                                       *
                             850 *                                                                  *
                             851 *     COMMON COMPARE ROUTINE                                       *
                             852 *                                                                  *
                             853 * PURPOSE                                                          *
                             854 *                                                                  *
                             855 *     THIS ROUTINE WILL ALLOW A COMMON COMPARE OF DATA THAT WAS    *
                             856 *     WRITTEN AND THEN READ BACK. IF THE COMPARE HAS BEEN DONE, THE *
                             857 *     ERROR LOGGING PORTION MAY BE USED BY ENTERING AT 'CMPP'.     *
                             858 *     THE READ BYTE COUNT IS USED FOR THE FIELD LENGTH.            *
                             859 *                                                                  *
                             860 * CALLING SEQUENCE                                                 *
                             861 *                                                                  *
                             862 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                   *
                             863 *                                                                  *
                             864 * --> BAL   CMPU,R6               USE COMMON COMPARE FOR UNEQUAL VALUE *
                             865 * --> BAL   CMPP,R6               USE LOGGING PORTION OF COMPARE RTN *
                             866 *                                                                  *
                             867 * RETURN CONTROL                                                   *
                             868 *                                                                  *
                             869 *     BXS   (R6)                  RETURN TO USER VIA REG 6         *
                             870 * OR  B     $PRNT                 PRINT ERROR                      *
                             871 *                                                                  *
                             872 ********************************************************************
                             873 *
                             874 *           COMPARE DATA FOR UNEQUAL
                             875 *
000660  6D08 04A2            876 CMPU  MVW   WRADR,R5              SET UP WRITE BUFFER ADRS
000664  6B08 04B2            877         MVW   RDADR,R3            SET UP READ BUFFER ADRS
000668  6F08 04B0            878         MVW   RDBCT,R7            SET UP BYTE COUNT FOR COMPARE
00066C  68C0 0000            879         BZ    (R6)                RETURN TO CALLER, BYTE COUNT ZERO
000670  2BA6                 880         CFNEN (R3),(R5)           COMPARE DATA
000672  68C0 0000            881         BE    (R6)                BCH IF DATA THE SAME AND RETURN
                             882 *
                             883 *           PRINT COMPARE ERROR
                             884 *
000676  4C61                 885         TBTS  (R4,ER)             SET ERROR CNTN BIT BECAUSE OF CMP ERR
000678  7724                 886 CMPP  MVW   R7,R1                GET BYTE COUNT TO CONVERT
00067A  C1E0 FFFE            887         MVB   (R3,-2),R1          GET LAST GOOD COMPARE
00067E  3141                 888         SLL   8,R1                POSITION FIRST BYTE
000680  71E4                 889         MVW   R1,R7               SAVE BYTE FOR NOW
000682  C1E0 FFFF            890         MVB   (R3,-1),R1          GET BYTE THAT FAILED
000686  7920 00FF            891         NWI   X'00FF',R1          REMOVE BIT 0-7
00068A  7721                 892         OW    R7,R1               * AND GET 1 ST BYTE BACK
00068C  690D 001A            893         MVW   R1,DEV1             STORE INTO DEV1
000690  7564                 894         MVW   R5,R3               MOVE ADRS TO OTHER REG
000692  C1E0 FFFE            895         MVB   (R3,-2),R1          GET LAST GOOD COMPARE
000696  3141                 896         SLL   8,R1                POSITION FIRST BYTE
000698  71E4                 897         MVW   R1,R7               SAVE BYTE FOR NOW
00069A  C1E0 FFFF            898         MVB   (R3,-1),R1          GET BYTE THAT FAILED
00069E  7920 00FF            899         NWI   X'00FF',R1          REMOVE BIT 0-7
0006A2  7721                 900         OW    R7,R1               * AND GET 1 ST BYTE BACK
0006A4  690D 001C            901         MVW   R1,DEV1+2           STORE INTO DEV2
0006A8  6802 06FE            902         B     $PRNT               BRANCH TO PRINT ERROR
                             903 ********************************************************************
                             904 *                                                                  *
                             905 * SUBROUTINE                                                       *
                             906 *                                                                  *
                             907 *     SPECIAL ERROR CHECKING OF THE DCB                            *
                             908 *                                                                  *
                             909 * PURPOSE                                                          *
                             910 *                                                                  *
                             911 *     TO SET THE CONTROL BITS BEFORE ISSUEING THE I/O COMMAND,     *
                             912 *     TESTING TO VERIFY THAT THE ERROR DID OCCUR, AND VERIFYING    *
                             913 *     THAT THE RESIDUAL ADDRESS IS WHAT IT SHOULD BE.              *
                             914 *                                                                  *
                             915 * CALLING SEQUENCE                                                 *
                             916 *                                                                  *
                             917 * --> BAL   ERTST,R2              USE COMMON ERROR TEST SUBRTN     *
                             918 *     DC    A(1)                  DISPLACEMENT FOR RESIDUAL ADRS   *
                             919 *                                                                  *
                             920 * RETURN CONTROL                                                   *
                             921 *                                                                  *
                             922 *     BXS   (R2,2)                RETURN TO USER VIA REG 2         *
                             923 *                                                                  *
                             924 ********************************************************************
0006AC  4C64                 925 ERTST TBTS  (R4,XE)               SET EXPECTED ERROR FOR EACH FAULT
0006AE  4029 000C 0001       926         AWI   1,$CKPT             INCREMENT CHECKPOINT
0006B4  6E03 0000            927 ERCAL BAL   *-*,R6                GO XEQ I/O COMMAND
0006B8  4C21                 928         TBT   (R4,ER)             DID ERROR CONTROL BIT GET SET
0006BA  1202                 929         JON   ERTSV               * YES,GO CKECK RESIDUAL ADDRESS
0006BC                       930 CSADE EQU   *
0006BC  6802 06FE            931         B     $PRNT               BRANCH TO PRINT ERROR
                             932 *
0006C0  AA08 061C            933 ERTSV AW    (R2),IORSP            DEVELOP DCB ERROR ADDRESS
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

0006C4  8828 061C 06EA      940         MVW   IORSP,ERTSZ           SAVE DCB ADRS FROM SUPER BLOCK
0006CA  CE25 0012           941         MVWZ  OPTN3,R6              ZERO OPTION WORD THREE
0006CE  4C6A                942         TBTS  (R4,PE)              SET PROBABLE ERROR
0006D0  6203 04FC           943         BAL   XIO(-4),R6           REQUEST START CYCLE STEAL STAUTS
0006D4  882B 0032 06EA      944         CW    CSTL1,ERTSZ          TEST FOR CORRECT RESIDUAL ADDRS
0006DA  1004                945         JE    ERTSX                RESIDUAL ADDRESS OK
0006DC  8828 06EA 0020      946         MVW   ERTSZ,DEV3+2         'WAS' RESIDUAL ADDRESS
0006E2  50EC                947         J     CSADE                BRANCH
0006E4  4CA7                948 ERTSX   TBTR  (R4,CS)              RESET CS IN PROGRESS CNTL BIT
0006E6  4CA1                949         TBTR  (R4,ER)              RESET ERROR RECEIVED CONTROL BIT
0006E8  5201                950         BXS   (R2,2)               OK, RETURN TO CALLER
                            951 *
0006EA  0000                952 ERTSZ   DC    A(*-*)               EXPECTED RESIDUAL ADDRESS SAVE AREA
0006EC                      954 CSRTN   EQU   *
0006EC  6D08 0036           955         MVW   CSTL3,R5             GET CURRENT STATUS WORD
0006F0  1002                956         JZ    CCRTP                BCH IF NOTHING WRONG
0006F2  6802 06FE           957         B     $PRNT                IF ERROR GO PRINT
0006F6  4C21                958 CCRTP   TBT   (R4,ER)              RESET THE ERROR CONDITION
0006F8  6A00 06FE           959         BON   $PRNT                IF ON GO PRINT
0006FC  5600                960         BXS   (R6)                 RETURN IF NO ERRORS
                            962 ***********************************************************************
                            963 *                    COMMON PRINT ERROR INTERFACE ROUTINE             *
                            964 *                                                                     *
                            965 * ----> R6       LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE  *
                            966 *               BRANCH IS TAKEN TO PRINT THE ERROR                    *
                            967 * ----> P4       LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE  *
                            968 *               BRANCH IS TAKEN TO PRINT THE ERROR                    *
                            969 * ----> R3       LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE       *
                            970 *               BRANCH IS TAKEN TO PRINT THE ERROR                    *
                            971 * ----> PRNTRTN THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST ) *
                            972 *               POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                            973 *               WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN      *
                            974 *                                                                     *
                            975 ***********************************************************************
0006FE  4624 0012           976 $PRNT MVA   OPTN3,R6               LOAD ADDRESS OF OPTION WORD THREE
000702  6D08 181E           977         MVW   PRNTRTN,R5           LOAD ADDRESS OF COMMON PRNT ROUTINE
000706  4424 0000           978         MVA   $PID,R4              LOAD ADDRESS OF START OF PROG
00070A  4324 0042           979         MVA   PCTR,R3              LOAD ADDRESS OF PASS COUNTER
00070E  6FA3 0000           980         BAL   (R5),R7              BRANCH TO COMMON PRINT ROUTINE
000712  CE25 0012           981         MVWZ  OPTN3,R6             ZERO OUT ALL FLAGS
000716  4424 000E           982         MVA   OPTN1,R4             LOAD BASE ADDRESS FOR INDICATORS
00071A  802B 0232 0060      983         CB    CPUTYPE,TYPE23       IS THIS A TYPE 23 PROCESSOR
000720  1803                984         JNE   $PRN2                BRANCH IF NO
000722  4524 E000           985         MVWI  X'E000',R5           INIT LOOP COUNTER
000726  5002                986         J     $PRN1                BRANCH
000728  4524 8000           987 $PRN2 MVWI  X'8000',R5             INIT LOOP COUNTER
00072C  6002                988 $PRN1 SVC   IDLE                   DELAY
00072E  4C03                989         TBT   (R4,TM)              SHOULD PROG TERMINATE
000730  6A00 0080           990         BON   $TERM                BRANCH YES
000734  7DA1 0001           991         AWI   1,R5                 INCREMENT LOOP COUNTER
000738  18F9                992         JNZ   $PRN1                BRANCH NOT ZERO
00073A  6802 0062           993         B     $PENT                BRANCH TO RESTART FROM BEGINING
                            995 ***********************************************************************
                            996 *      MOVE DCB VALUE INTO DCB STORAGE ALREADY DEFINED                *
                            997 *      TO MOVE THE STRING OF DC TO SET UP THE WRITE DCB               *
                            998 *                                                                     *
                            999 *      BAL   SETWR,R6             BCH TO SET UP DCB                   *
                           1000 *      BAL   SETRD,R6             BCH TO SET UP DCB                   *
                           1001 ***********************************************************************
00073E  4524 04A4          1002 SETRD  MVA   RDDCB,R5             SET UP READ DCB ADRS AND USE
000742  5002              1003         J     SETWR+4              * EXSISTING CODE TO FINISH
000744  4524 0494          1004 SETWR  MVA   WRDCB,R5             SET UP WRITE DCB ADRS
000748  0F10                1005         MVBI  16,R7              INIT R7 TO LENGTH OF DCB
00074A  2EA4                1006         MVFN  (R6),(R5)          MOVE DCB
00074C  5600                1007         BXS   (R6)               RETURN
                            1008         ALIGN WORD
                            1009 ***********************************************************************
                            1010 *          ALPHANUMERIC BUFFER STORAGE, KEYBOARD PATTERN              *
                            1011 ***********************************************************************
00074E  404040404040        1012 ALPH1  DC    C'      '
000754  C86C5C4C6061D8E6C  1013 ALPHA  DC    C'H%*<-/QWERTYUIOPASDFG@JKLZXCVBNM,.#,$.-0+ '
00077E  5D4AE04F            1014         DC    X'5D4AE04F'          LF PAR,CENT,BACK SL,OR
000782  F1F2F3506E7A5E5F7  1015         DC    C'123&?:;¬''456'
00078E  6F7F7E5A            1016         DC    X'6F7F7E5A'          ?,QUOTES,=,EXCLAIM
000792  4DF7F8F9404040404   1017         DC    C'(789      '
0007A4                      1019 WRBUF  EQU   *                    MAXIMUM WRITE BUFFER
0007A4  404040404040404040  1020         DC    CL80'   '
0007F4                      1021 RDBUF  EQU   *                    MAXIMUM READ BUFFER
0007F4  404040404040404040  1022         DC    CL80'   '
000062                      1023         END   $PENT
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DECLARED  NAME      ATTRIBUTES AND REFERENCES

    48    .REG.     ABSOLUTE, HEX VALUE(00000000)
                    286   314   326   353
     0    .R1.      ABSOLUTE, HEX VALUE(00000001)
                    236   239   250   251   252   257   287   290   327
                    330   462   463   464   467   891   892   893   894
                    895   896   897   898   900   901   902   903   904
                    905   906
     0    .R2.      ABSOLUTE, HEX VALUE(00000002)
                    207   224   237   239   288   290   328   330   379
                    381   384   386   389   391   394   396   399   401
                    404   406   409   411   414   416   419   421   424
                    426   429   431   436   437   440   441   445   446
                    459   464   465   466   939   950
     0    .R3.      ABSOLUTE, HEX VALUE(00000003)
                    553   556   612   624   625   626   629   630   633
                    677   678   679   703   704   710   737   738   746
                    787   840   844   847   848   882   885   892   895
                    899   900   903   979
     0    .R4.      ABSOLUTE, HEX VALUE(00000004)
                    138   139   151   154   451   455   457   458   614
                    615   618   620   635   643   646   648   652   653
                    705   706   708   712   739   740   742   743   744
                    755   756   758   768   770   772   774   776   778
                    780   783   789   890   931   934   942   948   949
                    958   978   982   989
     0    .R5.      ABSOLUTE, HEX VALUE(00000005)
                    153   157   177   178   179   180   181   308   310
                    312   346   348   350   554   556   627   629   631
                    633   640   642   642   650   748   749   750   751
                    753   754   881   885   899   955   977   980   985
                    987   991  1002  1004  1006
     0    .R6.      ABSOLUTE, HEX VALUE(00000006)
                    137   176   182   183   204   210   220   234   235
                    240   245   255   256   284   285   291   296   302
                    304   305   324   325   331   336   340   342   343
                    373   374   375   453   454   456   622   775   788
                    791   838   845   850   884   886   933   941   943
                    960   976   981  1006  1007
     0    .R7.      ABSOLUTE, HEX VALUE(00000007)
                    146   148   150   162   164   165   211   213   238
                    289   329   555   628   632   637   709   747   836
                    842   883   891   894   897   902   905   980  1005
    59    $CKPT     ADDRESS, HEX LOCATION(0000000C) IN CSECT(E45E0   ) LENGTH(2)
                    177   221   253   301   303   339   341   452   932
   839    $CONC     ADDRESS, HEX LOCATION(00000630) IN CSECT(E45E0   ) LENGTH(1)
                    210   234   284   324   373
   835    $CONR     ADDRESS, HEX LOCATION(00000626) IN CSECT(E45E0   ) LENGTH(1)
                    204
   120    $DVAD     ADDRESS, HEX LOCATION(0000004C) IN CSECT(E45E0   ) LENGTH(2)
                     57   164   796   805
   123    $DVID     ADDRESS, HEX LOCATION(00000058) IN CSECT(E45E0   ) LENGTH(2)
                    215   218
   122    $INTL     ADDRESS, HEX LOCATION(00000056) IN CSECT(E45E0   ) LENGTH(2)
                    135   160   207   208   209   222   224   751   841
    95    $IOIN     ADDRESS, HEX LOCATION(00000014) IN CSECT(E45E0   ) LENGTH(2)
                    679   746   843
    96    $ISB      ADDRESS, HEX LOCATION(00000016) IN CSECT(E45E0   ) LENGTH(2)
                    747   844
   124    $MXSL     ADDRESS, HEX LOCATION(0000005A) IN CSECT(E45E0   ) LENGTH(2)
                    171
   134    $PENT     ADDRESS, HEX LOCATION(00000062) IN CSECT(E45E0   ) LENGTH(6)
                     56   172   187   993  1023
    54    $PID      ADDRESS, HEX LOCATION(00000000) IN CSECT(E45E0   ) LENGTH(4)
                    624   847   978
   976    $PRNT     ADDRESS, HEX LOCATION(000006FE) IN CSECT(E45E0   ) LENGTH(4)
                    219   468   654   680   782   786   907   937   957
                    959
   988    $PRN1     ADDRESS, HEX LOCATION(0000072C) IN CSECT(E45E0   ) LENGTH(2)
                    986   992
   987    $PRN2     ADDRESS, HEX LOCATION(00000728) IN CSECT(E45E0   ) LENGTH(4)
                    984
   138    $PUPD     ADDRESS, HEX LOCATION(00000078) IN CSECT(E45E0   ) LENGTH(4)
                    225   275   315   354   448
   170    $PUP8     ADDRESS, HEX LOCATION(000000D8) IN CSECT(E45E0   ) LENGTH(6)
                    140
   154    $RETC     ADDRESS, HEX LOCATION(000000A8) IN CSECT(E45E0   ) LENGTH(2)
                    158
   159    $RETI     ADDRESS, HEX LOCATION(000000B4) IN CSECT(E45E0   ) LENGTH(6)
                    144   155
   153    $RETN     ADDRESS, HEX LOCATION(000000A4) IN CSECT(E45E0   ) LENGTH(4)
                    149
   187    $RTAD     ADDRESS, HEX LOCATION(00000104) IN CSECT(E45E0   ) LENGTH(2)
                    183
    58    $RTNE     ADDRESS, HEX LOCATION(0000000A) IN CSECT(E45E0   ) LENGTH(2)
                    137   170   171   176
   144    $TERM     ADDRESS, HEX LOCATION(00000080) IN CSECT(E45E0   ) LENGTH(6)
                    647   990
   164    $TER1     ADDRESS, HEX LOCATION(000000CC) IN CSECT(E45E0   ) LENGTH(4)
                    159
  1013    ALPHA     ADDRESS, HEX LOCATION(00000754) IN CSECT(E45E0   ) LENGTH(42)
                    236   244   252
  1012    ALPH1     ADDRESS, HEX LOCATION(0000074E) IN CSECT(E45E0   ) LENGTH(6)
                    287   327
   958    CCRTP     ADDRESS, HEX LOCATION(000006F6) IN CSECT(E45E0   ) LENGTH(2)
                    956
    90    CE        ABSOLUTE, HEX VALUE(00000028)
                    458   614   708   780
    38    CICB      ABSOLUTE, HEX VALUE(00000014)
                    837
   881    CMPU      ADDRESS, HEX LOCATION(00000660) IN CSECT(E45E0   ) LENGTH(4)
                    256   305   343
    50    CPUTYPE   ABSOLUTE, HEX VALUE(00000232)
                    306   344   638   983
   488    CRDCB     ADDRESS, HEX LOCATION(00000484) IN CSECT(E45E0   ) LENGTH(1)
                    145   558
    89    CS        ABSOLUTE, HEX VALUE(00000027)
                    457   615   618   706   744   778   948
   936    CSADE     ADDRESS, HEX LOCATION(000006BC) IN CSECT(E45E0   ) LENGTH(1)
                    947
   108    CSBUF     ADDRESS, HEX LOCATION(00000032) IN CSECT(E45E0   ) LENGTH(1)
                    534   631
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CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
526	CSDCB	ADDRESS. HEX LOCATION(000004B4) IN CSECT(E45E0) LENGTH(1) 616
954	CSRTN	ADDRESS. HEX LOCATION(000006EC) IN CSECT(E45E0) LENGTH(1) 781
109	CSTL1	ADDRESS. HEX LOCATION(00000032) IN CSECT(E45E0) LENGTH(2) 944
111	CSTL3	ADDRESS. HEX LOCATION(00000036) IN CSECT(E45E0) LENGTH(2) 462 955
116	CSTL8	ADDRESS. HEX LOCATION(00000040) IN CSECT(E45E0) LENGTH(2) 709 710
462	DCBCK	ADDRESS. HEX LOCATION(0000045A) IN CSECT(E45E0) LENGTH(4) 381 386 391 396 401 406 411 416 421 426 431 437 441 446
451	DCBSU	ADDRESS. HEX LOCATION(0000043E) IN CSECT(E45E0) LENGTH(2) 436 440 445
100	DCBUF	ADDRESS. HEX LOCATION(00000022) IN CSECT(E45E0) LENGTH(2) 626
98	DEV1	ADDRESS. HEX LOCATION(0000001A) IN CSECT(E45E0) LENGTH(2) 178 179 898 906
99	DEV3	ADDRESS. HEX LOCATION(0000001E) IN CSECT(E45E0) LENGTH(2) 180 181 217 218 466 467 754 946
476	DGDCB	ADDRESS. HEX LOCATION(00000474) IN CSECT(E45E0) LENGTH(1) 560
83	ER	ABSOLUTE. HEX VALUE(00000021) 652 712 772 783 890 934 949 958
933	ERCAL	ADDRESS. HEX LOCATION(000006B4) IN CSECT(E45E0) LENGTH(4) 378
931	ERTST	ADDRESS. HEX LOCATION(000006AC) IN CSECT(E45E0) LENGTH(2) 379 384 389 394 399 404 409 414 419 424 429
939	ERTSV	ADDRESS. HEX LOCATION(000006C0) IN CSECT(E45E0) LENGTH(4) 935
948	ERTSX	ADDRESS. HEX LOCATION(000006E4) IN CSECT(E45E0) LENGTH(2) 945
952	ERTSZ	ADDRESS. HEX LOCATION(000006EA) IN CSECT(E45E0) LENGTH(2) 940 944 946
39	EXIT	ABSOLUTE. HEX VALUE(00000006) 759
36	E45E0	CSECT. START(00000000) LENGTH(2116) ESDID(0) 36
91	GI	ABSOLUTE. HEX VALUE(00000029) 742 789
125	H0000	ADDRESS. HEX LOCATION(0000005C) IN CSECT(E45E0) LENGTH(2) 136
126	H0001	ADDRESS. HEX LOCATION(0000005E) IN CSECT(E45E0) LENGTH(2) 170
40	IDLE	ABSOLUTE. HEX VALUE(00000002) 156 311 349 645 988
85	IN	ABSOLUTE. HEX VALUE(00000023) 154 620 635 648 743
805	INTBL	ADDRESS. HEX LOCATION(0000061E) IN CSECT(E45E0) LENGTH(2) 836
703	INTER	ADDRESS. HEX LOCATION(0000057E) IN CSECT(E45E0) LENGTH(2) 807
712	INTET	ADDRESS. HEX LOCATION(00000596) IN CSECT(E45E0) LENGTH(2) 707
737	INTOK	ADDRESS. HEX LOCATION(0000059A) IN CSECT(E45E0) LENGTH(2) 806
759	INTRX	ADDRESS. HEX LOCATION(000005D0) IN CSECT(E45E0) LENGTH(2) 757
743	INTR1	ADDRESS. HEX LOCATION(000005A8) IN CSECT(E45E0) LENGTH(2) 711 713 741
748	INTR2	ADDRESS. HEX LOCATION(000005B6) IN CSECT(E45E0) LENGTH(2) 745
756	INTR3	ADDRESS. HEX LOCATION(000005CA) IN CSECT(E45E0) LENGTH(2) 752
796	IOBLK	ADDRESS. HEX LOCATION(00000612) IN CSECT(E45E0) LENGTH(2) 146 150 162 211 213 637 842
798	IODCB	ADDRESS. HEX LOCATION(00000616) IN CSECT(E45E0) LENGTH(2) 145 160 161 550 552 558 560 616 627 841
797	IOERR	ADDRESS. HEX LOCATION(00000614) IN CSECT(E45E0) LENGTH(2) 134 144 149 159
799	IOMOD	ADDRESS. HEX LOCATION(00000618) IN CSECT(E45E0) LENGTH(2) 148 561 612 617
801	IORSP	ADDRESS. HEX LOCATION(0000061C) IN CSECT(E45E0) LENGTH(2) 215 217 939 940
209	ITST2	ADDRESS. HEX LOCATION(0000012A) IN CSECT(E45E0) LENGTH(6) 223
220	ITST5	ADDRESS. HEX LOCATION(00000158) IN CSECT(E45E0) LENGTH(4) 216
87	LE	ABSOLUTE. HEX VALUE(00000025) 755 770
88	LI	ABSOLUTE. HEX VALUE(00000026) 653
97	LSTIO	ADDRESS. HEX LOCATION(00000018) IN CSECT(E45E0) LENGTH(2) 622 623 625 845 846 848
82	MI	ABSOLUTE. HEX VALUE(00000020) 758 768
61	OPTN1	ADDRESS. HEX LOCATION(0000000E) IN CSECT(E45E0) LENGTH(2) 138 705 739 982
70	OPTN3	ADDRESS. HEX LOCATION(00000012) IN CSECT(E45E0) LENGTH(2) 454 787 840 941 976 981
117	PCTR	ADDRESS. HEX LOCATION(00000042) IN CSECT(E45E0) LENGTH(2) 136 979
92	PE	ABSOLUTE. HEX VALUE(0000002A) 455 774 942
41	PREP	ABSOLUTE. HEX VALUE(0000000C) 163 849
49	PRNTRTN	ABSOLUTE. HEX VALUE(0000181E) 977
522	RDADR	ADDRESS. HEX LOCATION(000004B2) IN CSECT(E45E0) LENGTH(2) 882
521	RDBCT	ADDRESS. HEX LOCATION(000004B0) IN CSECT(E45E0) LENGTH(2) 265 273 883
1021	RDBUF	ADDRESS. HEX LOCATION(000007F4) IN CSECT(E45E0) LENGTH(1) 249 300 338 484 522 554
514	RDDCB	ADDRESS. HEX LOCATION(000004A4) IN CSECT(E45E0) LENGTH(1) 242 552 1002
46	RESET	ABSOLUTE. HEX VALUE(00000008) 147 212

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
42	RICB	ABSOLUTE. HEX VALUE(00000013) 166
47	RID	ABSOLUTE. HEX VALUE(00000009) 214
254	RIPL2	ADDRESS. HEX LOCATION(000001C0) IN CSECT(E45E0) LENGTH(6) 266 268 274
260	RIPL4	ADDRESS. HEX LOCATION(000001DA) IN CSECT(E45E0) LENGTH(6) 258
267	RIPL5	ADDRESS. HEX LOCATION(000001F8) IN CSECT(E45E0) LENGTH(6) 263
269	RIPL6	ADDRESS. HEX LOCATION(00000200) IN CSECT(E45E0) LENGTH(6) 261
275	RIPL7	ADDRESS. HEX LOCATION(0000021C) IN CSECT(E45E0) LENGTH(4) 270
204	RT01	ADDRESS. HEX LOCATION(00000110) IN CSECT(E45E0) LENGTH(4) 188
234	RT02	ADDRESS. HEX LOCATION(00000172) IN CSECT(E45E0) LENGTH(4) 189
284	RT03	ADDRESS. HEX LOCATION(00000220) IN CSECT(E45E0) LENGTH(4) 190
324	RT04	ADDRESS. HEX LOCATION(00000298) IN CSECT(E45E0) LENGTH(4) 191
373	RT05	ADDRESS. HEX LOCATION(00000316) IN CSECT(E45E0) LENGTH(4) 192
1002	SETRD	ADDRESS. HEX LOCATION(0000073E) IN CSECT(E45E0) LENGTH(4) 245 296 336
1004	SETWR	ADDRESS. HEX LOCATION(00000744) IN CSECT(E45E0) LENGTH(4) 240 291 331 375 1003
348	SHDN2	ADDRESS. HEX LOCATION(000002FC) IN CSECT(E45E0) LENGTH(4) 345
349	SHDN3	ADDRESS. HEX LOCATION(00000300) IN CSECT(E45E0) LENGTH(2) 347 350
339	SHDN4	ADDRESS. HEX LOCATION(000002D6) IN CSECT(E45E0) LENGTH(6) 353
310	SHUP2	ADDRESS. HEX LOCATION(00000284) IN CSECT(E45E0) LENGTH(4) 307
311	SHUP3	ADDRESS. HEX LOCATION(00000288) IN CSECT(E45E0) LENGTH(2) 309 312
301	SHUP4	ADDRESS. HEX LOCATION(0000025E) IN CSECT(E45E0) LENGTH(6) 314
44	START	ABSOLUTE. HEX VALUE(0000000A) 152 644
45	TERM	ABSOLUTE. HEX VALUE(00000007) 167
65	TM	ABSOLUTE. HEX VALUE(00000003) 139 646 989
127	TYPE23	ADDRESS. HEX LOCATION(00000060) IN CSECT(E45E0) LENGTH(2) 306 344 638 983
509	WRADR	ADDRESS. HEX LOCATION(000004A2) IN CSECT(E45E0) LENGTH(2) 251 257 259 881
508	WRBCT	ADDRESS. HEX LOCATION(000004A0) IN CSECT(E45E0) LENGTH(2) 206 262 264 269 272 383
1019	WRBUF	ADDRESS. HEX LOCATION(000007A4) IN CSECT(E45E0) LENGTH(1) 237 288 295 328 335 377 509
502	WRCTL	ADDRESS. HEX LOCATION(00000494) IN CSECT(E45E0) LENGTH(2) 205 435 439 443
501	WRDCB	ADDRESS. HEX LOCATION(00000494) IN CSECT(E45E0) LENGTH(1) 550 1004
505	WRHLA	ADDRESS. HEX LOCATION(0000049A) IN CSECT(E45E0) LENGTH(2) 398 403 408 413 418
503	WRPOS	ADDRESS. HEX LOCATION(00000496) IN CSECT(E45E0) LENGTH(2) 254 313 352 388
504	WRPRE	ADDRESS. HEX LOCATION(00000498) IN CSECT(E45E0) LENGTH(2) 254 260 267 271 351 393 434 444
506	WRSHF	ADDRESS. HEX LOCATION(0000049C) IN CSECT(E45E0) LENGTH(2) 423 428 433
86	XE	ABSOLUTE. HEX VALUE(00000024) 451 740 776 931
84	XI	ABSOLUTE. HEX VALUE(00000022) 151 643 756
612	XIO	ADDRESS. HEX LOCATION(000004F6) IN CSECT(E45E0) LENGTH(4) 551 557 559
768	XIOCK	ADDRESS. HEX LOCATION(000005D2) IN CSECT(E45E0) LENGTH(2) 621 636 649
774	XIOCM	ADDRESS. HEX LOCATION(000005DE) IN CSECT(E45E0) LENGTH(2) 771
558	XIOCR	ADDRESS. HEX LOCATION(000004E0) IN CSECT(E45E0) LENGTH(6) 235 285 325 374
616	XIOCS	ADDRESS. HEX LOCATION(00000500) IN CSECT(E45E0) LENGTH(6) 456 785 943
786	XIOCU	ADDRESS. HEX LOCATION(000005FE) IN CSECT(E45E0) LENGTH(4) 773 790
783	XIOCV	ADDRESS. HEX LOCATION(000005F6) IN CSECT(E45E0) LENGTH(2) 779
787	XIOCX	ADDRESS. HEX LOCATION(00000602) IN CSECT(E45E0) LENGTH(4) 784
677	XIOER	ADDRESS. HEX LOCATION(00000572) IN CSECT(E45E0) LENGTH(2) 134 797
789	XIOGI	ADDRESS. HEX LOCATION(0000060A) IN CSECT(E45E0) LENGTH(2) 777
552	XIORD	ADDRESS. HEX LOCATION(000004CC) IN CSECT(E45E0) LENGTH(6) 304 342
772	XIORR	ADDRESS. HEX LOCATION(000005DA) IN CSECT(E45E0) LENGTH(2) 769
550	XIOWR	ADDRESS. HEX LOCATION(000004C4) IN CSECT(E45E0) LENGTH(6) 220 255 302 340 378 453
622	XIO1	ADDRESS. HEX LOCATION(00000514) IN CSECT(E45E0) LENGTH(4) 562 613
635	XIO2	ADDRESS. HEX LOCATION(0000053C) IN CSECT(E45E0) LENGTH(2) 619
642	XIO5	ADDRESS. HEX LOCATION(00000552) IN CSECT(E45E0) LENGTH(2) 639
643	XIO6	ADDRESS. HEX LOCATION(00000554) IN CSECT(E45E0) LENGTH(2) 641
645	XIO8	ADDRESS. HEX LOCATION(00000558) IN CSECT(E45E0) LENGTH(2) 651

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                             3 ************************************************************************
                             4 *                                                                      *
                             5 *                    ***       PREREQUISITES        ***               *
                             6 *                                                                      *
                             7 *                                NONE                                  *
                             8 *                                                                      *
                             9 ************************************************************************
                            10 *                                                                      *
                            11 *                    ***       MODIFICATIONS        ***               *
                            12 *                                                                      *
                            13 *                     IMPROVEMENTS MADE TO RESPONSE TIME               *
                            14 *                                                                      *
                            15 ************************************************************************
                            16 *                                                                      *
                            17 *                    ***     REA'S INCORPORATED     ***               *
                            18 *                                                                      *
                            19 *                                NONE                                  *
                            20 *                                                                      *
                            21 ************************************************************************
                            22 *                                                                      *
                            23 *                    ***    SPECIAL INSTRUCTIONS    ***               *
                            24 *                                                                      *
                            25 *                                NONE                                  *
                            26 *                                                                      *
                            27 ************************************************************************
                            28 *                                                                      *
                            29 *                    ***       E. C. HISTORY        ***               *
                            30 *                                                                      *
                            31 *          DATE 010CT76  DATE 06MAY77  DATE 15SEP77  DATE              *
                            32 *          E.C. 578468   E.C. 578756   E.C. 754882   E.C.              *
                            33 *                                                                      *
                            34 ************************************************************************
 000000                     36 E48E0 START X'0000'
                            37 *          SUPERVISOR EQUATES
 000014                     38 CICB   EQU  20                    CONNECT INTERRUPT CONTROL BLOCK
 000006                     39 EXIT   EQU  6                     EXIT INTERRUPT LEVEL
 000002                     40 IDLE   EQU  2                     SHARE PROGRAM TIME WITH OTHER PGMS
 00000C                     41 PREP   EQU  12                    PREPARE
 000016                     42 REQSD  EQU  22                    REQUEST SUPERVISOR DISK
 000017                     43 RELSD  EQU  23                    RELEASE SUPERVISOR DISK
 000013                     44 RICB   EQU  19                    RELEASE INTERRUPT CONTROL BLOCK
 00000A                     45 START  EQU  10                    START CYCLE STEAL COMMAND
 000007                     46 TERM   EQU  7                     TERMINATE THIS PROGRAM
 000008                     47 RESET  EQU  8                     RESET DEVISE
 000009                     48 RID    EQU  9                     DEVISE READ ID
 000000                     49 REG    EQUR 0                     WORK REGISTER
 00181E                     50 PRNTRTN EQU X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
 000232                     51 CPUTYPE EQU X'0232'               ADDRESS OF PROCESSOR TYPE
                            52 *
                            53 *          PROGRAM HEADING AND CONTROL WORDS
                            54 *
 000000  F4F8F0F0          55 $PID   DC   C'4800'               PROGRAM IDENTIFICATION
 000004  0000              56        DC   XL2'0000'            CURRENT PROGRAM LEVEL
 000006  0066              57        DC   A($PENT)             EXECUTION START ADDRESS
 000008  004C              58        DC   A($DVAD)             DEVISE ADDRESS TABLE POINTER
 00000A  0000              59 $RTNE  DC   A(*-*)               ROUTINE NUMBER BEING RUN
 00000C  0000              60 $CKPT  DC   A(*-*)               LAST CHECK POINT PASSED
 00000E  0000              62 OPTN1  DC   X'0000'              PROGRAM OPTION CONTROL WORD 1
                            63 *
                            64 * BIT FUNCTION                    BIT FUNCTION
                            65 *
 000003                     66 TM     EQU  3                   TERMINATE PROGRAM
 00000E                     67 IND    EQU  14                  INDICATOR
 00000F                     68 DIR    EQU  15                  SEEK DIRECTION INDICATOR
                            69 *
 000010  0000              70 OPTN2  DC   X'0000'              PROGRAM OPTION CONTROL WORD 2
 000012  0000              71 OPTN3  DC   X'0000'              PROGRAM OPTION CONTROL WORD 3
                            72 *
                            73 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                            74 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                            75 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                            76 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                            77 *
                            78 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                            79 *  5  WRONG INTR LEVEL      LE       13  N.U.
                            80 *  6  LOAS INTERRUPT        LI       14  N.U.
                            81 *  7  CS STATUS IN PROGR    CS       15  N.U.
                            82 *                          BIT   HEX
 000020                     83 MI     EQU  32      0       8   MYSTERY INTERRUPT HAPPENED
 000021                     84 ER     EQU  33      1       4   ERROR RECEIVED ON INTERRUPT
 000022                     85 XI     EQU  34      2       2   EXPECTED INTERRUPT CONTROL BIT
 000023                     86 IN     EQU  35      3       1   INTERRUPT RECEIVED CONTROL BIT
 000024                     87 XE     EQU  36      4       8   EXPECTED ERROR RESPONSE
 000025                     88 LE     EQU  37      5       4   INTERRUPT ON WRONG LEVEL ERROR
 000026                     89 LI     EQU  38      6       2   LOST INTERRUPT
 000027                     90 CS     EQU  39      7       1   CYCLE STATUS IN PROGRESS
 000028                     91 CE     EQU  40      8       8   CYCLE STEAL STATUS INERRRUPT ERROR
 000029                     92 GI     EQU  41      9       4   GOOD INTERRUPT RECEIVED (EXPECTED ER)
 00002A                     93 PE     EQU  42      10      2   PROBABLE ERROR EXPECTED
 00002B                     94 NI     EQU  43      11      1   NO INTR. EXPECTED UNPREPED DEV.
 000014  0000              96 $IOIN  DC   A(*-*)               I/O AND INTR CONDITION CODES
 000016  0000              97 $ISB   DC   A(*-*)               R7, INTR STATUS BYTE & DEV ADRS
 000018  0000              98 LSTIO  DC   A(*-*)               ADRS OF LAST I/O + 4 BYTES
 00001A  00000000          99 SCTID  DC   2A(*-*)              DEVICE DEPENDENT DATA
 00001E  0000             100 DEV3   DC   A(*-*)              DEVISE DEPENDENT DATA
 000020  0000             101 DEV4   DC   A(*-*)              DEVISE DEPENDENT DATA
 000022  0000             102 DCBUF  DC   A(*-*)              LAST DCB TABLE, CONTROL WORD
 000024  0000             103 DCB2   DC   A(*-*)              LAST DCB TABLE, DEV DEP WORD
 000026  0000             104 DCB3   DC   A(*-*)              LAST DCB TABLE, DEV DEP WORD
 000028  0000             105 DCB4   DC   A(*-*)              LAST DCB TABLE, DEV DEP WORD
 00002A  0000             106 DCB5   DC   A(*-*)              LAST DCB TABLE, DEV DEP WORD
 00002C  0000             107 DCB6   DC   A(*-*)              LAST DCB TABLE, CHAIN ADRS
 00002E  0000             108 DCB7   DC   A(*-*)              LAST DCB TABLE, BYTE COUNT
 000030  0000             109 DCB8   DC   A(*-*)              LAST DCB TABLE, BUFFER ADDRESS
 000032                    110 CSBUF  EQU  *                   CYCLE STEAL DATA BUFFER
 000032  0000             111 CSTL1  DC   A(*-*)              CYCLE STEAL BUFFER, RESIDUAL ADRS
 000034  0000             112 CSTL2  DC   A(*-*)              CYCLE STEAL WD 2, DEVICE DEPEND
 000036  0000             113 CSTL3  DC   A(*-*)              CYCLE STEAL WD 3, DEVICE DEPEND
 000038  0000             114 CSTL4  DC   A(*-*)              CYCLE STEAL WD 4, DEVICE DEPEND
 00003A  0000             115 CSTL5  DC   A(*-*)              CYCLE STEAL WD 5, DEVICE DEPEND
 00003C  0000             116 CSTL6  DC   A(*-*)              CYCLE STEAL WD 6, DEVICE DEPEND
 00003E  0000             117 CSTL7  DC   A(*-*)              CYCLE STEAL WD 7, DEVICE DEPEND
 000040  0000             118 CSTL8  DC   A(*-*)              CYCLE STEAL WD 8, DEVICE DEPEND
 000042  00000000         119 PCTR   DC   2A(*-*)             PASS COUNTER
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
 000046  00000000         120 ECTR   DC   2A(*-*)             ERROR COUNTER
 00004A  0005             121 ERNUM  DC   X'0005'             ERROR COUNTER
 00004C  0048             122 $DVAD  DC   X'0048'             DEVICE ADDRESS BEING TESTED
 00004E  0000000000000000 123        DC   XL8'00'
 000056  0011             124 $INTL  DC   X'0011'             INTERRUPT LEVEL REQUESTED
 000058  0106             125 $DVID  DC   X'0106'             DEVICE IDENTIFICATION
 00005A  0005             126 $MXSL  DC   A(05)               MAXIMUM SELECTABLE ROUTINES
 00005C  0000             127 H0000  DC   X'0000'             CONSTANT
 00005E  0001             128 H0001  DC   X'0001'             HEX WORD CONSTANT
 000060  2300             129 TYPE23 DC   X'2300'             CONSTANT TO CHECK PROCESSOR AGAINST
 000062  004C             130 SVCAL  DC   A($DVAD)            COUNTROL BLOCK FOR RELEASE AND
 000064  0000             131        DC   X'0000'                    CONNECT OF SYSTEM DISK
                           133 ************************************************************************
                           134 *                                                                      *
                           135 *          PROGRAM CONTROL FUNCTIONS                                   *
                           136 *                                                                      *
                           137 ************************************************************************
 000066  4020 05F8 0556   138 $PENT  MVA  XIOER,IOERR         REINIT ERROR POINTER
 00006C  4020 0056 0011   139        MVWI X'0011',$INTL       INITALIZE THE INTERRUPT LEVEL
 000072  4724 0062        140        MVA  SVCAL,R7            LOAD ADDRESS OF CONTROL BLOCK
 000076  6016             141        SVC  REQSD               ISSUE SVC
 000078  CE25 000A        142 $PETN  MVWZ $RTNE,R6            CLEAR OLD ROUTINE NUMBER
 00007C  A82A 005C 0042   143        AD   H0000,PCTR          ADVANCE PASS COUNTER BY 1
 000082  4424 000E        144 $PUPD  MVA  OPTN1,R4            R4 MUST BE SET TO 'OPTN1'
 000086  4C03             145 $PUP2  TBT  (R4,TM)             IS TERMINATE PGM REQUESTED
 000088  1035             146        JZ   $PUP8               * NO, CONTINUE CHECKING
                           147 *
                           148 *          TERMINATE CONTROL BIT FOUND ON
                           149 *
 00008A  4724 05F6        150 $TERM  MVA  IOBLK,R7            LOAD ADDRESS OF CONTROL BLOCK
 00008E  4020 05F8 00C6   151        MVA  $RETI,IOERR         INIT ERROR RETURN ADDRESS
 000094  6008             152        SVC  RESET               ISSUE SVC
 000096  4624 0160        153        MVWI X'0160',R6          DELAY FOR BUSY AFTER RESET
 00009A  6002             154 $IDL   SVC  IDLE                DELAY
 00009C  BEFE             155        JCT  $IDL,R6             BRANCH FOR COUNT
 00009E  4020 05FA 0428   156        MVA  CLDCB,IODCB         SET POINTER FOR CORRECT DCB
 0000A4  CB25 05FC        157        MVWZ IOMOD,R3            ZERO MODIFIER FIELD
 0000A8  4020 05F8 00B6   158        MVA  $RETN,IOERR         CHANGE ERROR ADDRESS
 0000AE  4724 05F6        159        MVA  IOBLK,R7            LOAD ADDRESS OF CONTROL BLOCK
 0000B2  4C62             160        TBTS (R4,XI)             SET EXPECTED INTERRUPT BIT
 0000B4  600A             161        SVC  START               ISSUE SVC
 0000B6  4524 0000        162 $RETN  MVWI X'0000',R5          INIT R5
 0000BA  4CA3             163 $RETC  TBTR (R4,IN)             HAS INTERRUPT OCCURED
 0000BC  1204             164        JON  $RETI               BRANCH IF YES
 0000BE  6002             165        SVC  IDLE                DELAY
 0000C0  7DA1 0001        166        AWI  1,R5                INCREMENT R5
 0000C4  18FA             167        JNZ  $RETC               BRANCH NOT ZERO
 0000C6  4020 05F8 00DE   168 $RETI  MVA  $TER1,IOERR         CHANGE ERROR ADDRESS
 0000CC  8828 0056 05FA   169        MVW  $INTL,IODCB         LOAD INTERRUPT LEVEL
 0000D2  402D 05FA 0001   170        RBTWI X'0001',IODCB      TURN OFF 'I' BIT
 0000D8  4724 05F6        171        MVA  IOBLK,R7            LOAD ADDRESS OF CONTROL BLOCK
 0000DC  600C             172        SVC  PREP                ISSUE SVC
 0000DE  C720 004C        173 $TER1  MVB  $DVAD,R7            LOAD DEV ADDRESS
 0000E2  7FE4 FF00        174        RBTWI X'FF00',R7         ZERO HIGH ORDER BITS
 0000E6  6013             175        SVC  RICB                ISSUE SVC
 0000E8  CF25 0064        176        MVWZ SVCAL+2,R7          ZERO HEAD LOCATION AT PRESENT
 0000EC  4724 0062        177        MVA  SVCAL,R7            LOAD ADDRESS OF CONTROL BLOCK
 0000F0  6017             178        SVC  RELSD               ISSUE SVC
 0000F2  6007             179        SVC  TERM                ISSUE SVC
                          181 *
 0000F4  A828 005E 000A   182 $PUP8  AW   H0001,$RTNE         ADVANCE ROUTINE NUMBER
 0000FA  882B 005A 000A   183        CW   $MXSL,$RTNE         CHECK FOR LAST AUTOMATIC ROUTINE
 000100  10BB             184        JE   $PETN               * BCH AND START WITH RTN 1
                          185 *
                          186 *          GET RTN NUMBER AND BCH TO THAT RTN
                          187 *
 000102  6E08 000A        188 $PSEL  MVW  $RTNE,R6            MOVE RTN NUMBER IN REG
 000106  CD25 000C        189        MVWZ $CKPT,R5            ZERO CHECKPOINT
 00010A  CD25 001E        190        MVWZ DEV3,R5             ZERO DEV3
 00010E  CD25 0020        191        MVWZ DEV4,R5                     AND DEV4
 000112  3609             192        SLL  1,R6                DOUBLE R6
 000114  CD25 0018        193        MVWZ LSTIO,R5            ZERO LAST IO LOCATION
 000118  68D2 011C        194        B    (R6,$RTAD)*         BCH VIA RTN TABLE
                          195 *
                          196 *          TABLE OF ROUTINE ADDRESSES
                          197 *
 00011C  0066             198 $RTAD  DC   A($PENT)            NO RTN SELECTED
 00011E  0126             199        DC   A(RT01)             ROUTINE ADDRESS
 000120  01AA             200        DC   A(RT02)                    ''
 000122  02C4             201        DC   A(RT03)                    ''
 000124  036C             202        DC   A(RT04)                    ''
                          204 ************************************************************************
                          205 *     CHANNEL INTERFACE TEST                                           *
                          206 *                                                                      *
                          207 *     TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS      *
                          208 *     THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO  *
                          209 *     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS  *
                          210 *     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS       *
                          211 *     EXCEPT LEVEL THREE.                                              *
                          212 ************************************************************************
 000126  6E03 060A        213 RT01   BAL  $CONR,R6            CONNECT INTERRUPTS TO THIS DEV
 00012A  4724 05F6        214        MVA  IOBLK,R7            LOAD ADDRESS OF CONTROL BLOCK
 00012E  6008             215        SVC  RESET               ISSUE SVC
 000130  CB25 0232 0060   216        CB   CPUTYPE,TYPE23      CHECK FOR PROCESSOR 23
 000136  1803             217        JNE  ITST6               BRANCH NOT EQUAL
 000138  4024 008C        218        MVWI X'008C',R0          LOAD LOOP COUNT
 00013C  5002             219        J    ITST4               BRANCH
 00013E  4024 0160        220 ITST6  MVWI X'0160',R0          LOAD LOOP COUNT
 000142  6002             221 ITST4  SVC  IDLE                * RESET
 000144  B8FE             222        JCT  ITST4,R0            DELAY THRU REGISTER COUNT
 000146  4724 05F6        223        MVA  IOBLK,R7            LOAD ADDRESS OF CONTROL BLOCK
 00014A  6009             224        SVC  RID                 ISSUE SVC
 00014C  882B 0058 0600   225        CW   $DVID,IORSP         CHECK DEVICE ID
 000152  1008             226        JE   ITST2               BRANCH IF OK
 000154  8828 0058 0020   227        MVW  $DVID,DEV4          STORE EXPECTED ID IN DEV4
 00015A  8828 0600 001E   228        MVW  IORSP,DEV3          STORE RECEIVED ID IN DEV3
 000160  6802 0684        229        B    $PRNT               BRANCH TO PRINT ERROR
 000164  4020 0458 0005   230 ITST2  MVWI 5,SKDCB             SET UP CONTROL WORD FOR TESTING
 00016A  4020 045A 0000   231        MVWI 0,SKDCB+2           SET UP SEEK NO DIFFERENCE (NO-OP)
 000170  4020 0460 0000   232        MVWI 0,SKDCB+8           SET UP HEAD SELECT OF ZERO
 000176  4020 0056 FFF1   233        MVWI X'FFF1',$INTL       SET UP INTERRUPT LEVEL FOR PREP
 00017C  4029 0056 0010   234 ITST1  AWI  X'10',$INTL         ADVANCE INTERRUPT LEVEL FOR TEST
 000182  6E03 0618        235        BAL  $CONP,R6            CONNECT DEV CNTL BLOCK AND PREP DEV
 000186  6E03 049A        236 ITST3  BAL  $SEEK,R6            EXEC NO-OP TO GET AN INTR
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00018A  4029 000C 0001      237        AWI   1,$CKPT                 ADV CHECKPOINT COUNTER
000190  402F 0056 0021      238 ITST5  CWI   X'21',$INTL              HAS INTR LEVEL COME DOWN TO 2
000196  18F2                239        JNE   ITST1                   * NO, BCH AND CONTINUE TEST
000198  4020 0056 0011      240        MVWI  X'0011',$INTL           RESTORE CORRECT INTERRUPT LEVEL
00019E  6E03 0618           241        BAL   $CONP,R6                PREPARE ON CORRECT LEVEL
0001A2  6E03 04A2           242        BAL   $RECL,R6                RECALIBRATE TO SET UP FOR RTN TWO
0001A6  6802 0082           243        B     $PUPD                   BRANCH TO CONTINUE
                            245 ********************************************************************
                            246 *     OVERALL EXERCISOR TEST                                       *
                            247 *     VERIFY THE FOLLOWING:                                        *
                            248 *     1. SEEK AND READ SECTOR ID FOR HEAD SELECT 0 AND 1 THEN VERIFY   *
                            249 *                                                                  *
                            250 *     PERFORM-THE FOLLOWING:                                       *
                            251 *     1. PREPARE TO INTERRUPT LEVEL 'X'.                           *
                            252 *     2. VERIFY TRACK EQUALS ZERO.                                 *
                            253 *     3.SEEK TO CYLINDERS 1,2,3,74,75 AND 76.                      *
                            254 ********************************************************************
0001AA  6E03 0614           255 RT02   BAL   $CONC,R6                PREPARE DEVISE ON CORRECT LEVEL
0001AE  4020 0458 0005      256        MVWI  X'0005',SKDCB           SEEK CONTROL WORD - NO CHAINING
0001B4  4020 045A 0000      257        MVWI  0,SKDCB+2               DIR AND DIFF
0001BA  6E03 049A           258        BAL   $SEEK,R6                SEEK
0001BE  4020 0448 200A      259        MVWI  X'200A',RSDCB           RD SECTOR ID CNTL WD - NO CHAINING
0001C4  4029 000C 0001      260        AWI   1,$CKPT                 INCREMENT CHECKPOINT
0001CA  6E03 04AA           261        BAL   $RDID,R6                READ SECTOR ID
0001CE  802B 0422 001B      262        CB    ZERO,SCTID+1            CHECK IF TRACK ZERO
0001D4  6801 0684           263        BNE   $PRNT                   BCH IF TRACK NOT ZERO-RECAL FAILURE
0001D8  4020 041C 004C      264        MVWI  76,DIFF                 LOAD 76 IN DIFFERENCE WORD
0001DE  4020 041E 0000      265        MVWI  0,XXX                   ZERO LOC XXX
0001E4  4C8F                266        TBTR  (R4,DIR)                CLEAR SEEK DIRECTION INDICATOR
0001E6  4029 000C 0001      267        AWI   1,$CKPT                 INCREMENT CHECKPOINT
0001EC  4CCF                268 LOOP   TBTV  (R4,DIR)                TEST AND INVERT DIRECTION BIT
0001EE  120D                269        JON   SKREV                   BCH NEG - BCH IF REV BIT ON
0001F0  CE25 045A           270        MVWZ  SKDCB+2,R6              D=0=FORWARD; PLUS DIFFERENCE
0001F4  8028 0422 0460      271        MVB   ZERO,SKDCB+8            HEAD=0
0001FA  C220 041F           272        MVB   XXX+1,R2                MOVE CONTENTS OF 'XXX' IN R2
0001FE  C226 041D           273        AB    DIFF+1,R2               SEEK DIFFERENCE PLUS 'XXX'
000202  A828 0424 041E      274        AW    ONE,XXX                 ONE PLUS 'XXX'
000208  5005                275        J     GO                      BRANCH
00020A  8028 0426 045A      276 SKREV  MVB   REVR,SKDCB+2            H=0,D=REV
000210  C220 041F           277        MVB   XXX+1,R2                LOAD CONTENTS OF XXX
000214  4020 0458 0005      278 GO     MVWI  X'0005',SKDCB           SEEK CONTROL WD - NO CHAINING
00021A  8028 041D 045B      279        MVB   DIFF+1,SKDCB+3          SETUP SEEK DIFFERENCE
000220  6E03 049A           280        BAL   $SEEK,R6                SEEK
000224  4020 0448 200A      281        MVWI  X'200A',RSDCB           READ SECTOR ID CNTL WD-NO CHAINING
00022A  6E03 04AA           282        BAL   $RDID,R6                READ SECTOR ID
00022E  C224 001B           283        CB    SCTID+1,R2              COMPARE CYLINDER NUMBER TO CAL NUM
000232  1833                284        JNE   RTY33                   SECTOR ID DOES NOT MATCH,SEEK ERROR
000234  4020 0458 0005      285        MVWI  X'0005',SKDCB           SEEK CONTROL WORD-NO CHAINING
00023A  4020 0460 0100      286        MVWI  X'0100',SKDCB+8         HEAD=1
000240  8828 0422 045A      287        MVW   ZERO,SKDCB+2            D=0=FORWARD; PLUS DIFFERENCE
000246  6E03 049A           288        BAL   $SEEK,R6                SEEK
00024A  4020 045A 0000      289        MVWI  0,SKDCB+2               D=0=FORWARD; PLUS DIFFERENCE
000250  4020 0448 200A      290        MVWI  X'200A',RSDCB           READ SECTOR CNTL WORD - NO CHAINING
000256  6E03 04AA           291        BAL   $RDID,R6                READ SECTOR ID
00025A  802B 0425 001C      292        CB    ONE+1,SCTID+2           CHECK FOR VALIDITY
000260  6801 02A2           293        BNE   RT021                   BRANCH - READ SECTOR ID FAILED
000264                      294 L1     EQU   *
000264  4020 0458 0005      295        MVWI  X'0005',SKDCB           CONTROL WORD - NO CHAINING
00026A  4020 0460 0000      296        MVWI  0,SKDCB+8               HEAD  0,NO DIFFERENCE (NOOP)
000270  6E03 049A           297        BAL   $SEEK,R6                SEEK
000274  4020 0448 200A      298        MVWI  X'200A',RSDCB           CONTROL WORD- NO CHAINING
00027A  6E03 04AA           299        BAL   $RDID,R6                READ SECTOR ID
                            300 *                                     TO INSURE HEAD SELECT IF FUNCTIONING
00027E  802B 0422 001C      301        CB    ZERO,SCTID+2            CK FOR HEAD SELECT ZERO
000284  6801 02AC           302        BNE   RT022                   HEAD SELECT ERROR
000288  A829 0424 041C      303        SW    ONE,DIFF                SEEK DIFFERENCE - ONE
00028E  882B 0420 041C      304        CW    ENDEX,DIFF              CHECK FOR END OF TEST
000294  1010                305        JE    FINIS                   BRANCH IF SO
000296  6802 01EC           306        B     LOOP                    BRANCH
00029A  6A0D 0020           307 RTY33  MVW   R2,DEV4                 SETUP EXPECTED VALUE FOR PRINT OUT
00029E  6802 0684           308        B     $PRNT                   BRANCH TO PRINT ERROR
0002A2  8828 0424 001E      309 RT021  MVW   ONE,DEV3                SETUP EXPECTED VALUE
0002A8  6802 0684           310        B     $PRNT                   BRANCH TO PRINT ERROR
0002AC  8828 0422 001E      311 RT022  MVW   ZERO,DEV3               SETUP EXPECTED VALUE
0002B2  6802 0684           312        B     $PRNT                   BRANCH TO PRINT ERROR
0002B6  4029 000C 0001      313 FINIS  AWI   1,$CKPT                 INCREMENT CKECKPOINT
0002BC  6E03 04A2           314        BAL   $RECL,R6                RECALIBRATE DISK FOR RTN THREE
0002C0  6802 0082           315        B     $PUPD                   BRANCH TO CONTINUE
                            317 ********************************************************************
                            318 *     SEEK AND CHAINING TEST                                       *
                            319 *     VERIFY THE FOLLOWING:                                        *
                            320 *     1. SEEK AND VERIFY SECTOR ID FOR ALL TRACKS.                 *
                            321 *                                                                  *
                            322 *     PERFORM THE FOLLOWING:                                       *
                            323 *     1 PREPARE TO INTERRUPT LEVEL 'X'.                            *
                            324 *     2. SEEK VERIFY TRACK EQUALS ZERO.                            *
                            325 *     3. SEEK TO CYLINDERS 76,1,75,2,74 ETC.                       *
                            326 *     4. READ SECTOR ID AND VERIFY THAT SEEK WAS PERFORMED CORRECTLY. *
                            327 ********************************************************************
0002C4  6E03 0614           328 RT03   BAL   $CONC,R6                PREPARE DEVISE OF CORRECT LEVEL
0002C8  4020 0458 8005      329        MVWI  X'8005',SKDCB           SEEK CONTROL WORD- CHANING
0002CE  4020 045A 0000      330        MVWI  0,SKDCB+2               HEAD SELECT ,DIR AND DIFF
0002D4  4020 0462 0448      331        MVA   RSDCB,SKDCB+10          RD SECT ID CHANING ADDR
0002DA  4020 001A FFFF      332        MVWI  X'FFFF',SCTID           INVALIDATE SEARCH ARGUMENT
0002E0  4020 001C FFFF      333        MVWI  X'FFFF',SCTID+2         INVALIDATE SEARCH ARGUMENT
0002E6  4020 0448 200A      334        MVWI  X'200A',RSDCB           RD SECTOR ID CNTL WD - NO CHAINING
0002EC  6E03 049A           335        BAL   $SEEK,R6                SEEK
0002F0  802B 0422 001B      336        CB    ZERO,SCTID+1            CHECK IF TRACK ZERO
0002F6  6801 0684           337        BNE   $PRNT                   BCH IF TRACK NOT ZERO-RECAL FAILURE
0002FA  4020 041C 004C      338        MVWI  76,DIFF                 LOAD 76 IN DIFFERENCE WORD
000300  4020 041E 0000      339        MVWI  0,XXX                   ZERO LOC XXX
000306  4C8F                340        TBTR  (R4,DIR)                CLEAR SEEK DIRECTION INDICATOR
000308  4029 000C 0001      341        AWI   1,$CKPT                 INCREMENT CHECKPOINT
00030E  4CCF                342 LOOP1  TBTV  (R4,DIR)                TEST AND INVERT DIRECTION BIT
000310  120E                343        JON   SKRV                    BCH NEG - BCH IF REV BIT ON
000312  8028 0422 0460      344        MVB   ZERO,SKDCB+8            HEAD SELECT = 0
000318  8028 0422 045A      345        MVB   ZERO,SKDCB+2            D=0=FORWARD; PLUS DIFFERENCE
00031E  C220 041F           346        MVB   XXX+1,R2                MOVE CONTENTS OF 'XXX' IN R2
000322  C226 041D           347        AB    DIFF+1,R2               SEEK DIFFERENCE PLUS 'XXX'
000326  A828 0424 041E      348        AW    ONE,XXX                 ONE PLUS 'XXX'
00032C  5005                349        J     GO1                     BRANCH
00032E  8028 0426 045A      350 SKRV   MVB   REVR,SKDCB+2            H=0,D=REV
000334  C220 041F           351        MVB   XXX+1,R2                LOAD R2 WITH CALCULATED NUM
000338  4020 0458 8005      352 GO1    MVWI  X'8005',SKDCB           SEEK CONTROL WD - CHANING
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00033E  8028 041D 045B      353        MVB   DIFF+1,SKDCB+3          SETUP SEEK DIFFERENCE
000344  6E03 049A           354 RT201  BAL   $SEEK,R6                SEEK
000348  C224 001B           355        CB    SCTID+1,R2              COMPARE CYLINDER NUMBER TO CAL NUM
00034C  1809                356        JNE   RTY23                   SECTOR ID DOES NOT MATCH,SEEK ERROR
00034E  A829 0424 041C      357        SW    ONE,DIFF                SEEK DIFFERENCE - ONE
000354  882B 0420 0000      358        CW    0,DIFF                  CHECK FOR END OF TEST
00035A  6800 0368           359        BE    FINS                    BRANCH IF ENDUTINE
00035E  50D7                360        J     LOOP1                   BRANCH
000360  6A0D 0020           361 RTY23  MVW   R2,DEV4                 SETUP EXPECTED VALUE
000364  6802 0684           362        B     $PRNT                   BRANCH TO PRINT ERROR
000368  6802 0082           363 FINS   B     $PUPD                   BRANCH TO CONTINUE
                            365 ********************************************************************
                            366 *     ERROR TEST                                                   *
                            367 *     THIS ROUTINE WILL FORCE ERRORS THAT THE ATTACHMENT WILL REJECT, *
                            368 *     AND THE PROPER RESPONSE WILL BE CHECKED.                     *
                            369 *     THE FOLLOWING ERRORS ARE FORCED:                             *
                            370 *                                                                  *
                            371 *     1.    INVALID COMMAND                                        *
                            372 *     2.    INVALID FORMAT (N)                                     *
                            373 *     3.    INVALID CYLINDER (FORMAT OP)                           *
                            374 *     4.    ODD BYTE COUNT                                         *
                            375 *     5.    INVALID BYTE COUNT (READ SECTOR ID)                    *
                            376 *     6.    ODD DATA ADDRESS                                       *
                            377 ********************************************************************
0003EC  6E03 0614           378 RT04   BAL   $CONC,R6                PREPARE DEVISE ON CORRECT LEVEL
0003F0  4020 0478 2003      379        MVWI  X'2003',RDDCB           INVALID COMMAND
0003F6  4020 064E 04BE      380        MVA   $RD,ERCAL+2             USE SPECIAL XIO ROUTINE
0003FC  6A03 0644           381        BAL   ERTST,R2                BRANCH TO ISSUE ERROR
000400  0007                382        DC    A(7)                    DISP TO ERROR IN  DCB
000402  4020 0478 2009      383        MVWI  X'2009',RDDCB           READ CONTROL WORD
000408  4020 047E 404C      384        MVWI  X'404C',RDDCB+6         SETUP INVALID FORMAT (N=4)
00040E  4020 0484 0002      385        MVWI  X'0002',RDDCB+12        SETUP VALID BYTE COUNT
000414  4020 064E 04BE      386        MVA   $RD,ERCAL+2             USE SPECIAL XIO ROUTINE
00041A  6A03 0644           387        BAL   ERTST,R2                BRANCH TO ISSUE ERROR
000420  0007                388        DC    A(7)                    DISP OF ERROR ADDRESS
000422  4020 043E 104D      389        MVWI  X'104D',FRDCB+6         SETUP INVALID CYL NUM
000428  4020 064E 04D2      390        MVA   $FMT,ERCAL+2            USE SPECIAL XIO ROUTINE
00042E  6A03 0644           391        BAL   ERTST,R2                BRANCH TO ISSUE ERROR
000432  0007                392        DC    A(7)                    DISP OF ERROR ADDRESS
000434  4020 0478 200S      393        MVWI  X'2009',RDDCB           READ CONTROL WORD
00043A  4020 0482 0000      394        MVWI  X'0000',RDDCB+10        RESTORE VALID CHAINING ADDRESS
000440  4020 047E 0000      395        MVWI  X'0000',RDDCB+6         RESTORE VALID FORMAT (N)
000446  4020 0484 0003      396        MVWI  X'0003',RDDCB+12        SETUP INVALID BYTE COUNT
00044C  4020 064E 04BE      397        MVA   $RD,ERCAL+2             USE SPECIAL XIO ROUTINE
000452  6A03 0644           398        BAL   ERTST,R2                BRANCH TO ISSUE ERROR
000456  000D                399        DC    A(13)                   DISP OF ERROR ADDRESS
000458  4020 0448 200A      400        MVWI  X'200A',RSDCB           READ SECTOR ID CONTROL WORD
00045E  4020 0454 0006      401        MVWI  X'0006',RSDCB+12        SETUP INVALID BYTE COUNT
000464  4020 064E 04AA      402        MVA   $RDID,ERCAL+2           USE SPECIAL XIO ROUTINE
00046A  6A03 0644           403        BAL   ERTST,R2                BRANCH TO ISSUE ERROR
000470  000D                404        DC    A(13)                   DISP OF ERROR ADDRESS
000472  4020 0454 0004      405        MVWI  X'0004',RSDCB+12        RESTORE VALID BYTE COUNT
000478  4020 0478 2009      406        MVWI  X'2009',RDDCB           READ CONTROL WORD
00047E  4020 0484 0000      407        MVWI  X'0000',RDDCB+12        RESTORE VALID BYTE COUNT
000484  4020 0486 0009      408        MVWI  X'0009',RDDCB+14        SETUP INVALID DATA ADDRESS
00048A  4020 064E 04BE      409        MVA   $RD,ERCAL+2             USE SPECIAL XIO ROUTINE
000490  6A03 0644           410        BAL   ERTST,R2                BRANCH TO ISSUE ERROR
000494  0005                411        DC    A(15)                   DISP OF ERROR ADDRESS
000496  4020 0486 06C4      412        MVA   RDBUF,RDDCB+14          RESTORE VALID DATA ADDRESS
00049C  6802 0082           413        B     $PUPD                   BRANCH TO CONTINUE
                            415 *                  COMMON EQUATES FOR ROUTINES
0004A0  0000                416 DIFF   DC    X'0000'                 SEEK DIFFERENCE
0004A2  0000                417 XXX    DC    X'0000'                 WORK WORD INT TO ZERO
0004A4  0046                418 ENDEX  DC    X'0046'                 TERMINATING SEEK DIFFERENCE
0004A6  0000                419 ZERO   DC    X'0000'                 CONSTANT ZERO
0004A8  0001                420 ONE    DC    X'0001'                 CONSTANT ONE
0004AA  0800                421 REVR   DC    X'0800'                 SEEK REVERSE
                            423 ********************************************************************
                            424 *                                                                  *
                            425 *     DCB TABLES                                                   *
                            426 *                                                                  *
                            427 ********************************************************************
                            428 *
                            429 ***** RECALIBRATE DCB  ********
                            430 *
0004AC  0007                431 CLDCB  DC    X'0007'                 RECALIBRATE DCB
0004AE  00000000000000000   432        DC    7A(*-*)
                            433 *
                            434 ***** FORMAT DCB  *******
                            435 *
0004C0  0002                436 FRDCB  DC    X'0002'                 FORMAT CONTROL WORD
0004C2  0000                437        DC    X'0000'                 NOT USED
0004C4  0000                438        DC    A(*-*)                  FORMAT DATA WORD
0004C6  0001                439        DC    A(*-*)                  N - C BYTES
0004C8  0001                440        DC    X'0001'                 H - R BYTES
0004CA  0000                441        DC    A(*-*)                  CHAIN ADDRESS
0004CC  0000                442        DC    F'0'                    NOT USED
0004CE  0000                443        DC    F'0'                    NOT USED
                            444 *
                            445 ***** READ SECTOR ID DCB  *******
                            446 *
0004D0  200A                447 RSDCB  DC    X'200A'                 READ SECTOR ID
0004D2  0000                448        DC    X'0000'                 NOT USED
0004D4  0000                449        DC    X'0000'                 NOT USED
0004D6  0000                450        DC    X'0000'                 NOT USED
0004D8  0000                451        DC    X'0000'                 NOT USED
0004DA  0000                452        DC    X'0000'                 CHAIN ADDRESS
0004DC  0004                453        DC    X'0004'                 BYTE COUNT FOR READ SECTOR ID
0004DE  001A                454        DC    A(SCTID)                SECTOR ID DATA ADDRESS
                            455 *
                            456 ***** SEEK DCB  ********
                            457 *
0004E0  0005                458 SKDCB  DC    X'0005'                 SEEK DCB
0004E2  0000                459        DC    X'0000'                 BIT 3=HEAD;BIT 4=DIRECTION;8-15=DIFF
0004E4  0000                460        DC    F'0'                    NOT USED
0004E6  0000                461        DC    F'0'                    NOT USED
0004E8  0000                462        DC    F'0'                    NOT USED
0004EA  0000                463        DC    F'0'                    NOT USED
0004EC  0000                464        DC    F'0'                    BYTE COUNT
0004EE  0000                465        DC    F'0'                    ADDRESS
                            467 *
                            468 ***** CYCLE STEAL STATUS DCB  ********
                            469 *
0004F0  2000                470 CSDCB  DC    X'2000'                 CONTROL WORD
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                              COPYRIGHT IBM CORP 1976
000468  0000               471        DC    F'0'                 NOT USED
00046C  0000               472        DC    F'0'                 NOT USED
00046E  0000               473        DC    F'0'                 NOT USED
000470  0000               474        DC    F'0'                 NOT USED
000472  0000               475        DC    F'0'                 NOT USED
000474  0004               476        DC    X'0004'              2 WORDS OF STATS
000476  0032               477        DC    A(CSBUF)             ADDRESS OF CYCLE STEAL STATUS DATA
                           478 *
                           479 ***** READ DCB   *******
                           480 *
000478  2009               481 RDDCB  DC    X'2009'              READ DCB CONTROL WORD
00047A  0000               482        DC    F'0'                 NOT USED
00047C  0000               483        DC    F'0'                 NOT USED
00047E  0000               484        DC    X'0000'              SEARCH ARGUMENT N-C
000480  0101               485        DC    X'0101'              SEARCH ARGUMENT H-R
000482  0000               486        DC    A(*-*)               CHAIN ADDRESS
000484  0010               487        DC    A(16)                BYTE COUNT
000486  06C4               488        DC    A(RDBUF)             READ DATA ADDRESS
                           489 *
000488  6D08 0034          491 CSRTN  MVW   CSTL2,R5              LOAD SECOND WORD OF CS DATA
00048C  1002               492        JZ    CCRTP                BRANCH IF ZERO
00048E  6802 0684          493        B     $PRNT                BRANCH TO PRINT ERROR
000492  4C21               494 CCRTP  TBT   (R4,ER)             IS ERROR BIT ON
000494  6A00 0684          495        BON   $PRNT                BRANCH TO PRINT IF YES
000498  5600               496        BXS   (R6)                 RETURN
                           498 ************************************************************************
                           499 *     EXECUTE INPUT & OUTPUT COMMANDS                                  *
                           500 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.                 *
                           501 *     EACH OF THESE ENTRIES SET R7 WITH THE ADRS OF ITS PARAMETER      *
                           502 *     LIST AND ANY SPECIAL SWITCHES BEFORE BRANCHING TO THE            *
                           503 *     SUPVR CALL.                                                      *
                           504 *                                                                      *
                           505 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                          *
                           506 *                                                                      *
                           507 * 1   BAL   $SEEK,R6               SEEK                             *
                           508 * 2   BAL   $RECL,R6               RECALIBRATE                      *
                           509 * 3   BAL   $RDID,R6               READ SECTOR ID                   *
                           510 * 4   BAL   $RD,R6                 READ                             *
                           511 * 5   BAL   $FMT,R6                FORMAT                           *
                           512 ************************************************************************
00049A  4020 05FA 0458     513 $SEEK  MVA   SKDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
0004A0  501C               514        J     XIO                  BRANCH
0004A2  4020 05FA 0428     515 $RECL  MVA   CLDCB,IODCB           SET UP BLOCK FOR SVC CALL
0004A8  5018               516        J     XIO                  BRANCH
0004AA  4020 05FA 0448     517 $RDID  MVA   RSDCB,IODCB           SET UP BLOCK FOR SVC CALL
0004B0  4020 001A FFFF     518        MVWI  X'FFFF',SCTID          INVALIDATE SECTOR ID BUFFER AREA
0004B6  4020 001C FFFF     519        MVWI  X'FFFF',SCTID+2        "  "  "  "
0004BC  500E               520        J     XIO                  BRANCH
0004BE  4020 05FA 0478     521 $RD    MVA   RDDCB,IODCB           SET UP BLOCK FOR SVC CALL
0004C4  0BFF               522        MVBI  255,R3               INIT READ BUFFER TO FF'S
0004C6  4524 06C4          523        MVA   RDBUF,R5             *   "
0004CA  4724 0010          524        MVWI  16,R7                *   "
0004CE  2BAC               525        FFN   R3,(R5)              *   "
0004D0  5004               526        J     XIO                  BRANCH
0004D2  4020 05FA 0438     527 $FMT   MVA   FRDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
0004D8  5000               528        J     XIO                  BRANCH
                           530 ************************************************************************
                           531 *                                                                      *
                           532 * SOUBROUTINE                                                         *
                           533 *                                                                      *
                           534 *     EXECUTE INPUT AND OUTPUT COMMANDS                                *
                           535 *                                                                      *
                           536 * PURPOSE                                                             *
                           537 *                                                                      *
                           538 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.                 *
                           539 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:                 *
                           540 *                                                                      *
                           541 *     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED  *
                           542 *        THE I/O COMMAND.                                              *
                           543 *     2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS     *
                           544 *        ISSUED BY THIS SUBROUTINE.                                    *
                           545 *     3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE           *
                           546 *        START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.             *
                           547 *     4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT   *
                           548 *        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,  *
                           549 *        MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.                    *
                           550 *     5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE     *
                           551 *        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'.    *
                           552 *     6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING  *
                           553 *        STARTS TO DETERMINE A LOST INTERRUPT.                         *
                           554 *     7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF   *
                           555 *        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.        *
                           556 *     8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.                   *
                           557 *     9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.       *
                           558 *    10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.         *
                           559 *    11. CHECK IF A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS     *
                           560 *        ISSUED BY THIS SUBROUTINE.                                    *
                           561 *    12. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A       *
                           562 *        CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON, *
                           563 *        COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.   *
                           564 *                                                                      *
                           565 * CALLING SEQUENCE                                                    *
                           566 *                                                                      *
                           567 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                          *
                           568 *                                                                      *
                           569 * --> B     XIO                      XEQ ANY CYCLE STEAL COMMAND, MOD=0 *
                           570 * --> BAL   XIOCS,R6                 XEQ START CYCLE STEAL STATUS, MOD=F *
                           571 *                                                                      *
                           572 * RETURN CONTROL                                                      *
                           573 *                                                                      *
                           574 *     BXS   (R6)                     RETURN TO USER NO ERROR          *
                           575 ************************************************************************
0004DA  CB25 05FC          577 XIO    MVWZ  IOMOD,R3               SET MOF OF 0 FOR CYCLE STEAL OP
0004DE  500C               578        J     XIO1                 BRANCH
0004E0  4CA8               579        TBTR  (R4,CE)              RESET CS STATUS INTER ERROR INDICAT.
0004E2  4C67               580        TBTS  (R4,CS)              SET 'CYCLE STEAL STATUS'  IN PROGRESS
0004E4  4020 05FA 0468     581 XIOCS  MVA   CSDCB,IODCB          SET UP CONTROL BLOCK FOR  SVC CALL
0004EA  4020 05FC 000F     582        MVWI  X'000F',IOMOD          SET CYCLE STEAL MODIFIER
0004F0  4C27               583        TBT   (R4,CS)              IS CS IN PROGRESS, ERROR CONDITION
0004F2  1216               584        JON   XIO2                 * YES, BYPASS SAVING I/O ADRS
0004F4  4CA3               585        TBTR  (R4,IN)              HAS INTERRUPT OCCURED
0004F6  125F               586        JON   XIOCK                BRANCH YES
0004F8  6E0D 0018          587 XIO1   MVW   R6,LSTIO             SAVE IAR
0004FC  402E 0018 0004     588        SWI   4,LSTIO              DECREMENT TO LOCATE INSTRUCTION
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                              COPYRIGHT IBM CORP 1976
000502  4324 0000          589        MVA   $PID,R3               LOAD PROG START ADDRESS
000506  CB2F 0018          590        SU    R3,LSTIO             SUB TO OBTAIN LISTING ADDRESS
00050A  4524 0022          591        MVA   DCBUF,R3             SET UP TO ADRS TO HOVE DCB TABLE
00050E  6D08 05FA          592        MVU   IODCB,R5             * AND THE FROH ADRS, ALONG WITH
000512  0F10               593        MVBI  16,R7                * THE NUHBER OF HOVES
000514  2D64               594        MVFW  (R5),(R3)            HOVE DCB TABLE
000516  0BFF               595        MVBI  255,R3               CLEAR CYCLE STATUS BUFFER
000518  4524 0032          596        MVA   CSBUF,R5             *  TO ALL ONES  *
00051C  0F10               597        MVBI  16,R7                *
00051E  2BAC               598        FFN   R3,(R5)              *
                           599 *
000520  4CA3               600 XIO2   TBTR  (R4,IN)              CLEAR INTERRUPT RECEIVED CNTL BIT
000522  1249               601        JON   XIOCK                BRANCH IF ON
000524  4724 05F6          602        MVA   IOBLK,R7             SET UP CONTROL BLOCK FOR SUPVR
000528  802B 0232 0060     603        CB    CPUTYPE,TYPE23       CHECK FOR PROCESSOR 23
00052E  1803               604        JNE   XIO5                 BRANCH NOT EQUAL
000530  4524 C000          605        MVUI  X'C000',R5           LOAD LOOP COUNT
000534  5001               606        J     XIO6                 BRANCH
000536  75AA               607 XIO5   SW    R5,R5                LOAD LOOP COUNT
000538  4C62               608 XIO6   TBTS  (R4,XI)              SET EXPECTED INTR CONTROL BIT
00053A  600A               609        SVC   START                CALL SUPVR FOR I/O COMMAND
00053C  6002               610 XIO8   SVC   IDLE                 ALLOW OTHER PROG TIME
00053E  4C03               611        TBT   (R4,TM)              IS TERMINATE BIT ON
000540  6A00 008A          612        BON   $TERM                BRANCH IF ON
000544  4CA3               613        TBTR  (R4,IN)              HAS INTERRUPT BEEN RECEIVED
000546  1237               614        JON   XIOCK                * YES, CHECK IF ALL WAS SATISFACTORY
000548  7DA1 0001          615        AWI   1,R5                 ADVANCE TIME OUT COUNT
00054C  18F7               616        JNZ   XIO8                 BCH IF TIME OUT NOT REACHED
00054E  4C61               617        TBTS  (R4,ER)              SET ON ERROR CONTROL BIT
000550  4C66               618        TBTS  (R4,LI)              SET ON LOST INTERRUPT CONTROL BIT
000552  6802 0684          619        B     $PRNT                BRANCH TO PRINT ERROR
                           621 ************************************************************************
                           622 *                                                                      *
                           623 * SUBROUTINE                                                          *
                           624 *                                                                      *
                           625 *     I/O EXECUTE ERROR HANDLING ROUTINE                               *
                           626 *                                                                      *
                           627 * PURPOSE                                                             *
                           628 *                                                                      *
                           629 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE      *
                           630 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE    *
                           631 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                              *
                           632 *                                                                      *
                           633 * CALLING SEQUENCE                                                    *
                           634 *                                                                      *
                           635 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND           *
                           636 *                                                                      *
                           637 * RETURN CONTROL                                                      *
                           638 *                                                                      *
                           639 *     B     $PRNT                    DUMP STATUS BEFORE TERMINATION    *
                           640 *                                                                      *
                           641 ************************************************************************
000556  706E               642 XIOER  CPLSR R3                    SAVE CONDITION CODE ON I/O ERROR
000558  336A               643        SRL   13,R3                 POSITION CC CODE TO BITS 13-15
00055A  C328 0014          644        MVB   R3,$IOIN              * PUT IN LOG OUT AREA
00055E  6802 0684          645        B     $PRNT                BRANCH TO PRINT ERROR
                           647 ************************************************************************
                           648 *                                                                      *
                           649 * SOUBROUTINE                                                         *
                           650 *                                                                      *
                           651 *     ERROR INTERRUPT              RUNS ON INTERRUPT LEVEL '$INTL'     *
                           652 *                                                                      *
                           653 * PURPOSE                                                             *
                           654 *                                                                      *
                           655 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR     *
                           656 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE       *
                           657 *     EXPECTED CODE.                                                   *
                           658 *                                                                      *
                           659 * CALLING SEQUENCE                                                    *
                           660 *                                                                      *
                           661 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT        *
                           662 *                                                                      *
                           663 * RETURN CONTROL                                                      *
                           664 *                                                                      *
                           665 *     SVC   EXIT                   RETURN TO USER VIA SUPVR            *
                           666 *                                                                      *
                           667 ************************************************************************
000562  706E               668 INTER  CPLSR R3                    SAVE INDICATORS
000564  336A               669        SRL   13,R3                 POSITION INDICATORS IN R3
000566  4424 000E          670        MVA   OPTN1,R4              SET UP BASE ADRS
00056A  4C27               671        TBT   (R4,CS)              IS CS IN PROGRESS
00056C  1006               672        JOFF  INTET                * NO
00056E  4C68               673        TBTS  (R4,CE)              TURN ON CYCLE STEAL INTER ERROR
000570  6F0D 0040          674        MVW   R7,CSTL8             SAVE CS ERR ISB VALUE, BITS 0-7
000574  C328 0041          675        MVB   R3,CSTL8+1           * AND THE COND CODE
000578  5009               676        J     INTR1                BRANCH
00057A  4C61               677 INTET  TBTS  (R4,ER)             SET ERROR ON I/O COMMAND CNTL BIT
00057C  5007               678        J     INTR1                BRANCH
                           680 ************************************************************************
                           681 *                                                                      *
                           682 * SOUBROUTINE                                                         *
                           683 *                                                                      *
                           684 *     OKAY  INTERRUPT              RUNS ON INTERRUPT LEVEL '$INTL'     *
                           685 *                                                                      *
                           686 * PURPOSE                                                             *
                           687 *                                                                      *
                           688 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                     *
                           689 *                                                                      *
                           690 * CALLING SEQUENCE                                                    *
                           691 *                                                                      *
                           692 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED           *
                           693 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE          *
                           694 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE               *
                           695 *     COMMON SECTION IS HANDLED HERE.                                  *
                           696 *                                                                      *
                           697 * RETURN CONTROL                                                      *
                           698 *                                                                      *
                           699 *     SVC   EXIT                   RETURN TO USER VIA SUPVR            *
                           700 *                                                                      *
                           701 ************************************************************************
00057E  706E               702 INTOK  CPLSR R3                    SAVE INDICATORS
000580  336A               703        SRL   13,R3                 POSITION INDICATORS IN R3
000582  4424 000E          704        MVA   OPTN1,R4              SET UP BASE ADRS
000586  4C24               705        TBT   (R4,XE)              TEST EXPECTED ERROR BIT
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
000588  1001                706          JOFF  INTR1                  BRANCH IF OFF
00058A  4C69                707          TBTS  (R4,GI)               SET GOOD INTERRUPT BIT
00058C  4C63                708 INTR1    TBTS  (R4,IN)               SET   INTERRUPT RECEIVED
00058E  4C27                709          TBT   (R4,CS)               IS 'CS IN PROGRESS' ON
000590  1204                710          JON   INTR2                 * YES, BCH AROUND UPDATE
000592  C328 0015           711          MVB   R3,$IOIN+1            SAVE INTERRUPTING CC CODE
000596  6F0D 0016           712          MVW   R7,$ISB               SAVE INTR STATUS AND DEV ADRS
00059A  78B9                713 INTR2    CPCL  R5                    COPY INTERRUPT LEVEL TO CHECK
00059C  3521                714          SLL   4,R5                  POSITION INTR LEVEL AND PUT
00059E  0501                715          ABI   1,R5                  * IN 'I' BIT
0005A0  CD24 0056           716          CW    $INTL,R5              IS THIS THE CORRECT INTR LEVEL
0005A4  1004                717          JE    INTR3                 * YES, GO EXIT THIS LEVEL
0005A6  3521                718          SLL   4,R5                  POSITION RECEIVED LEVEL
0005A8  6D0D 0020           719          MVW   R5,DEV3+2             STORE INTO DEV4
0005AC  4C65                720          TBTS  (R4,LE)               SET INTR LEVEL ERROR CONTROL BIT
0005AE  4CA2                721 INTR3    TBTR  (R4,XI)               WAS INTERRUPT EXPECTED
0005B0  1201                722          JON   INTRX                 * YES, EXIT OFF THIS INTR LEVEL
0005B2  4C60                723          TBTS  (R4,MI)               * NO, SET MYSTERY INTR CONTROL BIT
0005B4  6006                724 INTRX    SVC   EXIT                  EXIT THIS LEVEL VIA SUPVR TO PGM
                            725 ********************************************************************
                            726 *
                            727 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                            728 *     HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN
                            729 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
                            730 *
                            731 ********************************************************************
0005B6  4C20                732 XIOCK  TBT   (R4,MI)                  WAS THERE AN UNEXPECTED INTERRUPT
0005B8  1214                733          JON   XIOCU                 BRANCH IF YES
0005BA  4C25                734          TBT   (R4,LE)               WAS AN INTR LEVEL ERROR FOUND
0005BC  1002                735          JOFF  XIOCM                 * NO,  CONTINUE CHECKING
0005BE  4C61                736          TBTS  (R4,ER)               SET ERROR CONTROL BIT ON
0005C0  5010                737          J     XIOCU                 BRANCH
0005C2  4CAA                738 XIOCM  TBTR  (R4,PE)                 WAS A PROBABLE ERROR EXPECTED
0005C4  6AC0 0000           739          BON   (R6)                  BRANCH YES
0005C8  4C24                740          TBT   (R4,XE)               WAS AN ERROR EXPECTED
0005CA  1211                741          JN    XIOGI                 * YES, BRANCH
0005CC  4C27                742          TBT   (R4,CS)               WAS AUTO CS IN PROGRESS
0005CE  1005                743          JOFF  XIOCV                 * NO,  CONTINUE CHECKING
0005D0  4C28                744          TBT   (R4,CE)               IS CS IN AN ERR CONDITION
0005D2  6800 0488           745          BOFF  CSRTN                 * NO,  BCH
0005D6  6802 0684           746          B     $PRNT                 GO LOG CS ERROR
0005DA  4C21                747 XIOCV  TBT   (R4,ER)                 WAS ERROR INTR CONTROL BIT ON
0005DC  1004                748          JOFF  XIOCX                 * NO,  EXIT THIS ROUTINE
0005DE  6802 04E0           749 XIOCQ  B     XIOCS-4                * AVAILABLE, GO AND GET IT
0005E2  6802 0684           750 XIOCU  B     $PRNT                  PRINT ERROR
0005E6  CB25 0012           751 XIOCX  MVWZ  OPTN3,R3               CLEAR OUT OPTION 3 CNTL BITS
0005EA  68C2 0000           752          B     (R6)                  RETURN TO USER VIA REG 6
0005EE  4C29                753 XIOGI  TBT   (R4,GI)                 WAS A GOOD INTERRUPT RECEIVED
0005F0  12F8                754          JON   XIOCU                 YES BRANCH
0005F2  68C2 0000           755          B     (R6)                  RETURN
                            756 *
                            757 *              I/O   PARAMETER LIST
                            758 *
0005F6  004C                759 IOBLK  DC    A($DVAD)                ADRS OF DEVICE ADRS
0005F8  0556                760 IOERR  DC    A(XIOER)                ERROR ROUTINE ADRS
0005FA  0000                761 IODCB  DC    A(*-*)                  DCB ADRS OR LEVEL & INTR
0005FC  0000                762 IOMOD  DC    A(*-*)                  MODIFIER
0005FE  0000                763        DC    A(*-*)                  ADRS OF LAST SVC CALL
000600  0000                764 IORSP  DC    A(*-*)                  SECOND WORD OF LAST IDCB
                            765 *
                            766 *              INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                            767 *
000602  004C                768 INTBL  DC    A($DVAD)                ADRS OF DEVICE ADRS
000604  057E                769 INTO1  DC    A(INTOK)                INTERRUPT OK RETURN ADRS
000606  0562                770 INTO2  DC    A(INTER)                INTERRUPT ERROR ADRS
000608  0003                771 INTCC  DC    X'0003'                 INTERRUPT CODE EXPECTED
                            772 ********************************************************************
                            773 *                                                                  *
                            774 * SUBROUTINE                                                       *
                            775 *                                                                  *
                            776 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE             *
                            777 *                                                                  *
                            778 * PURPOSE                                                          *
                            779 *                                                                  *
                            780 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND    *
                            781 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE *
                            782 *     TO INTERRUPT.                                                *
                            783 *                                                                  *
                            784 * CALLING SEQUENCE                                                 *
                            785 *                                                                  *
                            786 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                   *
                            787 *                                                                  *
                            788 * --> BAL   $CONC,R6              CLEAR DEV DEP STG AND CONNECT I/O BLK
                            789 * --> BAL   $CONR,R6              BCH TO CONNECT                  *
                            790 * --> BAL   $CONP,R6              PREPARE DEVICE ONLY             *
                            791 *                                                                  *
                            792 * RETURN CONTROL                                                   *
                            793 *                                                                  *
                            794 *     BXS   (R6)                  RETURN TO USER VIA REG 6        *
                            795 *                                                                  *
                            796 ********************************************************************
00060A                      797 $CONR  EQU   *
00060A  4724 0602           798          MVA   INTBL,R7              SET R7 TO CONTROL BLOCK AND
00060E  6014                799          SVC   CICB                  * CONNECT IT TO THIS DEVICE
000610  68C2 0000           800          B     (R6)                  RETURN
000614                      801 $CONC  EQU   *
000614  CB25 0012           802          MVWZ  OPTN3,R3              CLEAR OLD CONTROLS FOR NEW ROUTINE
000618  8828 0056 05FA      803 $CONP  MVW   $INTL,IODCB             PUT IN LEVEL & INTR PARAMETER
00061E  4724 05F6           804          MVA   IOBLK,R7              SET R7 TO CONTROL BLOCK TO PREPARE
000622  4020 0014 07FF      805          MVWI  X'07FF',$IOIN         INITIALIZE CONDITION CODE STORAGE
000628  CB25 0016           806          MVWZ  $ISB,R3               * AND CLEAR OLD ISB VALUE
00062C  6F0D 0018           807          MVW   R6,LSTIO              SET UP ADDRESS THAT STARTED LAST I/O
000630  402E 0018 0004      808          SWI   4,LSTIO               DECREMENT TO POINT AT INSTRUCTION
000636  4324 0000           809          MVA   $PID,R3               LOAD ADDRESS OF START OF PROG
00063A  CB2F 0018           810          SW    R3,LSTIO              SUB TO OBTAIN LISTING ADDRESS
00063E  600C                811          SVC   PREP                  * AND CALL ON SUPVR
000640  68C2 0000           812          B     (R6)                  RETURN
                            813 ********************************************************************
                            814 *                                                                  *
                            815 * SUBROUTINE                                                       *
                            816 *                                                                  *
                            817 *     SPECIAL ERROR CHECKING OF THE DCB                            *
                            818 *                                                                  *
                            819 * PURPOSE                                                          *
                            820 *                                                                  *
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
                            821 *                                                                  *
                            822 *     TO SET THE CONTROL BITS BEFORE ISSUEING THE I/O COMMAND,     *
                            823 *     TESTING TO VERIFY THAT THE ERROR DID OCCUR, AND VERIFYING    *
                            824 *     THAT THE RESIDUAL ADDRESS IS WHAT IT SHOULD BE.              *
                            825 *                                                                  *
                            826 * CALLING SEQUENCE                                                 *
                            827 *                                                                  *
                            828 * --> BAL   ERTST,R2              USE COMMOM ERROR TEST SUBRTN     *
                            829 *     DC    A(1)                  DISPLACEMENT FOR RESIDUAL ADRS   *
                            830 *                                                                  *
                            831 * RETURN CONTROL                                                   *
                            832 *                                                                  *
                            833 *     BXS   (R2,2)                RETURN TO USER VIA REG 2         *
                            834 *                                                                  *
                            835 ********************************************************************
000644  4C64                836 ERTST  TBTS  (R4,XE)                 SET EXPECTED ERROR FOR EACH FAULT
000646  4029 000C 0001      837          AWI   1,$CKPT               INCREMENT CHECKPOINT
00064C  6E03 0000           838 ERCAL  BAL   *-*,R6                 GO XEQ I/O COMMAND
000650  4C21                839          TBT   (R4,ER)               DID ERROR CONTROL BIT GET SET
000652  1202                840          JON   ERTSV                 * YES,GO CKECK RESIDUAL ADDRESS
000654                      841 CSADE  EQU   *
000654  6802 0684           842          B     $PRNT                 BRANCH TO PRINT ERROR
                            843 *
000658  AA08 0600           844 ERTSV  AW    (R2),IORSP              DEVELOP DCB ERROR ADDRESS
00065C  8828 0600 0682      845          MVW   IORSP,ERTSZ           SAVE DCB ADRS FROM SUPER BLOCK
000662  CB25 0012           846          MVWZ  OPTN3,R6              ZERO OPTION WORD THREE
000666  4C6A                847          TBTS  (R4,PE)               SET PROBABLE ERROR
000668  6E03 04E0           848          BAL   XIOCS-4,R6            REQUEST START CYCLE STEAL STAUTS
00066C  882B 0032 0682      849          CW    CSTL1,ERTSZ           TEST FOR CORRECT RESIDUAL ADDRS
000672  1004                850          JE    ERTSX                 RESIDUAL ADDRESS OK
000674  8828 0682 0020      851          MVW   ERTSZ,DEV3+2          'WAS' RESIDUAL ADDRESS
00067A  50EC                852          J     CSADE                 BRANCH
00067C  4CA7                853 ERTSX  TBTR  (R4,CS)                 RESET CS IN PROGRESS CNTL BIT
00067E  4CA1                854          TBTR  (R4,ER)               RESET ERROR RECEIVED CONTROL BIT
000680  5201                855          BXS   (R2,2)                OK, RETURN TO CALLER
                            856 *
000682  0000                857 ERTSZ  DC    A(*-*)                  EXPECTED RESIDUAL ADDRESS SAVE AREA
                            858 ********************************************************************
                            859 *                COMMON PRINT ERROR INTERFACE ROUTINE              *
                            860 *                                                                  *
                            861 * ----> R6       LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE  *
                            862 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                            863 * ----> R4       LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE  *
                            864 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                            865 * ----> R3       LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE    *
                            866 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                            867 * ----> PRNTRTN  THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST ) *
                            868 *                POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                            869 *                WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN *
                            870 *                                                                  *
                            871 ********************************************************************
000684  4624 0012           872 $PRNT  MVA   OPTN3,R6                LOAD ADDRESS OF OPTION WORD THREE
000688  6D08 181E           873          MVW   PRNTRTN,R5            LOAD ADDRESS OF COMMON PRNT ROUTINE
00068C  4424 0000           874          MVA   $PID,R4               LOAD ADDRESS OF START OF PROG
000690  4324 0042           875          MVA   PCTR,R3               LOAD ADDRESS OF PASS COUNTER
000694  6FA3 0000           876          BAL   (R5),R7               BRANCH TO COMMON PRINT ROUTINE
000698  CB25 0012           877          MVWZ  OPTN3,R6              ZERO OUT ALL FLAGS
00069C  4424 000E           878          MVA   OPTN1,R4              LOAD BASE ADDRESS FOR INDICATORS
0006A0  802B 0232 0060      879          CB    CPUTYPE,TYPE23        IS THIS A TYPE 23 PROCESSOR
0006A6  1803                880          JNE   $PRN2                 BRANCH IF NO
0006A8  4524 E000           881          MVWI  X'E000',R5            INIT LOOP COUNTER
0006AC  5002                882          J     $PRN1                 BRANCH
0006AE  4524 8000           883 $PRN2  MVWI  X'8000',R5              INIT LOOP COUNTER
0006B2  6002                884 $PRN1  SVC   IDLE                    DELAY
0006B4  4C03                885          TBT   (R4,TM)               SHOULD PROG TERMINATE
0006B6  6A00 008A           886          BON   $TERM                 BRANCH YES
0006BA  7DA1 0001           887          AWI   1,R5                  INCREMENT LOOP COUNTER
0006BE  18F9                888          JNZ   $PRN1                 BRANCH NOT ZERO
0006C0  6802 0066           889          B     $PENT                 BRANCH TO RESTART FROM BEGINING
0006C4  00000000000000000   890 RDBUF  DC    XL16'00'                  16 BYTES OF READ BUFFER
000066                      891          END   $PENT
```

CROSS-REFERENCE LISTING

```
DECLARED  NAME      ATTRIBUTES AND REFERENCES
       0  .R0.      ABSOLUTE. HEX VALUE(00000000)
                    218   220   222
       0  .R2.      ABSOLUTE. HEX VALUE(00000002)
                    272   273   277   283   307   346   347   351   355
                    361   381   387   391   398   403   410   847   858
       0  .R3.      ABSOLUTE. HEX VALUE(00000003)
                    157   522   525   577   589   590   591   594   595
                    598   642   643   644   668   669   675   702   703
                    711   752   805   809   812   813   879
       0  .R4.      ABSOLUTE. HEX VALUE(00000004)
                    144   145   160   163   266   268   340   342   494
                    579   580   583   585   600   608   611   613   617
                    618   670   671   673   677   704   705   707   708
                    709   720   721   723   733   735   737   739   741
                    743   745   748   754   839   842   850   856   857
                    878   882   889
       0  .R5.      ABSOLUTE. HEX VALUE(00000005)
                    162   166   189   190   191   193   491   523   525
                    592   594   596   598   605   607   607   615   713
                    714   715   716   718   719   877   880   885   887
                    891
       0  .R6.      ABSOLUTE. HEX VALUE(00000006)
                    142   153   155   188   192   194   213   235   236
                    241   242   255   256   261   270   280   282   288
                    291   297   299   314   328   335   354   478   496
                    587   740   753   756   803   810   815   841   849
                    851   876   881
       0  .R7.      ABSOLUTE. HEX VALUE(00000007)
                    140   150   159   171   173   174   176   177   214
                    223   524   593   597   602   674   712   801   807
                    880
      60  $CKPT     ADDRESS. HEX LOCATION(0000000C) IN CSECT(E48E0   ) LENGTH(2)
                    189   237   260   267   313   341   840
     804  $CONC     ADDRESS. HEX LOCATION(00000614) IN CSECT(E48E0   ) LENGTH(1)
     806  $CONP     ADDRESS. HEX LOCATION(00000618) IN CSECT(E48E0   ) LENGTH(6)
                    255   328   378
     800  $CONR     ADDRESS. HEX LOCATION(0000060A) IN CSECT(E48E0   ) LENGTH(1)
                    235   241
     122  $DVAD     ADDRESS. HEX LOCATION(0000004C) IN CSECT(E48E0   ) LENGTH(2)
                    213
     125  $DVID     ADDRESS. HEX LOCATION(00000058) IN CSECT(E48E0   ) LENGTH(2)
                     58   130   173   761   770
     527  $FMT      ADDRESS. HEX LOCATION(000004D2) IN CSECT(E48E0   ) LENGTH(6)
                    225   227
     154  $IDL      ADDRESS. HEX LOCATION(0000009A) IN CSECT(E48E0   ) LENGTH(2)
                    390
     124  $INTL     ADDRESS. HEX LOCATION(00000056) IN CSECT(E48E0   ) LENGTH(2)
                    155
      96  $IOIN     ADDRESS. HEX LOCATION(00000014) IN CSECT(E48E0   ) LENGTH(2)
                    139   169   233   234   238   240   716   806
                    644   711   808
      97  $ISB      ADDRESS. HEX LOCATION(00000016) IN CSECT(E48E0   ) LENGTH(2)
                    712   809
     126  $MXSL     ADDRESS. HEX LOCATION(0000005A) IN CSECT(E48E0   ) LENGTH(2)
                    183
     138  $PENT     ADDRESS. HEX LOCATION(00000066) IN CSECT(E48E0   ) LENGTH(6)
                     57   198   893   895
     142  $PETN     ADDRESS. HEX LOCATION(00000078) IN CSECT(E48E0   ) LENGTH(4)
                    184
      55  $PID      ADDRESS. HEX LOCATION(00000000) IN CSECT(E48E0   ) LENGTH(4)
                    589   812   878
     876  $PRNT     ADDRESS. HEX LOCATION(00000684) IN CSECT(E48E0   ) LENGTH(4)
                    229   263   308   310   312   337   362   493   495
                    619   645   747   751   845
     888  $PRN1     ADDRESS. HEX LOCATION(000006B2) IN CSECT(E48E0   ) LENGTH(2)
                    886   892
     887  $PRN2     ADDRESS. HEX LOCATION(000006AE) IN CSECT(E48E0   ) LENGTH(4)
                    884
     144  $PUPD     ADDRESS. HEX LOCATION(00000082) IN CSECT(E48E0   ) LENGTH(4)
                    243   315   363   413
     182  $PUP8     ADDRESS. HEX LOCATION(000000F4) IN CSECT(E48E0   ) LENGTH(6)
                    146
     521  $RD       ADDRESS. HEX LOCATION(000004BE) IN CSECT(E48E0   ) LENGTH(6)
                    380   386   397   409
     517  $RDID     ADDRESS. HEX LOCATION(000004AA) IN CSECT(E48E0   ) LENGTH(6)
                    261   282   291   299   402
     515  $RECL     ADDRESS. HEX LOCATION(000004A2) IN CSECT(E48E0   ) LENGTH(6)
                    242   314
     163  $RETC     ADDRESS. HEX LOCATION(000000BA) IN CSECT(E48E0   ) LENGTH(2)
                    167
     168  $RETI     ADDRESS. HEX LOCATION(000000C6) IN CSECT(E48E0   ) LENGTH(6)
                    151   164
     162  $RETN     ADDRESS. HEX LOCATION(000000B6) IN CSECT(E48E0   ) LENGTH(4)
                    158
     198  $RTAD     ADDRESS. HEX LOCATION(0000011C) IN CSECT(E48E0   ) LENGTH(2)
                    194
      59  $RTNE     ADDRESS. HEX LOCATION(0000000A) IN CSECT(E48E0   ) LENGTH(2)
                    142   182   183   188
     513  $SEEK     ADDRESS. HEX LOCATION(0000049A) IN CSECT(E48E0   ) LENGTH(6)
                    236   258   280   288   297   335   354
     150  $TERM     ADDRESS. HEX LOCATION(0000008A) IN CSECT(E48E0   ) LENGTH(4)
                    612   890
     173  $TER1     ADDRESS. HEX LOCATION(000000DE) IN CSECT(E48E0   ) LENGTH(4)
                    168
     494  CCRTP     ADDRESS. HEX LOCATION(00000492) IN CSECT(E48E0   ) LENGTH(2)
                    492
      91  CE        ABSOLUTE. HEX VALUE(00000028)
                    579   673   745
      38  CICB      ABSOLUTE. HEX VALUE(00000014)
                    802
     431  CLDCB     ADDRESS. HEX LOCATION(00000428) IN CSECT(E48E0   ) LENGTH(2)
                    156   515
      51  CPUTYPE   ABSOLUTE. HEX VALUE(00000232)
                    216   603   883
      90  CS        ABSOLUTE. HEX VALUE(00000027)
                    580   583   671   709   743   856
     844  CSADE     ADDRESS. HEX LOCATION(00000654) IN CSECT(E48E0   ) LENGTH(1)
                    855
     110  CSBUF     ADDRESS. HEX LOCATION(00000032) IN CSECT(E48E0   ) LENGTH(1)
                    477   596
     470  CSDCB     ADDRESS. HEX LOCATION(00000468) IN CSECT(E48E0   ) LENGTH(2)
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
                    581
     491  CSRTN     ADDRESS. HEX LOCATION(00000488) IN CSECT(E48E0   ) LENGTH(4)
                    746
     111  CSTL1     ADDRESS. HEX LOCATION(00000032) IN CSECT(E48E0   ) LENGTH(2)
                    852
     112  CSTL2     ADDRESS. HEX LOCATION(00000034) IN CSECT(E48E0   ) LENGTH(2)
                    491
     118  CSTL8     ADDRESS. HEX LOCATION(00000040) IN CSECT(E48E0   ) LENGTH(2)
                    674   675
     102  DCBUF     ADDRESS. HEX LOCATION(00000022) IN CSECT(E48E0   ) LENGTH(2)
                    591
     100  DEV3      ADDRESS. HEX LOCATION(0000001E) IN CSECT(E48E0   ) LENGTH(2)
                    190   228   309   311   719   854
     101  DEV4      ADDRESS. HEX LOCATION(00000020) IN CSECT(E48E0   ) LENGTH(2)
                    191   227   307   361
     416  DIFF      ADDRESS. HEX LOCATION(0000041C) IN CSECT(E48E0   ) LENGTH(2)
                    264   273   279   303   304   338   347   353   357
                    358
      68  DIR       ABSOLUTE. HEX VALUE(0000000F)
                    266   268   340   342
     418  ENDEX     ADDRESS. HEX LOCATION(00000420) IN CSECT(E48E0   ) LENGTH(2)
                    304
      84  ER        ABSOLUTE. HEX VALUE(00000021)
                    494   617   677   737   748   842   857
     841  ERCAL     ADDRESS. HEX LOCATION(0000064C) IN CSECT(E48E0   ) LENGTH(4)
                    380   386   390   397   402   409
     839  ERTST     ADDRESS. HEX LOCATION(00000644) IN CSECT(E48E0   ) LENGTH(2)
                    381   387   391   398   403   410
     847  ERTSV     ADDRESS. HEX LOCATION(00000658) IN CSECT(E48E0   ) LENGTH(4)
                    843
     856  ERTSX     ADDRESS. HEX LOCATION(0000067C) IN CSECT(E48E0   ) LENGTH(2)
                    853
     860  ERTSZ     ADDRESS. HEX LOCATION(00000682) IN CSECT(E48E0   ) LENGTH(2)
                    848   852   854
      39  EXIT      ABSOLUTE. HEX VALUE(00000006)
                    724
      36  E48E0     CSECT. START(00000000) LENGTH(1748) ESDID(0)
                     36
     313  FINIS     ADDRESS. HEX LOCATION(000002B6) IN CSECT(E48E0   ) LENGTH(6)
                    305
     363  FINS      ADDRESS. HEX LOCATION(00000368) IN CSECT(E48E0   ) LENGTH(4)
                    359
     436  FRDCB     ADDRESS. HEX LOCATION(00000438) IN CSECT(E48E0   ) LENGTH(2)
                    389   527
      92  GI        ABSOLUTE. HEX VALUE(00000029)
                    707   754
     278  GO        ADDRESS. HEX LOCATION(00000214) IN CSECT(E48E0   ) LENGTH(6)
                    275
     352  GO1       ADDRESS. HEX LOCATION(00000338) IN CSECT(E48E0   ) LENGTH(6)
                    349
     127  H0000     ADDRESS. HEX LOCATION(0000005C) IN CSECT(E48E0   ) LENGTH(2)
                    143
     128  H0001     ADDRESS. HEX LOCATION(0000005E) IN CSECT(E48E0   ) LENGTH(2)
                    182
      40  IDLE      ABSOLUTE. HEX VALUE(00000002)
                    154   165   221   610   888
      86  IN        ABSOLUTE. HEX VALUE(00000023)
                    163   585   600   613   708
     770  INTBL     ADDRESS. HEX LOCATION(00000602) IN CSECT(E48E0   ) LENGTH(2)
                    801
     668  INTER     ADDRESS. HEX LOCATION(00000562) IN CSECT(E48E0   ) LENGTH(2)
                    772
     677  INTET     ADDRESS. HEX LOCATION(0000057A) IN CSECT(E48E0   ) LENGTH(2)
                    672
     702  INTOK     ADDRESS. HEX LOCATION(0000057E) IN CSECT(E48E0   ) LENGTH(2)
                    771
     724  INTRX     ADDRESS. HEX LOCATION(000005B4) IN CSECT(E48E0   ) LENGTH(2)
                    722
     708  INTR1     ADDRESS. HEX LOCATION(0000058C) IN CSECT(E48E0   ) LENGTH(2)
                    676   678   706
     713  INTR2     ADDRESS. HEX LOCATION(0000059A) IN CSECT(E48E0   ) LENGTH(2)
                    710
     721  INTR3     ADDRESS. HEX LOCATION(000005AE) IN CSECT(E48E0   ) LENGTH(2)
                    717
     761  IOBLK     ADDRESS. HEX LOCATION(000005F6) IN CSECT(E48E0   ) LENGTH(2)
                    150   159   171   214   223   602   807
     763  IODCB     ADDRESS. HEX LOCATION(000005FA) IN CSECT(E48E0   ) LENGTH(2)
                    156   169   170   513   515   517   521   527   581
                    592   806
     762  IOERR     ADDRESS. HEX LOCATION(000005F8) IN CSECT(E48E0   ) LENGTH(2)
                    138   151   158   168
     764  IOMOD     ADDRESS. HEX LOCATION(000005FC) IN CSECT(E48E0   ) LENGTH(2)
                    157   577   582
     766  IORSP     ADDRESS. HEX LOCATION(00000600) IN CSECT(E48E0   ) LENGTH(2)
                    225   228   847   848
     234  ITST1     ADDRESS. HEX LOCATION(0000017C) IN CSECT(E48E0   ) LENGTH(6)
                    239
     230  ITST2     ADDRESS. HEX LOCATION(00000164) IN CSECT(E48E0   ) LENGTH(6)
                    226
     221  ITST4     ADDRESS. HEX LOCATION(00000142) IN CSECT(E48E0   ) LENGTH(2)
                    219   222
     220  ITST6     ADDRESS. HEX LOCATION(0000013E) IN CSECT(E48E0   ) LENGTH(4)
                    217
      88  LE        ABSOLUTE. HEX VALUE(00000025)
                    720   735
      89  LI        ABSOLUTE. HEX VALUE(00000026)
                    618
     268  LOOP      ADDRESS. HEX LOCATION(000001EC) IN CSECT(E48E0   ) LENGTH(2)
                    306
     342  LOOP1     ADDRESS. HEX LOCATION(0000030E) IN CSECT(E48E0   ) LENGTH(2)
                    360
      98  LSTIO     ADDRESS. HEX LOCATION(00000018) IN CSECT(E48E0   ) LENGTH(2)
                    193   587   588   590   810   811   813
      83  MI        ABSOLUTE. HEX VALUE(00000020)
                    723   733
     420  ONE       ADDRESS. HEX LOCATION(00000424) IN CSECT(E48E0   ) LENGTH(2)
                    274   292   303   309   348   357
      62  OPTN1     ADDRESS. HEX LOCATION(0000000E) IN CSECT(E48E0   ) LENGTH(2)
                    144   670   704   882
      71  OPTN3     ADDRESS. HEX LOCATION(00000012) IN CSECT(E48E0   ) LENGTH(2)
                    752   805   849   876   881
```

CROSS-REFERENCE LISTING


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DECLARED  NAME      ATTRIBUTES AND REFERENCES
   119    PCTR        ADDRESS. HEX LOCATION(00000042) IN CSECT(E48E0   ) LENGTH(2)
                      143   879
    93    PE          ABSOLUTE. HEX VALUE(0000002A)
                      739   850
    41    PREP        ABSOLUTE. HEX VALUE(0000000C)
                      172   814
    50    PRNTRTN     ABSOLUTE. HEX VALUE(0000181E)
                      877
   894    RDBUF       ADDRESS. HEX LOCATION(000006C4) IN CSECT(E48E0   ) LENGTH(16)
                      412   488   523
   481    RDDCB       ADDRESS. HEX LOCATION(00000478) IN CSECT(E48E0   ) LENGTH(2)
                      379   383   384   385   393   394   395   396   406
                      407   408   412   521
    43    RELSD       ABSOLUTE. HEX VALUE(00000017)
                      178
    42    REQSD       ABSOLUTE. HEX VALUE(00000016)
                      141
    47    RESET       ABSOLUTE. HEX VALUE(00000008)
                      152   215
   421    REVR        ADDRESS. HEX LOCATION(00000426) IN CSECT(E48E0   ) LENGTH(2)
                      276   350
    44    RICB        ABSOLUTE. HEX VALUE(00000013)
                      175
    48    RID         ABSOLUTE. HEX VALUE(00000009)
                      224
   447    RSDCB       ADDRESS. HEX LOCATION(00000448) IN CSECT(E48E0   ) LENGTH(2)
                      259   281   290   298   331   334   400   401   405
                      517
   361    RTY23       ADDRESS. HEX LOCATION(00000360) IN CSECT(E48E0   ) LENGTH(4)
                      356
   307    RTY33       ADDRESS. HEX LOCATION(0000029A) IN CSECT(E48E0   ) LENGTH(4)
                      284
   213    RT01        ADDRESS. HEX LOCATION(00000126) IN CSECT(E48E0   ) LENGTH(4)
                      199
   255    RT02        ADDRESS. HEX LOCATION(000001AA) IN CSECT(E48E0   ) LENGTH(4)
                      200
   309    RT021       ADDRESS. HEX LOCATION(000002A2) IN CSECT(E48E0   ) LENGTH(6)
                      293
   311    RT022       ADDRESS. HEX LOCATION(000002AC) IN CSECT(E48E0   ) LENGTH(6)
                      302
   328    RT03        ADDRESS. HEX LOCATION(000002C4) IN CSECT(E48E0   ) LENGTH(4)
                      201
   378    RT04        ADDRESS. HEX LOCATION(0000036C) IN CSECT(E48E0   ) LENGTH(4)
                      202
    99    SCTID       ADDRESS. HEX LOCATION(0000001A) IN CSECT(E48E0   ) LENGTH(2)
                      262   283   292   301   332   333   336   355   454
                      518   519
   458    SKDCB       ADDRESS. HEX LOCATION(00000458) IN CSECT(E48E0   ) LENGTH(2)
                      230   231   232   256   257   270   271   276   278
                      279   285   286   287   289   295   296   329   330
                      331   344   345   350   352   353   513
   276    SKREV       ADDRESS. HEX LOCATION(0000020A) IN CSECT(E48E0   ) LENGTH(6)
                      269
   350    SKRV        ADDRESS. HEX LOCATION(0000032E) IN CSECT(E48E0   ) LENGTH(6)
                      343
    45    START       ABSOLUTE. HEX VALUE(0000000A)
                      161   609
   130    SVCAL       ADDRESS. HEX LOCATION(00000062) IN CSECT(E48E0   ) LENGTH(2)
                      140   176   177
    46    TERM        ABSOLUTE. HEX VALUE(00000007)
                      179
    66    TM          ABSOLUTE. HEX VALUE(00000003)
                      145   611   889
   129    TYPE23      ADDRESS. HEX LOCATION(00000060) IN CSECT(E48E0   ) LENGTH(2)
                      216   603   883
    87    XE          ABSOLUTE. HEX VALUE(00000024)
                      705   741   839
    85    XI          ABSOLUTE. HEX VALUE(00000022)
                      160   608   721
   577    XIO         ADDRESS. HEX LOCATION(000004DA) IN CSECT(E48E0   ) LENGTH(4)
                      514   516   520   526   528
   733    XIOCK       ADDRESS. HEX LOCATION(000005B6) IN CSECT(E48E0   ) LENGTH(2)
                      586   601   614
   739    XIOCM       ADDRESS. HEX LOCATION(000005C2) IN CSECT(E48E0   ) LENGTH(2)
                      736
   581    XIOCS       ADDRESS. HEX LOCATION(000004E4) IN CSECT(E48E0   ) LENGTH(6)
                      750   851
   751    XIOCU       ADDRESS. HEX LOCATION(000005E2) IN CSECT(E48E0   ) LENGTH(4)
                      734   738   755
   748    XIOCV       ADDRESS. HEX LOCATION(000005DA) IN CSECT(E48E0   ) LENGTH(2)
                      744
   752    XIOCX       ADDRESS. HEX LOCATION(000005E6) IN CSECT(E48E0   ) LENGTH(4)
                      749
   642    XIOER       ADDRESS. HEX LOCATION(00000556) IN CSECT(E48E0   ) LENGTH(2)
                      138   762
   754    XIOGI       ADDRESS. HEX LOCATION(000005EE) IN CSECT(E48E0   ) LENGTH(2)
                      742
   587    XIO1        ADDRESS. HEX LOCATION(000004F8) IN CSECT(E48E0   ) LENGTH(4)
                      578
   600    XIO2        ADDRESS. HEX LOCATION(00000520) IN CSECT(E48E0   ) LENGTH(2)
                      584
   607    XIO5        ADDRESS. HEX LOCATION(00000536) IN CSECT(E48E0   ) LENGTH(2)
                      604
   608    XIO6        ADDRESS. HEX LOCATION(00000538) IN CSECT(E48E0   ) LENGTH(2)
                      606
   610    XIO8        ADDRESS. HEX LOCATION(0000053C) IN CSECT(E48E0   ) LENGTH(2)
                      616
   417    XXX         ADDRESS. HEX LOCATION(0000041E) IN CSECT(E48E0   ) LENGTH(2)
                      265   272   274   277   339   346   348   351
   419    ZERO        ADDRESS. HEX LOCATION(00000422) IN CSECT(E48E0   ) LENGTH(2)
                      262   271   287   301   311   336   344   345
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
                             3 ************************************************************************
                             4 *                                                                      *
                             5 *                    ***       PREREQUISITES        ***               *
                             6 *                                                                      *
                             7 *                                NONE                                  *
                             8 *                                                                      *
                             9 ************************************************************************
                            10 *                                                                      *
                            11 *                    ***       MODIFICATIONS        ***               *
                            12 *                                                                      *
                            13 *                     IMPROVEMENTS MADE TO RESPONSE TIME               *
                            14 *                                                                      *
                            15 ************************************************************************
                            16 *                                                                      *
                            17 *                    ***     REA'S INCORPORATED     ***               *
                            18 *                                                                      *
                            19 *                                NONE                                  *
                            20 *                                                                      *
                            21 ************************************************************************
                            22 *                                                                      *
                            23 *                    ***    SPECIAL INSTRUCTIONS    ***               *
                            24 *                                                                      *
                            25 *                                NONE                                  *
                            26 *                                                                      *
                            27 ************************************************************************
                            28 *                                                                      *
                            29 *                    ***       E. C. HISTORY        ***               *
                            30 *                                                                      *
                            31 *        DATE 010CT76  DATE 06MAY77  DATE 15SEP77  DATE                *
                            32 *        E.C. 578468   E.C. 578756   E.C. 754882   E.C.                 *
                            33 *                                                                      *
                            34 ************************************************************************
 000000                     36 E50E0 START X'0000'
                            37 *                SUPERVISOR EQUATES
 000014                     38 CICB   EQU   20                    CONNECT INTERRUPT CONTROL BLOCK
 000006                     39 EXIT   EQU   6                     EXIT INTERRUPT LEVEL
 000001                     40 OUTIN  EQU   1                     OUT MESSAGE WITH EXPECTED RESPONCE
 00001A                     41 HTOE   EQU   26                    CHANGE HEX DATA TO EBCDIC DATA
 000002                     42 IDLE   EQU   2                     SHARE PROGRAM TIME WITH OTHER PGMS
 00000C                     43 PREP   EQU   12                    PREPARE DEVICE
 000013                     44 RICB   EQU   19                    RELEASE INTERRUPT CONTROL BLOCK
 00000A                     45 START  EQU   10                    START CYCLE STEAL COMMAND
 000007                     46 TERM   EQU   7                     TERMINATE THIS PROGRAM
 000008                     47 RESET  EQU   8                     RESET DEVICE
 000009                     48 RID    EQU   9                     READ DEVICE ID
 000000                     49 REG    EQUR  0                     WORK REGISTER
 00181E                     50 PRNTRTN EQU  X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
 000232                     51 CPUTYPE EQU  X'0232'               ADDRESS OF PROCESSOR TYPE
                            52 *
                            53 *                PROGRAM HEADING AND CONTROL WORDS
                            54 *
 000000  F5F0F0F0           55 $PID   DC    C'5000'               PROGRAM IDENTIFICATION
 000004  0000               56        DC    XL2'0000'             CURRENT LEVEL OF PROGRAM
 000006  006C               57        DC    A($PENT)              -> TO STARTING EXEC ADDRESS
 000008  004C               58        DC    A($DVAD)              -> TO DEVICE TABLE
 00000A  0000               59 $RTNE  DC    A(*-*)                ROUTINE NUMBER BEING RUN
 00000C  0000               60 $CKPT  DC    A(*-*)                LAST CHECK POINT PASSED
 00000E  0000               62 OPTN1  DC    X'0000'               PROGRAM OPTION CONTROL WORD 1
                            63 *
                            64 * BIT FUNCTION
                            65 *
 000003                     66 TM     EQU   3                     TERMINATE PROGRAM
 00000C                     67 WRIT   EQU   12                    ON = EITHER WRAPPED OR TTY
 00000D                     68 QUES   EQU   13                    QUESTION HAS BEEN ASKED
 00000E                     69 IND    EQU   14                    INDICATOR FOR TTY WRAP CABLE
 00000F                     70 DIR    EQU   15                    SEEK DIRECTION INDICATOR
                            71 *
 000010  0000               72 OPTN2  DC    X'0000'               PROGRAM OPTION CONTROL WORD 2
 000012  0000               73 OPTN3  DC    X'0000'               PROGRAM OPTION CONTROL WORD 3
                            74 *
                            75 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                            76 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                            77 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                            78 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                            79 *
                            80 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                            81 *  5  WRONG INTR LEVEL      LE       13  N.U.
                            82 *  6  LOAS INTERRUPT        LI       14  N.U.
                            83 *  7  CS STATUS IN PROGR    CS       15  N.U.
                            84 *                          BIT     HEX
 000020                     85 MI     EQU   32      0       8     MYSTERY INTERRUPT HAPPENED
 000021                     86 ER     EQU   33      1       4     ERROR RECEIVED ON INTERRUPT
 000022                     87 XI     EQU   34      2       2     EXPECTED INTERRUPT CONTROL BIT
 000023                     88 IN     EQU   35      3       1     INTERRUPT RECEIVED CONTROL BIT
 000024                     89 XE     EQU   36      4       8     EXPECTED ERROR RESPONSE
 000025                     90 LE     EQU   37      5       4     INTERRUPT ON WRONG LEVEL ERROR
 000026                     91 LI     EQU   38      6       2     LOST INTERRUPT
 000027                     92 CS     EQU   39      7       1     CYCLE STATUS IN PROGRESS
 000028                     93 CE     EQU   40      8       8     CYCLE STEAL STATUS INERRRUPT ERROR
 000029                     94 GI     EQU   41      9       4     GOOD INTERRUPT RECEIVED (EXPECTED ER)
 00002A                     95 PE     EQU   42      10      2     PROBABLE ERROR EXPECTED
 00002B                     96 NI     EQU   43      11      1     NO INTR. EXPECTED UNPREPED DEV.
 000014  0000               98 $IOIN  DC    A(*-*)                I/O AND INTR CONDITION CODES
 000016  0000               99 $ISB   DC    A(*-*)                R7, INTR STATUS BYTE & DEV ADRS
 000018  0000              100 LSTIO  DC    A(*-*)                ADRS OF LAST I/O + 4 BYTES
 00001A  0000              101 DEV1   DC    A(*-*)                DEVICE DEPENDENT DATA DEV1
 00001C  0000              102 DEV2   DC    A(*-*)                DEVICE DEPENDENT DATA DEV2
 00001E  0000              103 DEV3   DC    A(*-*)                DEVICE DEPENDENT DATA DEV3
 000020  0000              104 DEV4   DC    A(*-*)                DEVICE DEPENDENT DATA DEV4
 000022  0000              105 DCBUF  DC    A(*-*)                LAST DCB TABLE, CONTROL WORD
 000024  0000              106 DCB2   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000026  0000              107 DCB3   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000028  0000              108 DCB4   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002A  0000              109 DCB5   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002C  0000              110 DCB6   DC    A(*-*)                LAST DCB TABLE, CHAIN ADRS
 00002E  0000              111 DCB7   DC    A(*-*)                LAST DCB TABLE, BYTE COUNT
 000030  0000              112 DCB8   DC    A(*-*)                LAST DCB TABLE, BUFFER ADDRESS
 000032                    113 CSBUF  EQU   *                     CYCLE STEAL DATA BUFFER
 000032  0000              114 CSTL1  DC    A(*-*)                CYCLE STEAL BUFFER, RESIDUAL ADRS
 000034  0000              115 CSTL2  DC    A(*-*)                CYCLE STEAL WD 2, DEVICE DEPEND
 000036  0000              116 CSTL3  DC    A(*-*)                CYCLE STEAL WD 3, DEVICE DEPEND
 000038  0000              117 CSTL4  DC    A(*-*)                CYCLE STEAL WD 4, DEVICE DEPEND
 00003A  0000              118 CSTL5  DC    A(*-*)                CYCLE STEAL WD 5, DEVICE DEPEND
 00003C  0000              119 CSTL6  DC    A(*-*)                CYCLE STEAL WD 6, DEVICE DEPEND
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
 00003E  0000              120 CSTL7  DC    A(*-*)                CYCLE STEAL WD 7, DEVICE DEPEND
 000040  0000              121 CSTL8  DC    A(*-*)                CYCLE STEAL WD 8, DEVICE DEPEND
 000042  00000000          122 PCTR   DC    2A(*-*)               PASS COUNTER
 000046  0000000000000000  123 ECTR   DC    2A(*-*)               ERROR COUNTER
 00004A  0005              124 ERNUM  DC    X'0005'               NUM OF ERRORS ALLOWED BEFORE TERM
 00004C  0050              125 $DVAD  DC    X'0050'               DEVICE ADDRESS BEING TESTED DEV = 0
 00004E  0000000000000000  126       DC    XL8'00'
 000056  0050              127 $DAD   DC    X'0050'               DEVICE ADDRESS BEING TESTED DEV = 1
 000058  0000000000000000  128       DC    XL8'00'
 000060  0011              129 $INTL  DC    X'0011'               INTERRUPT LEVEL REQUESTED
 000062  0028              130 $DVID  DC    X'0028'               DEVICE IDENTIFICATION
 000064  0007              131 $MXSL  DC    A(07)                 MAXIMUM SELECTABLE ROUTINES
 000066  0000              132 H0000  DC    X'0000'               CONSTANT
 000068  0001              133 H0001  DC    X'0001'               HEX WORD CONSTANT
 00006A  2300              134 TYPE23 DC    X'2300'               CONSTANT TO CHECK PROCESSOR AGAINST
                           136 ************************************************************************
                           137 *                                                                      *
                           138 *                PROGRAM CONTROL FUNCTIONS                             *
                           139 *                                                                      *
                           140 ************************************************************************
 00006C  4020 0630 05B2    141 $PENT  MVA   XIOER,IOERR           INIT ERROR ADDRESS DEV 0
 000072  4020 0644 05B2    142        MVA   XIOER,IOER            INIT ERROR ADDRESS DEV 1
 000078  4020 0060 0011    143        MVWI  X'0011',$INTL         INIT INTERRUPT LEVEL
 00007E  4424 000E          144        MVA   OPTN1,R4              LOAD ADDRESS OF OPTION WORD ONE
 000082  4C0D               145        TBT   (R4,QUES)             HAS THIS ROUTINE BEEN RUN
 000084  123F               146        JON   $PEN1                 BRANCH YES
 000086  4C4D               147        TBTS  (R4,QUES)             TURN ON INDICATOR
 000088  C320 004C          148        MVB   $DVAD,R3              LOAD ASSIGNED DEV ADDRESS
 00008C  7B64 FF00          149        RBTWI X'FF00',R3            ZERO HIGH ORDED BITS
 000090  7B61 0001          150        AWI   X'0001',R3            ADD ONE TO DEV ADDRESS
 000094  C328 0056          151        MVB   R3,$DAD               STORE AS ADDRESS FOR DEV 1
 000098  402C 0058 8000      152        OWI   X'8000',$DAD+2        TURN ON ASSIGNED BIT
 00009E  8028 004C 0489      153        MVB   $DVAD,RVCT0           MOVE DEV ADDRESS TO ALL LOCATIONS
 0000A4  8028 004C 0491      154        MVB   $DVAD,RMCT0           *  ----------------------------
 0000AA  8028 004C 0499      155        MVB   $DVAD,RSCT0           *  ----------------------------
 0000B0  8028 004C 04A1      156        MVB   $DVAD,STCT0           *  ----------------------------
 0000B6  8028 004C 04A9      157        MVB   $DVAD,WVCT0           *  ----------------------------
 0000BC  8028 004C 04B1      158        MVB   $DVAD,WMCT0           *  ----------------------------
 0000C2  8028 004C 04B9      159        MVB   $DVAD,SACT0           *  ----------------------------
 0000C8  8028 0056 04BD      160        MVB   $DAD,SACT1            *  ----------------------------
 0000CE  8028 0056 0489      161        MVB   $DAD,RVCT1            *  ----------------------------
 0000D4  8028 0056 0495      162        MVB   $DAD,RMCT1            *  ----------------------------
 0000DA  8028 0056 049D      163        MVB   $DAD,RSCT1            *  ----------------------------
 0000E0  8028 0056 04A5      164        MVB   $DAD,STCT1            *  ----------------------------
 0000E6  8028 0056 04AD      165        MVB   $DAD,WVCT1            *  ----------------------------
 0000EC  8028 0056 04B5      166        MVB   $DAD,WMCT1            *  ----------------------------
 0000F2  6E03 0656           167        BAL   $CONR,R6              CONNENT ALL INTERRUPTS
 0000F6  0BFF                168        MVBI  255,R3                LOAD MASK FIELD INTO R3
 0000F8  4524 0022           169        MVA   DCBUF,R5              LOAD DESTINATION FIELD ADDRESS
 0000FC  0F20                170        MVBI  32,R7                 LOAD LENGTH
 0000FE  2BAC                171        FFN   R3,(R5)               MOVE IN MASK FIELD
 000100  CF25 002C           172        MVWZ  DCB6,R7               ZERO CHAIN ADDRESS
 000104  CF25 000A           173 $PEN1  MVWZ  $RTNE,R6              CLEAR OLD ROUTINE NUMBER
 000108  A82A 0066 0042      174        AD    H0000,PCTR            ADVANCE PASS COUNTER BY 1
 00010E  4020 0640 0003      175        MVWI  X'0003',INTCC         RESET EXPECTED CON CODE
 000114  4424 000E           176 $PUPD  MVA   OPTN1,R4              R4 MUST BE SET TO 'OPTN1'
 000118  4C03               177 $PUP2  TBT   (R4,TM)               IS TERMINATE PGM REQUESTED
 00011A  102F               178        JZ    $PUP8                 * NO, CONTINUE CHECKING
                            180 *                                  TERMINATE CONTROL BIT FOUND ON
                            181 *
 00011C  4020 0630 0128     182 $TERM  MVA   $RETI,IOERR           INIT ERROR ADDRESS
 000122  4724 062E          183        MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
 000126  6008               184        SVC   RESET                 ISSUE SVC
 000128  4020 0644 0134     185 $RETI  MVA   $RET2,IOER            INIT ERROR ADDRESS
 00012E  4724 0642          186        MVA   IOBL,R7               LOAD ADDRESS OF CONTROL BLOCK
 000132  6008               187        SVC   RESET                 ISSUE SVC
 000134  4020 0630 014C     188 $RET2  MVA   $TER1,IOERR           INIT ERROR ADDRESS
 00013A  8828 0060 0632     189        MVW   $INTL,IODCB           LOAD INTERRUPT LEVEL
 000140  4724 062E          190        MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
 000144  402D 0632 0001     191        RBTWI X'0001',IODCB         RESET PREPARE 'I' BIT
 00014A  600C               192        SVC   PREP                  ISSUE SVC
 00014C  4020 0644 0164     193 $TER1  MVA   $TER2,IOER            INIT ERROR ADDRESS
 000152  8828 0060 0646     194        MVW   $INTL,IODC            LOAD INTERRUPT LEVEL
 000158  4724 0642          195        MVA   IOBL,R7               LOAD ADDRESS OF CONTROL BLOCK
 00015C  402D 0646 0001     196        RBTWI X'0001',IODC          RESET PREPARE 'I' BIT
 000162  600C               197        SVC   PREP                  ISSUE SVC
 000164  C720 004C          198 $TER2  MVB   $DVAD,R7              LOAD DEV ADDRESS
 000168  7FE4 FF00          199        RBTWI X'FF00',R7            ZERO HIGH ORDER BYTE
 00016C  6013               200        SVC   RICB                  ISSUE SVC
 00016E  C720 0056          201        MVB   $DAD,R7               LOAD DEV ADDRESS
 000172  7FE4 FF00          202        RBTWI X'FF00',R7            ZERO HIGH ORDER BUTE
 000176  6013               203        SVC   RICB                  ISSUE SVC
 000178  6007               204        SVC   TERM                  ISSUE SVC
                            205 *
 00017A  A828 0068 000A     206 $PUP8  AW    H0001,$RTNE           ADVANCE ROUTINE NUMBER
 000180  882B 0064 000A     207        CW    $MXSL,$RTNE           CHECK FOR LAST AUTOMATIC ROUTINE
 000186  6800 006C          208        BE    $PENT                 * BCH AND START WITH RTN 1
                            209 *
                            210 *                GET RTN NUMBER AND BCH TO THAT RTN
                            211 *
 00018A  6E08 000A          212 $PSEL  MVW   $RTNE,R6              MOVE RTN NUMBER IN REG
 00018E  CD25 000C          213        MVWZ  $CKPT,R5              ZERO CHECKPOINT VALUE
 000192  CD25 001A          214        MVWZ  DEV1,R5               ZERO DEV DEPENDENT DATA DEV1
 000196  CD25 001C          215        MVWZ  DEV2,R5                                       DEV2
 00019A  CD25 001E          216        MVWZ  DEV3,R5                                       DEV3
 00019E  CD25 0020          217        MVWZ  DEV4,R5                                       DEV4
 0001A2  3603               218        SLL   1,R6                  DOUBLE R6 FOR BRANCH TABLE
 0001A4  68D2 01A8          219        B     (R6,$FTAD)*           BCH VIA RTN TABLE
                            220 *
                            221 *                TABLE OF ROUTINE ADDRESSES
 0001A8  006C               222 $RTAD  DC    A($PENT)              NO RTN SELECTED
 0001AA  01B6               223        DC    A(RT01)               ROUTINE ADDRESS
 0001AC  022C               224        DC    A(RT02)                 ''      ''
 0001AE  02CC               225        DC    A(RT03)                 ''      ''
 0001B0  035A               226        DC    A(RT04)                 ''      ''
 0001B2  03BE               227        DC    A(RT05)                 ''      ''
 0001B4  0422               228        DC    A(RT06)                 ''      ''
                            230 ************************************************************************
                            231 *     DEVICE ID AND READ TEST                                          *
                            232 *                                                                      *
                            233 *     TO VERIFY THE READ ID TO BOTH DEVICES AND THAT THE READ OF       *
                            234 *     BOTH THE VALUE AND THE MODE CAN BE READ.                         *
                            235 *                                                                      *
                            236 *     A READ ID IS ISSUED TO BOTH DEVICES AND THE ID IS COMPARED TO    *
```

```
 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                             237 *     AN EXPECTED VALUE. AFTER WITCH BOTH THE VALUES AND MODES ARE    *
                             238 *     READ FOR BOTH DEVICES AND SAVED FOR FUTHER REFERENCE.           *
                             239 *                                                                     *
                             240 ***********************************************************************
0001B6  6E03 0666            241 RT01  BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
0001BA  4724 062E            242       MVA   IOBLK,R7             LOAD ADDRESS OF CONTROL BLOCK
0001BE  6009                 243       SVC   RID                  ISSUE SVC
0001C0  882B 0638 0062       244       CW    IORSP,$DVID          TEST READ ID FROM DEVICE
0001C6  1008                 245       JE    ITST4                BRANCH IF OK
0001C8  8828 0638 001E       246       MVW   IORSP,DEV3           MOVE RECEIVED READ ID INTO DEV3
0001CE  8828 0062 0020       247 RT101 MVW   $DVID,DEV4          MOVE EXPECTED ID INTO DEV4
0001D4  6802 06A2            248       B     $PRNT                BRANCH TO PRINT ERROR
0001D8  4724 0642            249 ITST4 MVA   IOBL,R7             LOAD ADDRESS OF CONTROL BLOCK
0001DC  4029 000C 0001       250       AWI   1,$CKPT              BUMP CHECKPOINT
0001E2  6009                 251       SVC   RID                  ISSUE SVC
0001E4  882B 064C 0062       252       CW    IORS,$DVID           TEST READ ID FOR DEVICE
0001EA  1004                 253       JE    RT102                BRANCH IF OK
0001EC  8828 064C 001E       254       MVW   IORS,DEV3            MOVE RECEIVED READ ID INTO DEV3
0001F2  50ED                 255       J     RT101                BRANCH
0001F4  4029 000C 0001       256 RT102 AWI   1,$CKPT              BUMP CHECKPOINT
0001FA  6E03 04C4            257       BAL   XIRV0,R6             READ VALUE FOR DEV 0
0001FE  8828 0024 0028       258       MVW   DCB2,DCB4            MOVE VALUE INTO SAVE AREA
000204  6E03 04D4            259       BAL   XIRM0,R6             READ MODE FOR DEV 0
000208  8828 0024 002A       260       MVW   DCB2,DCB5            MOVE MODE INTO SAVE AREA
00020E  4029 000C 0001       261       AWI   1,$CKPT              BUMP CHECKPOINT
000214  6E03 04CC            262       BAL   XIRV1,R6             READ VALUE FOR DEV 1
000218  8828 0024 002E       263       MVW   DCB2,DCB7            MOVE VALUE INTO SAVE AREA
00021E  6E03 04DC            264       BAL   XIRM1,R6             READ MODE FOR DEV 1
000222  8828 0024 0030       265       MVW   DCB2,DCB8            MOVE MODE INTO SAVE AREA
000228  6802 0114            266       B     $PUPD                BRANCH TO CONTINUE
                             267 ***********************************************************************
                             268 *     TEST FOR RESET OF DEVICE                                        *
                             269 *     TO VERIFY THAT A RESET DOES NOT RESET ANY MORE THAN EXPECTED    *
                             270 *                                                                     *
                             271 *     A RESET IS GIVEN TO DEV 0 AND A START TO DEV 1 THEN A READ      *
                             272 *     MODE TO DEV 0 INSURES THAT THE MODE IS ZERO A READ OF THE MODE  *
                             273 *     FOR DEV 1 IS DONE AND THE VALUE CHECKED FOR VALIDITY THEN BOTH  *
                             274 *     DEV 0 AND 1 VALUES ARE READ AND CHECKED FOR ANY CHANGES.        *
                             275 *     THE ABOVE PROCEDURE IS THEN REPEATED FOR DEV 1 RESET.           *
                             276 ***********************************************************************
00022C  6E03 0666            277 RT02  BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
000230  6E03 04E4            278       BAL   XIRS0,R6             RESET DEV 0
000234  6E03 04FC            279       BAL   XIST1,R6             STOP DEV 1
000238  4029 000C 0001       280       AWI   1,$CKPT              BUMP CHECKPOINT
00023E  6E03 04D4            281       BAL   XIRM0,R6             READ MODE OF DEV 0
000242  6D08 0024            282       MVW   DCB2,R5              MOVE MODE INTO R5
000246  6801 06A2            283       BNZ   $PRNT                BRANCH NOT ZERO TO PRINT ERROR
00024A  6E03 04DC            284       BAL   XIRM1,R6             READ MODE OF DEV 1
00024E  882B 0024 0030       285       CW    DCB2,DCB8            COMPARE WITH LAST VALUE
000254  6801 06A2            286       BNE   $PRNT                BRANCH NOT EQUAL TO PRINT ERROR
000258  4029 000C 0001       287       AWI   1,$CKPT              BUMP CHECKPOINT
00025E  6E03 04CC            288       BAL   XIRV1,R6             READ VALUE OF DEV 1
000262  882B 0024 002E       289       CW    DCB2,DCB7            COMPARE WITH LAST VALUE
000268  6801 06A2            290       BNE   $PRNT                BRANCH NOT EQUAL TO PRINT ERROR
00026C  6E03 04C4            291       BAL   XIRV0,R6             READ VALUE OF DEV 0
000270  882B 0024 0028       292       CW    DCB2,DCB4            COMPARE WITH LAST VALUE
000276  6801 06A2            293       BNE   $PRNT                BRANCH NOT EQUAL TO PRINT ERROR
00027A  4029 000C 0001       294       AWI   1,$CKPT              BUMP CHECKPOINT
000280  6E03 04EC            295       BAL   XIRS1,R6             RESET DEV 1
000284  6E03 04F4            296       BAL   XIST0,R6             STOP DEV 0
000288  4029 000C 0001       297       AWI   1,$CKPT              BUMP CHECKPOINT
00028E  6E03 04DC            298       BAL   XIRM1,R6             READ MODE FOR DEV 1
000292  6D08 0024            299       MVW   DCB2,R5              LOAD MODE INTO R5
000296  6801 06A2            300       BNZ   $PRNT                BRANCH NOT ZERO TO PRINT ERROR
00029A  6E03 04D4            301       BAL   XIRM0,R6             READ MODE OF DEV 0
00029E  6D08 0024            302       MVW   DCB2,R5              LOAD MODE INTO R5
0002A2  6801 06A2            303       BNZ   $PRNT                BRANCH NOT ZERO TO PRINT ERROR
0002A6  4029 000C 0001       304       AWI   1,$CKPT              BUMP CHECKPOINT
0002AC  6E03 04C4            305       BAL   XIRV0,R6             READ VALUE OF DEV 0
0002B0  882B 0024 0028       306       CW    DCB2,DCB4            COMPARE VALUE WITH LAST
0002B6  6801 06A2            307       BNE   $PRNT                BRANCH NOT EQUAL TO PRINT ERROR
0002BA  6E03 04CC            308       BAL   XIRV1,R6             READ VALUE OF DEV 1
0002BE  882B 0024 002E       309       CW    DCB2,DCB7            COMPARE VALUE WITH LAST
0002C4  6801 06A2            310       BNE   $PRNT                BRANCH NOT EQUAL TO PRINT ERROR
0002C8  6802 0114            311       B     $PUPD                BRANCH TO CONTINUE
                             312 ***********************************************************************
                             313 *     PURPOSE: TO INSURE THE TIMER ATTACHMENT WILL RESPOND WITH A     *
                             314 *              'COMMAND REJECT' TO EACH INVALID IO INSTRUCTION.       *
                             315 ***********************************************************************
0002CC  6E03 0666            316 RT03  BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
0002D0  9028 0488 04C0       317       MVD   RVDC0,ERDCB          MOVE IDCB INTO ERROR IDCB FIELD
0002D6  4029 000C 0001       318       AWI   1,$CKPT              BUMP CHECKPOINT
0002DC  0900                 319 RT305 MVBI  X'00',R1             SET UP TO TEST FUNC/MODR OF X'00'
0002DE  0A1F                 320       MVBI  X'1F',R2             * THRU X'1F'
0002E0  9F26                 321       JAL   RT302,R7             GO TEST THEM
0002E2  0921                 322       MVBI  X'21',R1             SET UP TO TEST FUNC/MODR X'21'
0002E4  0A23                 323       MVBI  X'23',R2             * THRU X'23'
0002E6  9F23                 324       JAL   RT302,R7             GO TEST THEM
0002E8  0926                 325       MVBI  X'26',R1             SET UP TO TEST FUNC/MODR X'26'
0002EA  0A5F                 326       MVBI  X'5F',R2             * THRU X'5F'
0002EC  9F20                 327       JAL   RT302,R7             GO TEST THEM
0002EE  0961                 328       MVBI  X'61',R1             SET UP TO TEST FUNC/MODR OF X'61'
0002F0  0A63                 329       MVBI  X'63',R2             * THRU X'63'
0002F2  9F1D                 330       JAL   RT302,R7             GO TEST THEM
0002F4  0968                 331       MVBI  X'68',R1             SET UP TO TEST FUNC/MODR X'68'
0002F6  0A6D                 332       MVBI  X'6D',R2             * THRU X'6D'
0002F8  9F1A                 333       JAL   RT302,R7             GO TEST THEM
0002FA  0970                 334       MVBI  X'70',R1             SET UP TO TEST FUNC/MODR OF X'70'
0002FC  4224 00EF            335       MVWI  X'00EF',R2           * THRU X'EF'
000300  9F16                 336       JAL   RT302,R7             GO TEST THEM
000302  802B 04C1 0056       337       CB    ERDCB+1,$DAD         HAVE WE CHECKED DEV 1
000308  180B                 338       JNE   RT304                BRANCH IF NO
00030A  4029 000C 0001       339       AWI   1,$CKPT              BUMP CHECKPOINT
000310  4724 062E            340       MVA   IOBLK,R7             LOAD ADDRESS OF CONTROL BLOCK
000314  6008                 341       SVC   RESET                ISSUE SVC
000316  4724 0642            342       MVA   IOBL,R7              LOAD ADDRESS OF CONTROL BLOCK
00031A  6008                 343       SVC   RESET                ISSUE SVC
00031C  6802 0114            344       B     $PUPD                BRANCH TO CONTINUE
000320  9028 048C 04C0       345 RT304 MVD   RVDC1,ERDCB          LOAD ERROR IDCB FOR DEV 1
000326  4029 000C 0001       346       AWI   1,$CKPT              BUMP CHECKPOINT
00032C  50D7                 347       J     RT305                BRANCH
                             348 ***********************************************************************
                             349 * THIS SUBROUTINE WILL ISSUE OIO OPS WITH INVALID FUNC/MODR FIELDS FOR*
                             350 * FORCING COMMAND REJECTS, AND WILL TEST THE RESULT OF EACH.          *
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                             351 ***********************************************************************
00032E  C128 04C0            352 RT302 MVB   R1,ERDCB             SET TEST VALUE INTO IDCB
000332  9028 04C0 0022       353       MVD   ERDCB,DCBUF          MOVE TO PERMINENT AREA
000338  680C 0022            354       IO    DCBUF                ISSUE THE OIO
00033C  6B05 05B2            355       BNCC  3,XIOER              CHECK FOR 'COMMAND REJECT'
000340  4C03                 356       TBT   (R4,TM)              IS TERMINATE BIT ON
000342  6A00 011C            357       BON   $TERM                BRANCH IF YES
000346  6002                 358       SVC   IDLE                 DELAY
000348  0101                 359 RT303 ABI   1,R1                 INCR TEST VALUE
00034A  6D08 0012            360       MVW   OPTN3,R6             LOAD OPTION WORD THREE
00034E  6801 06A2            361       BNZ   $PRNT                BRANCH NOT ZERO TO PRINT ERROR
000352  7145                 362       CW    R1,R2                WAS THAT THE LAST ONE ?
000354  6FE0 0000            363       BLLT  (R7)                 YES, RETURN
000358  50EA                 364       J     RT302                NO.  GO DO NEXT VALUE
                             365 ***********************************************************************
                             366 *     VALUE WRITE READ TEST                                           *
                             367 *     VARIFY THAT DIFFERENT VALUES CAN BE WRITTEN AND READ BACK       *
                             368 *                                                                     *
                             369 *     THE ATTACHMENT VALUES WILL BE WRITTEN WITH DIFFERENT VALUES     *
                             370 *     THESE VALUES WILL THEN BE READ BACK AND COMPARED WITH THE       *
                             371 *     WRITTEN VALUE FOR VALIDITY.                                     *
                             372 ***********************************************************************
00035A  6E03 0666            373 RT04  BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
00035E  4124 06E4            374       MVA   ST,R1                LOAD R1 WITH START ADDRESS
000362  4224 070A            375       MVA   EN,R2                LOAD R2 WITH END ADDRESS
000366  4020 000C 0001       376 RT401 MVWI  1,$CKPT              SET CHECKPOINT
00036C  6E03 0504            377       BAL   XIWV0,R6             WRITE VALUE TO DEV 0
000370  6E03 0510            378       BAL   XIWV1,R6             WRITE VALUE TO DEV 1
000374  4020 000C 0002       379       MVWI  2,$CKPT              SET CHECKPOINT
00037A  6E03 04C4            380       BAL   XIRV0,R6             READ VALUE OF DEV 0
00037E  890B 0024            381       CW    (R1),DCB2            COMPARE TO WRITTEN VALUE
000384  6E03 04CC            382       BAL   XIRV1,R6             READ VALUE OF DEV 1
000388  8A0B 0024            383       CW    (R2),DCB2            COMPARE TO WRITTEN VALUE
00038C  180F                 384       JNE   RT403                BRANCH NOT EQUAL
00038E  C924 06E2            385       CW    AEN,R1               IS THIS THE END OF TEST
000392  1013                 386       JE    RT404                BRANCH IF YES
000394  7921 0002            387       AWI   2,R1                 INCREMENT R1
000398  7A41 FFFE            388       AWI   -2,R2                DECREMENT R2
00039C  50E4                 389       J     RT401                BRANCH
00039E  4020 000C 0003       390 RT402 MVWI  3,$CKPT              SET CHECKPOINT
0003A4  8908 001A            391       MVW   (R1),DEV1            LOAD EXPECTED VALUE INTO DEV1
0003A8  6802 06A2            392       B     $PRNT                BRANCH TO PRINT ERROR
0003AC  4020 000C 0004       393 RT403 MVWI  4,$CKPT              SET CHECKPOINT
0003B2  8A08 001A            394       MVW   (R2),DEV1            LOAD EXPECTED VALUE INTO DEV1
0003B6  6802 06A2            395       B     $PRNT                BRANCH TO PRINT ERROR
0003BA  6802 0114            396 RT404 B     $PUPD                BRANCH TO CONTINUE
                             397 ***********************************************************************
                             398 *     MODE WRITE READ TEST                                            *
                             399 *     VARIFY THAT DIFFERENT MODES CAN BE WRITTEN AND READ BACK        *
                             400 *                                                                     *
                             401 *     THE ATTACHMENT MODES WILL BE WRITTEN WITH DIFFERENT VALUES      *
                             402 *     THESE MODES WILL THEN BE READ BACK AND COMPARED WITH THE        *
                             403 *     WRITTEN MODE FOR VALIDITY.                                      *
                             404 ***********************************************************************
0003BE  6E03 0666            405 RT05  BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
0003C2  4124 070E            406       MVA   STT,R1               LOAD START ADDRESS
0003C6  4224 072C            407       MVA   ENN,R2               LOAD END ADDRESS
0003CA  4020 000C 0001       408 RT501 MVWI  1,$CKPT              SET CHECKPOINT
0003D0  6E03 051C            409       BAL   XIWM0,R6             WRITE MODE TO DEV 0
0003D4  6E03 0528            410       BAL   XIWM1,R6             WRITE MODE TO DEV 1
0003D8  4020 000C 0002       411       MVWI  2,$CKPT              SET CHECKPOINT
0003DE  6E03 04D4            412       BAL   XIRM0,R6             READ MODE OF DEV 0
0003E2  890B 0024            413       CW    (R1),DCB2            COMPARE TO EXPECTED VALUE
0003E6  1003                 414       JNE   RT501                BRANCH  NOT EQUAL TO PRINT ERROR
0003E8  6E03 04DC            415       BAL   XIRM1,R6             READ MODE OF DEV 1
0003EC  8A0B 0024            416       CW    (R2),DCB2            COMPARE MODE TO EXPECTED VALUE
0003F0  180F                 417       JNE   RT503                BRANCH IF NOT EQUAL
0003F2  C924 070C            418       CW    AENN,R1              IS THIS THE END OF TEST
0003F6  1013                 419       JE    RT504                BRANCH YES
0003F8  7921 0002            420       AWI   2,R1                 INCREMENT R1
0003FC  7A41 FFFE            421       AWI   -2,R2                DECREMENT R2
000400  50E4                 422       J     RT501                BRANCH
000402  4020 000C 0003       423 RT502 MVWI  3,$CKPT              SET CHECKPOINT
000408  8908 001A            424       MVW   (R1),DEV1            LOAD EXPECTED VALUE INTO DEV1
00040C  6802 06A2            425       B     $PRNT                BRANCH TO PRINT ERROR
000410  4020 000C 0004       426 RT503 MVWI  4,$CKPT              SET CHECKPOINT
000416  8A08 001A            427       MVW   (R2),DEV1            LOAD EXPECTED VALUE INTO DEV1
00041A  6802 06A2            428       B     $PRNT                BRANCH TO PRINT ERROR
00041E  6802 0114            429 RT504 B     $PUPD                BRANCH TO CONTINUE
                             430 ***********************************************************************
                             431 *     INTERRUPT TEST
                             432 *     CHECK ALL POSSIBLE INTERRUPTING LEVELS FOR ALL MODES
                             433 *
                             434 *     THE ATTACHMENT WILL BE PREPARED ON ALL LEVELS BUT THREE THEN
                             435 *     STARTED WITH KNOWN MODE AND VALUES. ALL TYPES OF MODES WILL
                             436 *     BE WRITTEN ON ALL TESTED LEVELS.
                             437 ***********************************************************************
000422  4024 072E            438 RT06  MVA   MODES,R0             LOAD ADDRESS OF DIFFERENT MODE IN R1
000426  4020 0060 FFF1       439 RT601 MVWI  X'FFF1',$INTL        INIT INTERRUPT LEVEL
00042C  4020 000C 0000       440       MVWI  0,$CKPT              SET CHECKPOINT
000432  8808 0020            441 RT602 MVW   (R0),DEV4            SAVE MODE BEING USED
000436  4029 0060 0010       442       AWI   X'10',$INTL          ADD TO INDICATE NEXT INTERRUPT LEVEL
00043C  6E03 0666            443       BAL   $CONC,R6             PREPARE ON INDICATED INTERRUPT LEVEL
000440  7024                 444       MVW   R0,R1                LOAD R1
000442  7044                 445       MVW   R0,R2                LOAD R2
000444  6E03 051C            446       BAL   XIWM0,R6             WRITE MODE TO DEV 0
000448  6E03 0528            447       BAL   XIWM1,R6             WRITE MODE TO DEV 1
00044C  4124 072E            448       MVA   MODES,R1             LOAD ADDRESS OF TABLE
000450  4224 072E            449       MVA   MODES,R2             LOAD ADDRESS OF TABLE
000454  6E03 0504            450       BAL   XIWV0,R6             WRITE VALUE TO DEV 0
000458  6E03 0510            451       BAL   XIWV1,R6             WRITE VALUE TO DEV 1
00045C  6E03 053C            452       BAL   XISA0,R6             START DEV 0
000460  6E03 0544            453       BAL   XISA1,R6             START DEV 1
000464  4029 000C 0001       454       AWI   1,$CKPT              BUMP CHECKPOINT
00046A  402F 0060 0021       455       CWI   X'21',$INTL          HAS INTERRUPT LEVEL COME DOWN TO 2
000470  18E0                 456       JNE   RT602                BRANCH NO
000472  400F 000C            457       CWI   X'0C',(R0)           IS THIS THE END OF TEST
000476  1003                 458       JE    RT603                BRANCH YES
000478  7801 0002            459       AWI   2,R0                INCREMENT R0 INDICATOR
00047C  50D4                 460       J     RT601                BRANCH
00047E  4020 0060 0011       461 RT603 MVWI  X'0011',$INTL        REINIT CORRECT INTERRUPT LEVEL
000484  6802 0114            462       B     $PUPD                BRANCH TO CONTINUE
                             463 *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                            471 *
                            472 *              READ VALUE CONTROL BLOCK
                            473 *
000488  24                  474 RVDC0 DC     X'24'                 USE FOR DCB REFERENCE ONLY
000489  000000              475 RVCT0 DC     X'000000'             CONTROL WORD
                            476 *
                            477 *              READ VALUE CONTROL BLOCK
                            478 *
00048C  24                  479 RVDC1 DC     X'24'                 USE FOR DCB REFERENCE ONLY
00048D  000000              480 RVCT1 DC     X'000000'             CONTROL WORD
                            481 *
                            482 *              READ MODE CONTROL BLOCK
                            483 *
000490  25                  484 RMDC0 DC     X'25'                 USE FOR DCB REFERENCE ONLY
000491  000000              485 RMCT0 DC     X'000000'             CONTROL WORD
                            486 *
                            487 *              READ MODE CONTROL BLOCK
                            488 *
000494  25                  489 RMDC1 DC     X'25'                 USE FOR DCB REFERENCE ONLY
000495  000000              490 RMCT1 DC     X'000000'             CONTROL WORD
                            491 *
                            492 *              RESET TIMER CONTROL BLOCK
                            493 *
000498  6F                  494 RSDC0 DC     X'6F'                 USE FOR DCB REFERENCE ONLY
000499  000000              495 RSCT0 DC     X'000000'             CONTROL WORD
                            496 *
                            497 *              RESET TIMER CONTROL BLOCK
                            498 *
00049C  6F                  499 RSDC1 DC     X'6F'                 USE FOR DCB REFERENCE ONLY
00049D  000000              500 RSCT1 DC     X'000000'             CONTROL WORD
                            501 *
                            502 *              STOP TIMER CONTROL BLOCK
                            503 *
0004A0  6E                  504 STDC0 DC     X'6E'                 USE FOR DCB REFERENCE ONLY
0004A1  000000              505 STCT0 DC     X'000000'             CONTROL WORD
                            506 *
                            507 *              STOP TIMER CONTROL BLOCK
                            508 *
0004A4  6E                  509 STDC1 DC     X'6E'                 USE FOR DCB REFERENCE ONLY
0004A5  000000              510 STCT1 DC     X'000000'             CONTROL WORD
                            511 *
                            512 *              WRITE VALUE CONTROL BLOCK
                            513 *
0004A8  64                  514 WVDC0 DC     X'64'                 USE FOR DCB REFERENCE ONLY
0004A9  000000              515 WVCT0 DC     X'000000'             CONTROL WORD
                            516 *
                            517 *              WRITE VALUE CONTROL BLOCK
                            518 *
0004AC  64                  519 WVDC1 DC     X'64'                 USE FOR DCB REFERENCE ONLY
0004AD  000000              520 WVCT1 DC     X'000000'             CONTROL WORD
                            521 *
                            522 *              WRITE MODE CONTROL BLOCK
                            523 *
0004B0  65                  524 WMDC0 DC     X'65'                 USE FOR DCB REFERENCE ONLY
0004B1  000000              525 WMCT0 DC     X'000000'             CONTROL WORD
                            526 *
                            527 *              WRITE MODE CONTROL BLOCK
                            528 *
0004B4  65                  529 WMDC1 DC     X'65'                 USE FOR DCB REFERENCE ONLY
0004B5  000000              530 WMCT1 DC     X'000000'             CONTROL WORD
                            531 *
                            532 *              START APERIODIC CONTROL BLOCK
                            533 *
0004B8  67                  534 SADC0 DC     X'67'                 USE FOR DCB REFERENCE ONLY
0004B9  000000              535 SACT0 DC     X'000000'             CONTROL WORD
                            536 *
                            537 *              START APERIODIC CONTROL BLOCK
                            538 *
0004BC  67                  539 SADC1 DC     X'67'                 USE FOR DCB REFERENCE ONLY
0004BD  000000              540 SACT1 DC     X'000000'             CONTROL WORD
                            541 *
                            542 *              DUMMY ERROR CONTROL BLOCK
                            543 *
0004C0  00                  544 ERDCB DC     X'00'                 USE FOR DCB REFERENCE ONLY
0004C1  000000              545 ERCTL DC     X'000000'             CONTROL WORD
                            546 ********************************************************************
                            547 *                                                                  *
                            548 *     ISSUE ALL I/O COMMANDS FROM A COMMON SUBROUTINE              *
                            549 *     TO DISPLAY INSTRUCTIONS AND OPERATING PROCEDURES TO THE OPERATOR*
                            550 *     AND SET UP ANY REQUIREMENTS FOR OTHER I/O COMMANDS           *
                            551 *                                                                  *
                            552 * --> BAL    XIRV0,R6              XEQ READ VALUE DEV = 0         *
                            553 * --> BAL    XIRV1,R6              XEQ READ VALUE DEV = 1         *
                            554 * --> BAL    XIRM0,R6              XEQ READ MODE DEV = 0          *
                            555 * --> BAL    XIRM1,R6              XEQ READ MODE DEV = 1          *
                            556 * --> BAL    XIRS0,R6              XEQ RESET DEV = 0              *
                            557 * --> BAL    DIRS1,R6              XEQ RESET DEV = 1              *
                            558 * --> BAL    XIST0,R6              XEQ STOP DEV = 0               *
                            559 * --> BAL    XIST1,R6              XEQ STOP DEV = 1               *
                            560 * --> BAL    XIWV0,R6              XEQ WRITE VALUE DEV = 0        *
                            561 * --> BAL    XIWV1,R6              XEQ WRITE VALUE DEV = 1        *
                            562 * --> BAL    XIWM0,R6              XEQ WRITE MODE DEV = 0         *
                            563 * --> BAL    DIWM1,R6              XEQ WRITE MODE DEV = 1         *
                            564 * --> BAL    XISA0,R6              XEQ START DEV = 0              *
                            565 * --> BAL    XISA1,R6              XEQ START DEV = 1              *
                            566 *                                                                  *
                            567 ********************************************************************
0004C4  4020 0632 0488      568 XIRV0 MVA    RVDC0,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
0004C8  5034                569       J      XIO3                  BRANCH
0004CC  4020 0646 048C      570 XIRV1 MVA    RVDC1,IODC            SET UP CONTROL BLOCK FOR SVC CALL
0004D2  5032                571       J      XIO4                  BRANCH
0004D4  4020 0632 0490      572 XIRM0 MVA    RMDC0,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
0004DA  502C                573       J      XIO3                  BRANCH
0004DC  4020 0646 0494      574 XIRM1 MVA    RMDC1,IODC            SET UP CONTROL BLOCK FOR SVC CALL
0004E2  502A                575       J      XIO4                  BRANCH
0004E4  4020 0632 0498      576 XIRS0 MVA    RSDC0,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
0004EA  5024                577       J      XIO3                  BRANCH
0004EC  4020 0646 049C      578 XIRS1 MVA    RSDC1,IODC            SET UP CONTROL BLOCK FOR SVC CALL
0004F2  5022                579       J      XIO4                  BRANCH
0004F4  4020 0632 04A0      580 XIST0 MVA    STDC0,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
0004FA  501C                581       J      XIO3                  BRANCH
0004FC  4020 0646 04A4      582 XIST1 MVA    STDC1,IODC            SET UP CONTROL BLOCK FOR SVC CALL
000502  501A                583       J      XIO4                  BRANCH
000504  4020 0632 04A8      584 XIWV0 MVA    WVDC0,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
00050A  8908 04AA           585       MVW    (R1),WVDC0+2          SET WRITE VALUE INTO IDCB
00050E  5012                586       J      XIO3                  BRANCH
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000510  4020 0646 04AC      587 XIWV1 MVA    WVDC1,IODC            SET UP CONTROL BLOCK FOR SVC CALL
000516  8A08 04AE           588       MVW    (R2),WVDC1+2          SET WRITE VALUE INTO IDCB
000518  500E                589       J      XIO4                  BRANCH
00051C  4020 0632 04B0      590 XIWM0 MVA    WMDC0,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
000522  8908 04B2           591       MVW    (R1),WMDC0+2          SET WRITE MODE INTO IDCB
000526  5006                592       J      XIO3                  BRANCH
000528  4020 0646 04B4      593 XIWM1 MVA    WMDC1,IODC            SET UP CONTROL BLOCK FOR SVC CALL
00052E  8A08 04B6           594       MVW    (R2),WMDC1+2          SET WRITE MODE INTO IDCB
000532  5002                595       J      XIO4                  BRANCH
000534  4C6B                596 XIO3  TBTS   (R4,NI)               SET NO INTERRUPT BIT ON
000536  500D                597       J      XIO                   BRANCH
000538  4C6B                598 XIO4  TBTS   (R4,NI)               SET NO INTERRUPT BIT ON
00053A  5008                599       J      XIO1                  BRANCH
00053C  4020 0632 04B8      600 XISA0 MVA    SADC0,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
000542  5007                601       J      XIO                   BRANCH
000544  4020 0646 04BC      602 XISA1 MVA    SADC1,IODC            SET UP CONTROL BLOCK FOR SVC CALL
00054A  5000                603       J      XIO1                  BRANCH
                            604 ********************************************************************
                            605 *                                                                  *
                            606 * SOUBROUTINE                                                      *
                            607 *     EXECUTE INPUT AND OUTPUT COMMANDS                            *
                            608 *                                                                  *
                            609 * PURPOSE                                                          *
                            610 *                                                                  *
                            611 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.             *
                            612 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:             *
                            613 *                                                                  *
                            614 *     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED *
                            615 *        THE I/O COMMAND.                                          *
                            616 *     2. SAVES THE DCB BLOCK USED                                  *
                            617 *     3. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT *
                            618 *        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND, *
                            619 *        MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.                *
                            620 *     4. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE *
                            621 *        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE NECESSARY IO. *
                            622 *     5. AFTER ISSUING THE I/O COMMAND, TIMING                     *
                            623 *        STARTS TO DETERMINE A LOST INTERRUPT.                     *
                            624 *     6. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF *
                            625 *        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.    *
                            626 *     7. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.               *
                            627 *     8. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.   *
                            628 *     9. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.     *
                            629 *                                                                  *
                            630 * CALLING SEQUENCE                                                 *
                            631 *                                                                  *
                            632 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                      *
                            633 *                                                                  *
                            634 * --> B      XIO                   XEQ ANY CYCLE STEAL COMMAND, MOD=0 *
                            635 *                                                                  *
                            636 * RETURN CONTROL                                                   *
                            637 *                                                                  *
                            638 *     BXS    (R6)                  RETURN TO USER NO ERROR       *
                            639 ********************************************************************
000540  6D08 0646           640 XIO1  MVW    IODC,R5               LOAD R5 WITH -> TO IDCB
000550  5002                641       J      XIO2                  BRANCH
000552  6D08 0632           642 XIO   MVW    IODCB,R5              LOAD R5 WITH -> TO IDCB
000556  4CA3                643 XIO2  TBTR   (R4,IN)               CLEAR INTERRUPT RECEIVED CNTL BIT
000558  1256                644       JON    XIOCK                 BRANCH IF ON
00055A  6E0D 0018           645       MVW    R6,LSTIO              SAVE IAR FOR RETRY IF REQUESTED
00055E  402E 0018 0004      646       SWI    4,LSTIO               SUB TO OBTAIN ADD OF INST
000564  4324 0000           647       MVA    $PID,R3               LOAD PROGRAM START ADDRESS
000568  CB2F 0018           648       SW     R3,LSTIO              SUB TO OBTAIN LISTING ADDRESS
00056C  4324 0022           649       MVA    DCBUF,R3              SET UP TO ADRS TO MOVE DCB TABLE
000570  0F04                650       MVBI   4,R7                  * THE NUMBER OF MOVES
000572  2D64                651       MVFN   (R5),(R3)             MOVE 1 STATUS WORD AND ADJUST
000574  C2B 0232 006A       652       CB     CPUTYPE,TYPE23        CHECK FOR PROCESSOR 23
00057A  1803                653       JNE    XIO5                  BRANCH NOT EQUAL
00057C  4524 C000           654       MVWI   X'C000',R5            LOAD LOOP COUNT
000580  5001                655       J      XIO6                  BRANCH
000582  75AA                656 XIO5  SW     R5,R5                 LOAD LOOP COUNT
000584  4C2B                657 XIO6  TBT    (R4,NI)               TEST FOR NO INTERRUPT EXPECTED
000586  1201                658       JON    XIO7                  BRANCH IF ON
000588  4C62                659       TBTS   (R4,XI)               SET EXPECTED INTR CONTROL BIT
00058A  6802 0022           660 XIO7  B      DCBUF                 ISSUE IO
00058E  6F05 05B2           661       BNCC   7,XIOER               ERROR IF NOT CC=7
000592  6002                662 XIO8  SVC    IDLE                  ALLOW OTHER PROG TIME
000594  4C03                663       TBT    (R4,TM)               IS TERMINATE BIT ON
000596  6A00 011C           664       BON    $TERM                 BRANCH IF ON
00059A  4CA3                665       TBTR   (R4,IN)               HAS INTERRUPT BEEN RECEIVED
00059C  1234                666       JON    XIOCK                 * YES, CHECK IF ALL WAS SATISFACTORY
00059E  4CAB                667       TBTR   (R4,NI)               IS THERE A INTERRUPT EXPECTED
0005A0  6AC0 0000           668       BON    (R6)                  BRANCH NO
0005A4  7DA1 0001           669       AWI    1,R5                  ADVANCE TIME OUT COUNT
0005A8  18F4                670       JNZ    XIO8                  BCH IF TIME OUT NOT REACHED
0005AA  4C61                671       TBTS   (R4,ER)               SET ON ERROR CONTROL BIT
0005AC  4C66                672       TBTS   (R4,LI)               SET LOAS INTERRUPT BIT
0005AE  6802 06A2           673       B      $PRNT                 BRANCH TO PRINT ERROR
                            674 ********************************************************************
                            675 *                                                                  *
                            676 * SUBROUTINE                                                       *
                            677 *     I/O EXECUTE ERROR HANDLING ROUTINE                           *
                            678 *                                                                  *
                            679 * PURPOSE                                                          *
                            680 *                                                                  *
                            681 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE  *
                            682 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE *
                            683 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                          *
                            684 *                                                                  *
                            685 * CALLING SEQUENCE                                                 *
                            686 *                                                                  *
                            687 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND       *
                            688 *                                                                  *
                            689 * RETURN CONTROL                                                   *
                            690 *                                                                  *
                            691 *     B      $PRNT                 DUMP STATUS BEFORE TERMINATION *
                            692 *                                                                  *
                            693 ********************************************************************
0005B2  706E                694 XIOER CPLSR R3                     SAVE CONDITION CODE ON I/O ERROR
0005B4  336A                695       SRL    13,R3                 POSITION CC CODE TO BITS 13-15
0005B6  C328 0014           696       MVB    R3,$IOIN              * PUT IN LOG OUT AREA
0005BA  6802 06A2           697       B      $PRNT                 BRANCH TO PRINT ERROR
                            698 ********************************************************************
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                            705 *                                                                          *
                            706 * SOUBROUTINE                                                             *
                            707 *                                                                          *
                            708 *     ERROR INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'        *
                            709 *                                                                          *
                            710 * PURPOSE                                                                 *
                            711 *                                                                          *
                            712 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR       *
                            713 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE         *
                            714 *     EXPECTED CODE.                                                     *
                            715 *                                                                          *
                            716 * CALLING SEQUENCE                                                       *
                            717 *                                                                          *
                            718 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT           *
                            719 *                                                                          *
                            720 * RETURN CONTROL                                                         *
                            721 *                                                                          *
                            722 *     SVC   EXIT                  RETURN TO USER VIA SUPVR               *
                            723 *                                                                          *
                            724 ****************************************************************************
0005BE  706E                725 INTER CPLSR R3                      SAVE INDICATORS
0005C0  336A                726       SRL   13,R3                   POSITION INDICATORS IN R3
0005C2  4424 000E           727       MVA   OPTN1,R4                SET UP BASE ADRS
0005C6  4C61                728       TBTS  (R4,ER)                 SET ERROR ON I/O COMMAND CNTL BIT
0005C8  5007                729       J     INTR1                   BRANCH
                            730 ****************************************************************************
                            731 *                                                                          *
                            732 * SOUBROUTINE                                                             *
                            733 *                                                                          *
                            734 *     OKAY  INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'        *
                            735 *                                                                          *
                            736 * PURPOSE                                                                 *
                            737 *                                                                          *
                            738 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                       *
                            739 *                                                                          *
                            740 * CALLING SEQUENCE                                                       *
                            741 *                                                                          *
                            742 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED             *
                            743 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE            *
                            744 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE                 *
                            745 *     COMMON SECTION IS HANDLED HERE.                                    *
                            746 *                                                                          *
                            747 * RETURN CONTROL                                                         *
                            748 *                                                                          *
                            749 *     SVC   EXIT                  RETURN TO USER VIA SUPVR               *
                            750 *                                                                          *
                            751 ****************************************************************************
0005CA  706E                752 INTOK CPLSR R3                      SAVE INDICATORS
0005CC  336A                753       SRL   13,R3                   POSITION INDICATORS IN R3
0005CE  4424 000E           754       MVA   OPTN1,R4                SET UP BASE ADRS
0005D2  4C24                755       TBT   (R4,XE)                 IS AN ERROR EXPECTED
0005D4  1001                756       JOFF  INTR1                   BRANCH NO
0005D6  4C69                757       TBTS  (R4,GI)                 SET GOOD INTERRUPT CONTROL BIT
0005D8  680C 04A0           758 INTR1 IO    STDC0                   STOP DEV 0
0005DC  680C 04A4           759       IO    STDC1                   STOP DEV 1
0005E0  4C63                760       TBTS  (R4,IN)                 SET   INTERRUPT RECEIVED
0005E2  C328 0015           761       MVB   R3,$IOIN+1              SAVE INTERRUPTING CC CODE
0005E6  6F0D 0016           762       MVW   R7,$ISB                 SAVE INTR STATUS AND DEV ADRS
0005EA  78B9                763 INTR2 CPCL  R5                      COPY INTERRUPT LEVEL TO CHECK
0005EC  3521                764       SLL   4,R5                    POSITION INTR LEVEL AND PUT
0005EE  0501                765       ABI   1,R5                    * IN 'I' BIT
0005F0  CD24 0060           766       CW    $INTL,R5                IS THIS THE CORRECT INTR LEVEL
0005F4  1004                767       JE    INTR3                   * YES,  GO EXIT THIS LEVEL
0005F6  3521                768       SLL   4,R5                    POSITION INTERRUPT IN HIGH BYTE
0005F8  6D0D 0020           769       MVW   R5,DEV3+2               SAVE INTO DEV4
0005FC  4C65                770       TBTS  (R4,LE)                 SET INTR LEVEL ERROR CONTROL BIT
0005FE  4CA2                771 INTR3 TBTR  (R4,XI)                 WAS INTERRUPT EXPECTED
000600  1201                772       JON   INTRX                   * YES,  EXIT OFF THIS INTR LEVEL
000602  4C60                773       TBTS  (R4,MI)                 * NO,  SET MYSTERY INTR CONTROL BIT
000604  6006                774 INTRX SVC   EXIT                    EXIT THIS LEVEL VIA SUPVR TO PGM
                            775 ****************************************************************************
                            776 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT     *
                            777 *     HAS BEEN SERVICED.  THE EXERCISER FINDS AN INTERRUPT HAS BEEN   *
                            778 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.   *
                            779 ****************************************************************************
000606  4C20                780 XIOCK TBT   (R4,MI)                 DID MYS  INTERRUPT OCCUR
000608  1208                781       JON   XIOCU                   BRANCH YES
00060A  4C25                782       TBT   (R4,LE)                 WAS AN INTR LEVEL ERROR FOUND
00060C  1002                783       JOFF  XIOCM                   * NO,  CONTINUE CHECKING
00060E  4C61                784       TBTS  (R4,ER)                 SET ERROR CONTROL BIT ON
000610  5004                785       J     XIOCU                   BRANCH
000612  4C24                786 XIOCM TBT   (R4,XE)                 WAS AN ERROR EXPECTED
000614  1208                787       JN    XIOGI                   * YES,  EXIT THIS ROUTINE
000616  4C21                788 XIOCV TBT   (R4,ER)                 WAS ERROR INTR CONTROL BIT ON
000618  1002                789       JOFF  XIOCX                   * NO,  EXIT THIS ROUTINE
00061A  6802 06A2           790 XIOCU B     $PRNT                   BRANCH TO PRINT ERROR
00061E  CB25 0012           791 XIOCX MVWZ  OPTN3,R3                CLEAR OUT OPTION 3 CNTL BITS
000622  68C2 0000           792       B     (R6)                    RETURN TO USER VIA REG 6
000626  4C29                793 XIOGI TBT   (R4,GI)                 WAS GOOD INTERRUPT RECEIVED
000628  12F8                794       JON   XIOCU                   BRANCH YES
00062A  68C2 0000           795       B     (R6)                    RETURN
                            796 *
                            797 *          I/O   PARAMETER LIST
00062E  004C                798 IOBLK DC    A($DVAD)                ADRS OF DEVICE ADRS
000630  05B2                799 IOERR DC    A(XIOER)                ERROR ROUTINE ADRS
000632  0000                800 IODCB DC    A(*-*)                  DCB ADRS OR LEVEL & INTR
000634  0000                801 IOMOD DC    A(*-*)                  MODIFIER
000636  0000                802       DC    A(*-*)                  ADRS OF LAST SVC CALL
000638  0000                803 IORSP DC    A(*-*)                  SECOND WORD OF LAST IDCB
                            804 *
                            805 *          INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
00063A  004C                806 INTBL DC    A($DVAD)                ADRS OF DEVICE ADRS
00063C  05CA                807       DC    A(INTOK)                INTERRUPT OK RETURN ADRS
00063E  05BE                808       DC    A(INTER)                INTERRUPT ERROR ADRS
000640  0003                809 INTCC DC    X'0003'                 INTERRUPT CODE EXPECTED
                            810 *
                            811 *          I/O   PARAMETER LIST
000642  0056                812 IOBL  DC    A($DAD)                 ADRS OF DEVICE ADRS
000644  05B2                813 IOER  DC    A(XIOER)                ERROR ROUTINE ADRS
000646  0000                814 IODC  DC    A(*-*)                  DCB ADRS OR LEVEL & INTR
000648  0000                815 IOMO  DC    A(*-*)                  MODIFIER
00064A  0000                816       DC    A(*-*)                  ADRS OF LAST SVC CALL
00064C  0000                817 IORS  DC    A(*-*)                  SECOND WORD OF LAST IDCB
                            818 *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                            819 *          INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
00064E  0056                820 INTB  DC    A($DAD)                 ADRS OF DEVICE ADRS
000650  05CA                821       DC    A(INTOK)                INTERRUPT OK RETURN ADRS
000652  05BE                822       DC    A(INTER)                INTERRUPT ERROR ADRS
000654  0003                823 INTC  DC    X'0003'                 INTERRUPT CODE EXPECTED
                            824 ****************************************************************************
                            825 *                                                                          *
                            826 * SUBROUTINE                                                             *
                            827 *                                                                          *
                            828 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE                   *
                            829 *                                                                          *
                            830 * PURPOSE                                                                 *
                            831 *                                                                          *
                            832 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND          *
                            833 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE     *
                            834 *     TO INTERRUPT.                                                      *
                            835 *                                                                          *
                            836 * CALLING SEQUENCE                                                       *
                            837 *                                                                          *
                            838 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                         *
                            839 *                                                                          *
                            840 * --> BAL   $CONC,R6              CLEAR DEV DEP STG AND CONNECT I/O BLK  *
                            841 * --> BAL   $CONR,R6              BCH TO CONNECT AND PREPARE DEVICE      *
                            842 * --> BAL   $CONP,R6              PREPARE DEVICE ONLY                    *
                            843 *                                                                          *
                            844 * RETURN CONTROL                                                         *
                            845 *                                                                          *
                            846 *     BXS   (R6)                  RETURN TO USER VIA REG 6               *
                            847 *                                                                          *
                            848 ****************************************************************************
000656                      849 $CONR EQU   *                       SET UP TO REQUEST SUPVR DISK IF IT
000656  4724 063A           850       MVA   INTBL,R7                SET R7 TO CONTROL BLOCK AND
00065A  6014                851       SVC   CICB                    * CONNECT IT TO THIS DEVICE
00065C  4724 064E           852       MVA   INTB,R7                 LOAD ADDRESS OF CONTROL BLOCK
000660  6014                853       SVC   CICB                    CONNECT TO THIS PROG
000662  68C2 0000           854       B     (R6)                    RETURN
000666                      855 $CONC EQU   *                       NUMBER OF BYTE TO CLEAR
000666  CB25 0012           856       MVWZ  OPTN3,R3                CLEAR OLD CONTROLS FOR NEW ROUTINE
00066A  8828 0060 0632      857 $CONP MVW   $INTL,IODCB             PUT IN LEVEL & INTR PARAMETER
000670  8828 0060 0646      858       MVW   $INTL,IODC              PUT IN LEVEL & INTR PARAMETER
000676  4724 062E           859 $CONU MVA   IOBLK,R7                SET R7 TO CONTROL BLOCK TO PREPARE
00067A  4020 0014 07FF      860       MVWI  X'07FF',$IOIN           INITIALIZE CONDITION CODE STORAGE
000680  CB25 0016           861       MVWZ  $ISB,R3                 * AND CLEAR OLD ISB VALUE
000684  6E0D 0018           862       MVW   R6,LSTIO                SET UP ADDRESS THAT STARTED LAST I/O
000688  402E 0018 0004      863       SWI   4,LSTIO                 POINT TO BRANCH POINT FROM
00068E  4324 0000           864       MVA   $PID,R3                 LOAD START EXECUTION ADDRESS
000692  CB2F 0018           865       SW    R3,LSTIO                SUB TO OBTAIN LISTING ADDRESS
000696  600C                866       SVC   PREP                    ISSUE SVC
000698  4724 0642           867       MVA   IOBL,R7                 LOAD ADDRESS OF CONTROL BLOCK
00069C  600C                868       SVC   PREP                    ISSUE SVC
00069E  68C2 0000           869       B     (R6)                    RETURN
                            870 ****************************************************************************
                            871 *                  COMMON PRINT ERROR INTERFACE ROUTINE                    *
                            872 *                                                                          *
                            873 *  ----> R6     LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE     *
                            874 *               BRANCH IS TAKEN TO PRINT THE ERROR                       *
                            875 *  ----> R4     LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE     *
                            876 *               BRANCH IS TAKEN TO PRINT THE ERROR                       *
                            877 *  ----> R3     LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE          *
                            878 *               BRANCH IS TAKEN TO PRINT THE ERROR                       *
                            879 *  ----> PRNTRTN THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST ) *
                            880 *                POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                            881 *                WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN       *
                            882 *                                                                          *
                            883 ****************************************************************************
0006A2  4624 0012           884 $PRNT MVA   OPTN3,R6                LOAD ADDRESS OF OPTION WORD THREE
0006A6  6D08 181E           885       MVW   PRNTRTN,R5              LOAD ADDRESS OF COMMON PRNT ROUTINE
0006AA  4724 0000           886       MVA   $PID,R4                 LOAD ADDRESS OF START OF PROG
0006AE  4324 0042           887       MVA   PCTR,R3                 LOAD ADDRESS OF PASS COUNTER
0006B2  6FA3 0000           888       BAL   (R5),R7                 BRANCH TO COMMON PRINT ROUTINE
0006B6  CE25 0012           889       MVWZ  OPTN3,R6                ZERO OUT ALL FLAGS
0006BA  4424 000E           890       MVA   OPTN1,R4                LOAD BASE ADDRESS FOR INDICATORS
0006BE  802B 0232 006A      891       CB    CPUTYPE,TYPE23          IS THIS A TYPE 23 PROCESSOR
0006C4  1803                892       JNE   $PRN2                   BRANCH IF NO
0006C6  4524 E000           893       MVWI  X'E000',R5              INIT LOOP COUNTER
0006CA  5002                894       J     $PRN1                   BRANCH
0006CC  4524 8000           895 $PRN2 MVWI  X'8000',R5              INIT LOOP COUNTER
0006D0  6002                896 $PRN1 SVC   IDLE                    DELAY
0006D2  4C03                897       TBT   (R4,TM)                 SHOULD PROG TERMINATE
0006D4  6A00 011C           898       BON   $TERM                   BRANCH YES
0006D8  7DA1 0001           899       AWI   1,R5                    INCREMENT LOOP COUNTER
0006DC  18F9                900       JNZ   $PRN1                   BRANCH NOT ZERO
0006DE  6802 006C           901       B     $PENT                   BRANCH TO RESTART FROM BEGINING
                            902 ****************************************************************************
                            903 *                                                                          *
                            904 *          CONSTANT VALUES USED IN THE ROUTINES ABOVE                      *
                            905 *                                                                          *
                            906 ****************************************************************************
0006E2  070A                907 AEN   DC    A(EN)
0006E4  0000                908 ST    DC    X'0000'
0006E6  FFFF                909       DC    X'FFFF'
0006E8  AAAA                910       DC    X'AAAA'
0006EA  5555                911       DC    X'5555'
0006EC  8001                912       DC    X'8001'
0006EE  4002                913       DC    X'4002'
0006F0  2004                914       DC    X'2004'
0006F2  1008                915       DC    X'1008'
0006F4  0180                916       DC    X'0180'
0006F6  0240                917       DC    X'0240'
0006F8  0420                918       DC    X'0420'
0006FA  0810                919       DC    X'0810'
0006FC  0101                920       DC    X'0101'
0006FE  0202                921       DC    X'0202'
000700  0404                922       DC    X'0404'
000702  0808                923       DC    X'0808'
000704  1010                924       DC    X'1010'
000706  2020                925       DC    X'2020'
000708  4040                926       DC    X'4040'
00070A  8080                927 EN    DC    X'8080'
                            928 *
00070C  072C                929 AENN  DC    A(ENN)
00070E  0000                930 STT   DC    X'0000'
000710  0001                931       DC    X'0001'
000712  0002                932       DC    X'0002'
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT

000714  0003                938        DC    X'0003'
000716  0004                939        DC    X'0004'
000718  0005                940        DC    X'0005'
00071A  0006                941        DC    X'0006'
00071C  0007                942        DC    X'0007'
00071E  0008                943        DC    X'0008'
000720  0009                944        DC    X'0009'
000722  000A                945        DC    X'000A'
000724  000B                946        DC    X'000B'
000726  000C                947        DC    X'000C'
000728  000E                948        DC    X'000E'
00072A  000F                949        DC    X'000F'
00072C  0000                950 ENN    DC    X'0000'
                            951 *
00072E  0000                952 MODES  DC    X'0000'
000730  0004                953        DC    X'0004'
000732  0008                954        DC    X'0008'
000734  000C                955        DC    X'000C'
                            956 *
00006C                      957        END   $PENT
```


CROSS-REFERENCE LISTING


```
DECLARED  NAME      ATTRIBUTES AND REFERENCES

       0  .R0.      ABSOLUTE. HEX VALUE(00000000)
                    444   447   450   451   463   465
       0  .R1.      ABSOLUTE. HEX VALUE(00000001)
                    321   324   327   330   333   336   354   361   364
                    377   384   389   391   395   411   418   423   425
                    429   450   454   585   591
       0  .R2.      ABSOLUTE. HEX VALUE(00000002)
                    322   325   328   331   334   337   364   378   387
                    392   398   412   421   426   432   451   455   588
                    594
       0  .R3.      ABSOLUTE. HEX VALUE(00000003)
                    148   149   150   151   168   171   650   651   652
                    654   699   700   701   725   726   753   754   762
                    793   859   864   867   868   891
       0  .R4.      ABSOLUTE. HEX VALUE(00000004)
                    144   145   147   176   177   358   596   598   646
                    660   662   666   668   670   674   675   727   728
                    755   756   758   761   771   772   774   782   784
                    786   788   790   795   890   894   901
       0  .R5.      ABSOLUTE. HEX VALUE(00000005)
                    169   171   213   214   215   216   217   283   300
                    303   643   645   654   657   659   659   672   764
                    765   766   767   769   770   889   892   897   899
                    903
       0  .R6.      ABSOLUTE. HEX VALUE(00000006)
                    167   173   212   218   219   241   257   259   262
                    264   278   279   280   282   285   289   292   296
                    297   299   302   306   309   318   362   376   380
                    381   383   386   410   414   415   417   420   449
                    452   453   456   457   458   459   648   671   794
                    797   857   865   872   888   893
       0  .R7.      ABSOLUTE. HEX VALUE(00000007)
                    170   172   183   186   190   195   198   199   201
                    202   242   249   323   326   329   332   335   338
                    342   344   365   653   763   853   855   862   870
                    892
      60  $CKPT     ADDRESS. HEX LOCATION(0000000C) IN CSECT(E50E0   ) LENGTH(2)
                    213   250   256   261   281   288   295   298   305
                    320   341   348   379   382   394   397   413   416
                    428   431   446   460
     858  $CONC     ADDRESS. HEX LOCATION(00000666) IN CSECT(E50E0   ) LENGTH(1)
                    241   278   318   376   410   449
     852  $CONR     ADDRESS. HEX LOCATION(00000656) IN CSECT(E50E0   ) LENGTH(1)
                    167
     127  $DAD      ADDRESS. HEX LOCATION(00000056) IN CSECT(E50E0   ) LENGTH(2)
                    151   152   160   161   162   163   164   165   166
                    201   339   814   822
     125  $DVAD     ADDRESS. HEX LOCATION(0000004C) IN CSECT(E50E0   ) LENGTH(2)
                     58   148   153   154   155   156   157   158   159
                    198   800   808
     130  $DVID     ADDRESS. HEX LOCATION(00000062) IN CSECT(E50E0   ) LENGTH(2)
                    244   247   252
     129  $INTL     ADDRESS. HEX LOCATION(00000060) IN CSECT(E50E0   ) LENGTH(2)
                    143   189   194   445   448   461   467   767   860
                    861
      98  $IOIN     ADDRESS. HEX LOCATION(00000014) IN CSECT(E50E0   ) LENGTH(2)
                    701   762   863
      99  $ISB      ADDRESS. HEX LOCATION(00000016) IN CSECT(E50E0   ) LENGTH(2)
                    763   864
     131  $MXSL     ADDRESS. HEX LOCATION(00000064) IN CSECT(E50E0   ) LENGTH(2)
                    207
     141  $PENT     ADDRESS. HEX LOCATION(0000006C) IN CSECT(E50E0   ) LENGTH(6)
                     57   208   222   905   957
     173  $PEN1     ADDRESS. HEX LOCATION(00000104) IN CSECT(E50E0   ) LENGTH(4)
                    146
      55  $PID      ADDRESS. HEX LOCATION(00000000) IN CSECT(E50E0   ) LENGTH(4)
                    650   867   890
     888  $PRNT     ADDRESS. HEX LOCATION(000006A2) IN CSECT(E50E0   ) LENGTH(4)
                    248   284   287   291   294   301   304   308   311
                    363   396   399   430   433   676   702   792
     900  $PRN1     ADDRESS. HEX LOCATION(000006D0) IN CSECT(E50E0   ) LENGTH(2)
                    898   904
     899  $PRN2     ADDRESS. HEX LOCATION(000006CC) IN CSECT(E50E0   ) LENGTH(4)
                    896
     176  $PUPD     ADDRESS. HEX LOCATION(00000114) IN CSECT(E50E0   ) LENGTH(4)
                    266   312   346   400   434   468
     206  $PUP8     ADDRESS. HEX LOCATION(0000017A) IN CSECT(E50E0   ) LENGTH(6)
                    178
     185  $RETI     ADDRESS. HEX LOCATION(00000128) IN CSECT(E50E0   ) LENGTH(6)
                    182
     188  $RET2     ADDRESS. HEX LOCATION(00000134) IN CSECT(E50E0   ) LENGTH(6)
                    185
     222  $RTAD     ADDRESS. HEX LOCATION(000001A8) IN CSECT(E50E0   ) LENGTH(2)
                    219
      59  $RTNE     ADDRESS. HEX LOCATION(0000000A) IN CSECT(E50E0   ) LENGTH(2)
                    173   206   207   212
     182  $TERM     ADDRESS. HEX LOCATION(0000011C) IN CSECT(E50E0   ) LENGTH(6)
                    359   667   902
     193  $TER1     ADDRESS. HEX LOCATION(0000014C) IN CSECT(E50E0   ) LENGTH(6)
                    188
     198  $TER2     ADDRESS. HEX LOCATION(00000164) IN CSECT(E50E0   ) LENGTH(4)
                    193
     912  AEN       ADDRESS. HEX LOCATION(000006E2) IN CSECT(E50E0   ) LENGTH(2)
                    389
     934  AENN      ADDRESS. HEX LOCATION(0000070C) IN CSECT(E50E0   ) LENGTH(2)
                    423
      38  CICB      ABSOLUTE. HEX VALUE(00000014)
                    854   856
      51  CPUTYPE   ABSOLUTE. HEX VALUE(00000232)
                    655   895
     105  DCBUF     ADDRESS. HEX LOCATION(00000022) IN CSECT(E50E0   ) LENGTH(2)
                    169   355   356   652   663
     106  DCB2      ADDRESS. HEX LOCATION(00000024) IN CSECT(E50E0   ) LENGTH(2)
                    258   260   263   265   283   286   290   293   300
                    303   307   310   384   387   418   421
     108  DCB4      ADDRESS. HEX LOCATION(00000028) IN CSECT(E50E0   ) LENGTH(2)
                    258   293   307
     109  DCB5      ADDRESS. HEX LOCATION(0000002A) IN CSECT(E50E0   ) LENGTH(2)
                    260
     110  DCB6      ADDRESS. HEX LOCATION(0000002C) IN CSECT(E50E0   ) LENGTH(2)
                    172
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
     111  DCB7       ADDRESS. HEX LOCATION(0000002E) IN CSECT(E50E0   ) LENGTH(2)
                     263   290   310
     112  DCB8       ADDRESS. HEX LOCATION(00000030) IN CSECT(E50E0   ) LENGTH(2)
                     265   286
     101  DEV1       ADDRESS. HEX LOCATION(0000001A) IN CSECT(E50E0   ) LENGTH(2)
                     214   395   398   429   432
     102  DEV2       ADDRESS. HEX LOCATION(0000001C) IN CSECT(E50E0   ) LENGTH(2)
                     215
     103  DEV3       ADDRESS. HEX LOCATION(0000001E) IN CSECT(E50E0   ) LENGTH(2)
                     216   246   254   770
     104  DEV4       ADDRESS. HEX LOCATION(00000020) IN CSECT(E50E0   ) LENGTH(2)
                     217   247   447
     932  EN         ADDRESS. HEX LOCATION(0000070A) IN CSECT(E50E0   ) LENGTH(2)
                     378   912
     950  ENN        ADDRESS. HEX LOCATION(0000072C) IN CSECT(E50E0   ) LENGTH(2)
                     412   934
      86  ER         ABSOLUTE. HEX VALUE(00000021)
                     674   728   786   790
     544  ERDCB      ADDRESS. HEX LOCATION(000004C0) IN CSECT(E50E0   ) LENGTH(1)
                     319   339   347   354   355
      39  EXIT       ABSOLUTE. HEX VALUE(00000006)
                     775
      36  E50E0      CSECT. START(00000000) LENGTH(1846) ESDID(0)
                     36
      94  GI         ABSOLUTE. HEX VALUE(00000029)
                     758   795
     132  H0000      ADDRESS. HEX LOCATION(00000066) IN CSECT(E50E0   ) LENGTH(2)
                     174
     133  H0001      ADDRESS. HEX LOCATION(00000068) IN CSECT(E50E0   ) LENGTH(2)
                     206
      42  IDLE       ABSOLUTE. HEX VALUE(00000002)
                     360   665   900
      88  IN         ABSOLUTE. HEX VALUE(00000023)
                     646   668   761
     822  INTB       ADDRESS. HEX LOCATION(0000064E) IN CSECT(E50E0   ) LENGTH(2)
                     855
     808  INTBL      ADDRESS. HEX LOCATION(0000063A) IN CSECT(E50E0   ) LENGTH(2)
                     853
     811  INTCC      ADDRESS. HEX LOCATION(00000640) IN CSECT(E50E0   ) LENGTH(2)
                     175
     725  INTER      ADDRESS. HEX LOCATION(000005BE) IN CSECT(E50E0   ) LENGTH(2)
                     810   824
     753  INTOK      ADDRESS. HEX LOCATION(000005CA) IN CSECT(E50E0   ) LENGTH(2)
                     809   823
     775  INTRX      ADDRESS. HEX LOCATION(00000604) IN CSECT(E50E0   ) LENGTH(2)
                     773
     759  INTR1      ADDRESS. HEX LOCATION(000005D8) IN CSECT(E50E0   ) LENGTH(4)
                     729   757
     772  INTR3      ADDRESS. HEX LOCATION(000005FE) IN CSECT(E50E0   ) LENGTH(2)
                     768
     814  IOBL       ADDRESS. HEX LOCATION(00000642) IN CSECT(E50E0   ) LENGTH(2)
                     186   195   249   344   870
     800  IOBLK      ADDRESS. HEX LOCATION(0000062E) IN CSECT(E50E0   ) LENGTH(2)
                     183   190   242   342   862
     816  IODC       ADDRESS. HEX LOCATION(00000646) IN CSECT(E50E0   ) LENGTH(2)
                     194   196   570   574   578   582   587   593   602
                     643   861
     802  IODCB      ADDRESS. HEX LOCATION(00000632) IN CSECT(E50E0   ) LENGTH(2)
                     189   191   568   572   576   580   584   590   600
                     645   860
     815  IOER       ADDRESS. HEX LOCATION(00000644) IN CSECT(E50E0   ) LENGTH(2)
                     142   185   193
     801  IOERR      ADDRESS. HEX LOCATION(00000630) IN CSECT(E50E0   ) LENGTH(2)
                     141   182   188
     819  IORS       ADDRESS. HEX LOCATION(0000064C) IN CSECT(E50E0   ) LENGTH(2)
                     252   254
     805  IORSP      ADDRESS. HEX LOCATION(00000638) IN CSECT(E50E0   ) LENGTH(2)
                     244   246
     249  ITST4      ADDRESS. HEX LOCATION(000001D8) IN CSECT(E50E0   ) LENGTH(4)
                     245
      90  LE         ABSOLUTE. HEX VALUE(00000025)
                     771   784
      91  LI         ABSOLUTE. HEX VALUE(00000026)
                     675
     100  LSTIO      ADDRESS. HEX LOCATION(00000018) IN CSECT(E50E0   ) LENGTH(2)
                     648   649   651   865   866   868
      85  MI         ABSOLUTE. HEX VALUE(00000020)
                     774   782
     952  MODES      ADDRESS. HEX LOCATION(0000072E) IN CSECT(E50E0   ) LENGTH(2)
                     444   454   455
      96  NI         ABSOLUTE. HEX VALUE(0000002B)
                     596   598   660   670
      62  OPTN1      ADDRESS. HEX LOCATION(0000000E) IN CSECT(E50E0   ) LENGTH(2)
                     144   176   727   755   894
      73  OPTN3      ADDRESS. HEX LOCATION(00000012) IN CSECT(E50E0   ) LENGTH(2)
                     362   793   859   888   893
     122  PCTR       ADDRESS. HEX LOCATION(00000042) IN CSECT(E50E0   ) LENGTH(2)
                     174   891
      43  PREP       ABSOLUTE. HEX VALUE(0000000C)
                     192   197   869   871
      50  PRNTRTN    ABSOLUTE. HEX VALUE(0000181E)
                     889
      68  QUES       ABSOLUTE. HEX VALUE(0000000D)
                     145   147
      47  RESET      ABSOLUTE. HEX VALUE(00000008)
                     184   187   343   345
      44  RICB       ABSOLUTE. HEX VALUE(00000013)
                     200   203
      48  RID        ABSOLUTE. HEX VALUE(00000009)
                     243   251
     484  RMCT0      ADDRESS. HEX LOCATION(00000491) IN CSECT(E50E0   ) LENGTH(3)
                     154
     489  RMCT1      ADDRESS. HEX LOCATION(00000495) IN CSECT(E50E0   ) LENGTH(3)
                     162
     483  RMDC0      ADDRESS. HEX LOCATION(00000490) IN CSECT(E50E0   ) LENGTH(1)
                     572
     488  RMDC1      ADDRESS. HEX LOCATION(00000494) IN CSECT(E50E0   ) LENGTH(1)
                     574
     494  RSCT0      ADDRESS. HEX LOCATION(00000499) IN CSECT(E50E0   ) LENGTH(3)
                     155
     499  RSCT1      ADDRESS. HEX LOCATION(0000049D) IN CSECT(E50E0   ) LENGTH(3)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                     163
     493  RSDC0      ADDRESS. HEX LOCATION(00000498) IN CSECT(E50E0   ) LENGTH(1)
                     576
     498  RSDC1      ADDRESS. HEX LOCATION(0000049C) IN CSECT(E50E0   ) LENGTH(1)
                     578
     241  RT01       ADDRESS. HEX LOCATION(000001B6) IN CSECT(E50E0   ) LENGTH(4)
                     223
     278  RT02       ADDRESS. HEX LOCATION(0000022C) IN CSECT(E50E0   ) LENGTH(4)
                     224
     318  RT03       ADDRESS. HEX LOCATION(000002CC) IN CSECT(E50E0   ) LENGTH(4)
                     225
     376  RT04       ADDRESS. HEX LOCATION(0000035A) IN CSECT(E50E0   ) LENGTH(4)
                     226
     410  RT05       ADDRESS. HEX LOCATION(000003BE) IN CSECT(E50E0   ) LENGTH(4)
                     227
     444  RT06       ADDRESS. HEX LOCATION(00000422) IN CSECT(E50E0   ) LENGTH(4)
                     228
     247  RT101      ADDRESS. HEX LOCATION(000001CE) IN CSECT(E50E0   ) LENGTH(6)
                     255
     256  RT102      ADDRESS. HEX LOCATION(000001F4) IN CSECT(E50E0   ) LENGTH(6)
                     253
     354  RT302      ADDRESS. HEX LOCATION(0000032E) IN CSECT(E50E0   ) LENGTH(4)
                     323   326   329   332   335   338   366
     347  RT304      ADDRESS. HEX LOCATION(00000320) IN CSECT(E50E0   ) LENGTH(6)
                     340
     321  RT305      ADDRESS. HEX LOCATION(000002DC) IN CSECT(E50E0   ) LENGTH(2)
                     349
     379  RT401      ADDRESS. HEX LOCATION(00000366) IN CSECT(E50E0   ) LENGTH(6)
                     393
     394  RT402      ADDRESS. HEX LOCATION(0000039E) IN CSECT(E50E0   ) LENGTH(6)
                     385
     397  RT403      ADDRESS. HEX LOCATION(000003AC) IN CSECT(E50E0   ) LENGTH(6)
                     388
     400  RT404      ADDRESS. HEX LOCATION(000003BA) IN CSECT(E50E0   ) LENGTH(4)
                     390
     413  RT501      ADDRESS. HEX LOCATION(000003CA) IN CSECT(E50E0   ) LENGTH(6)
                     427
     428  RT502      ADDRESS. HEX LOCATION(00000402) IN CSECT(E50E0   ) LENGTH(6)
                     419
     431  RT503      ADDRESS. HEX LOCATION(00000410) IN CSECT(E50E0   ) LENGTH(6)
                     422
     434  RT504      ADDRESS. HEX LOCATION(0000041E) IN CSECT(E50E0   ) LENGTH(4)
                     424
     445  RT601      ADDRESS. HEX LOCATION(00000426) IN CSECT(E50E0   ) LENGTH(6)
                     466
     447  RT602      ADDRESS. HEX LOCATION(00000432) IN CSECT(E50E0   ) LENGTH(4)
                     462
     467  RT603      ADDRESS. HEX LOCATION(0000047E) IN CSECT(E50E0   ) LENGTH(6)
                     464
     474  RVCT0      ADDRESS. HEX LOCATION(00000489) IN CSECT(E50E0   ) LENGTH(3)
                     153
     479  RVCT1      ADDRESS. HEX LOCATION(0000048D) IN CSECT(E50E0   ) LENGTH(3)
                     161
     473  RVDC0      ADDRESS. HEX LOCATION(00000488) IN CSECT(E50E0   ) LENGTH(1)
                     319   568
     478  RVDC1      ADDRESS. HEX LOCATION(0000048C) IN CSECT(E50E0   ) LENGTH(1)
                     347   570
     535  SACT0      ADDRESS. HEX LOCATION(000004B9) IN CSECT(E50E0   ) LENGTH(3)
                     159
     540  SACT1      ADDRESS. HEX LOCATION(000004BD) IN CSECT(E50E0   ) LENGTH(3)
                     160
     534  SADC0      ADDRESS. HEX LOCATION(000004B8) IN CSECT(E50E0   ) LENGTH(1)
                     600
     539  SADC1      ADDRESS. HEX LOCATION(000004BC) IN CSECT(E50E0   ) LENGTH(1)
                     602
     913  ST         ADDRESS. HEX LOCATION(000006E4) IN CSECT(E50E0   ) LENGTH(2)
                     377
     504  STCT0      ADDRESS. HEX LOCATION(000004A1) IN CSECT(E50E0   ) LENGTH(3)
                     156
     509  STCT1      ADDRESS. HEX LOCATION(000004A5) IN CSECT(E50E0   ) LENGTH(3)
                     164
     503  STDC0      ADDRESS. HEX LOCATION(000004A0) IN CSECT(E50E0   ) LENGTH(1)
                     580   759
     508  STDC1      ADDRESS. HEX LOCATION(000004A4) IN CSECT(E50E0   ) LENGTH(1)
                     582   760
     935  STT        ADDRESS. HEX LOCATION(0000070E) IN CSECT(E50E0   ) LENGTH(2)
                     411
      46  TERM       ABSOLUTE. HEX VALUE(00000007)
                     204
      66  TM         ABSOLUTE. HEX VALUE(00000003)
                     177   358   666   901
     134  TYPE23     ADDRESS. HEX LOCATION(0000006A) IN CSECT(E50E0   ) LENGTH(2)
                     655   895
     525  WMCT0      ADDRESS. HEX LOCATION(000004B1) IN CSECT(E50E0   ) LENGTH(3)
                     158
     530  WMCT1      ADDRESS. HEX LOCATION(000004B5) IN CSECT(E50E0   ) LENGTH(3)
                     166
     524  WMDC0      ADDRESS. HEX LOCATION(000004B0) IN CSECT(E50E0   ) LENGTH(1)
                     590   591
     529  WMDC1      ADDRESS. HEX LOCATION(000004B4) IN CSECT(E50E0   ) LENGTH(1)
                     593   594
     514  WVCT0      ADDRESS. HEX LOCATION(000004A9) IN CSECT(E50E0   ) LENGTH(3)
                     157
     519  WVCT1      ADDRESS. HEX LOCATION(000004AD) IN CSECT(E50E0   ) LENGTH(3)
                     165
     513  WVDC0      ADDRESS. HEX LOCATION(000004A8) IN CSECT(E50E0   ) LENGTH(1)
                     584   585
     518  WVDC1      ADDRESS. HEX LOCATION(000004AC) IN CSECT(E50E0   ) LENGTH(1)
                     587   588
      89  XE         ABSOLUTE. HEX VALUE(00000024)
                     756   788
      87  XI         ABSOLUTE. HEX VALUE(00000022)
                     662   772
     645  XIO        ADDRESS. HEX LOCATION(00000552) IN CSECT(E50E0   ) LENGTH(4)
                     597   601
     782  XIOCK      ADDRESS. HEX LOCATION(00000606) IN CSECT(E50E0   ) LENGTH(2)
                     647   669
     788  XIOCM      ADDRESS. HEX LOCATION(00000612) IN CSECT(E50E0   ) LENGTH(2)
                     785
     792  XIOCU      ADDRESS. HEX LOCATION(0000061A) IN CSECT(E50E0   ) LENGTH(4)
                     783   787   796
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
   793    XIOCX       ADDRESS. HEX LOCATION(0000061E) IN CSECT(E50E0   ) LENGTH(4)
                      791
   699    XIOER       ADDRESS. HEX LOCATION(000005B2) IN CSECT(E50E0   ) LENGTH(2)
                      141   142   357   664   801   815
   795    XIOGI       ADDRESS. HEX LOCATION(00000626) IN CSECT(E50E0   ) LENGTH(2)
                      789
   643    XIO1        ADDRESS. HEX LOCATION(0000054C) IN CSECT(E50E0   ) LENGTH(4)
                      599   603
   646    XIO2        ADDRESS. HEX LOCATION(00000556) IN CSECT(E50E0   ) LENGTH(2)
                      644
   596    XIO3        ADDRESS. HEX LOCATION(00000534) IN CSECT(E50E0   ) LENGTH(2)
                      569   573   577   581   586   592
   598    XIO4        ADDRESS. HEX LOCATION(00000538) IN CSECT(E50E0   ) LENGTH(2)
                      571   575   579   583   589   595
   659    XIO5        ADDRESS. HEX LOCATION(00000582) IN CSECT(E50E0   ) LENGTH(2)
                      656
   660    XIO6        ADDRESS. HEX LOCATION(00000584) IN CSECT(E50E0   ) LENGTH(2)
                      658
   663    XIO7        ADDRESS. HEX LOCATION(0000058A) IN CSECT(E50E0   ) LENGTH(4)
                      661
   665    XIO8        ADDRESS. HEX LOCATION(00000592) IN CSECT(E50E0   ) LENGTH(2)
                      673
   572    XIRM0       ADDRESS. HEX LOCATION(000004D4) IN CSECT(E50E0   ) LENGTH(6)
                      259   282   302   417
   574    XIRM1       ADDRESS. HEX LOCATION(000004DC) IN CSECT(E50E0   ) LENGTH(6)
                      264   285   299   420
   576    XIRS0       ADDRESS. HEX LOCATION(000004E4) IN CSECT(E50E0   ) LENGTH(6)
                      279
   578    XIRS1       ADDRESS. HEX LOCATION(000004EC) IN CSECT(E50E0   ) LENGTH(6)
                      296
   568    XIRV0       ADDRESS. HEX LOCATION(000004C4) IN CSECT(E50E0   ) LENGTH(6)
                      257   292   306   383
   570    XIRV1       ADDRESS. HEX LOCATION(000004CC) IN CSECT(E50E0   ) LENGTH(6)
                      262   289   309   386
   600    XISA0       ADDRESS. HEX LOCATION(0000053C) IN CSECT(E50E0   ) LENGTH(6)
                      458
   602    XISA1       ADDRESS. HEX LOCATION(00000544) IN CSECT(E50E0   ) LENGTH(6)
                      459
   580    XIST0       ADDRESS. HEX LOCATION(000004F4) IN CSECT(E50E0   ) LENGTH(6)
                      297
   582    XIST1       ADDRESS. HEX LOCATION(000004FC) IN CSECT(E50E0   ) LENGTH(6)
                      280
   590    XIWM0       ADDRESS. HEX LOCATION(0000051C) IN CSECT(E50E0   ) LENGTH(6)
                      414   452
   593    XIWM1       ADDRESS. HEX LOCATION(00000528) IN CSECT(E50E0   ) LENGTH(6)
                      415   453
   584    XIWV0       ADDRESS. HEX LOCATION(00000504) IN CSECT(E50E0   ) LENGTH(6)
                      380   456
   587    XIWV1       ADDRESS. HEX LOCATION(00000510) IN CSECT(E50E0   ) LENGTH(6)
                      381   457
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                             3 ************************************************************************
                             4 *                                                                      *
                             5 *                     ***       PREREQUISITES        ***               *
                             6 *                                                                      *
                             7 *                                NONE                                  *
                             8 *                                                                      *
                             9 ************************************************************************
                            10 *                                                                      *
                            11 *                     ***       MODIFICATIONS        ***               *
                            12 *                                                                      *
                            13 *                      EIGHT LINE PER INCH PRINT ADDED                 *
                            14 *                                                                      *
                            15 ************************************************************************
                            16 *                                                                      *
                            17 *                     ***     REA'S INCORPORATED     ***               *
                            18 *                                                                      *
                            19 *                                NONE                                  *
                            20 *                                                                      *
                            21 ************************************************************************
                            22 *                                                                      *
                            23 *                     ***    SPECIAL INSTRUCTIONS    ***               *
                            24 *                                                                      *
                            25 *                                NONE                                  *
                            26 *                                                                      *
                            27 ************************************************************************
                            28 *                                                                      *
                            29 *                     ***       E. C. HISTORY        ***               *
                            30 *                                                                      *
                            31 *          DATE 01OCT76  DATE 06MAY77  DATE 15SEP77  DATE 09DEC77      *
                            32 *          E.C. 578468   E.C. 578756   E.C. 754882   E.C. 755104        *
                            33 *                                                                      *
                            34 ************************************************************************
000000                      36 E64E0 START X'0000'
                            37 *          SUPERVISOR EQUATES
000014                      38 CICB   EQU   20                    CONNECT INTERRUPT CONTROL BLOCK
000006                      39 EXIT   EQU   6                     EXIT INTERRUPT LEVEL
000002                      40 IDLE   EQU   2                     SHARE PROGRAM TIME WITH OTHER PGMS
00000C                      41 PREP   EQU   12                    PREPARE DEVICE
000013                      42 RICB   EQU   19                    RELEASE INTERRUPT CONTROL BLOCK
00000A                      43 START  EQU   10                    START CYCLE STEAL COMMAND
000007                      44 TERM   EQU   7                     TERMINATE THIS PROGRAM
000008                      45 RESET  EQU   8                     DEVICE RESET
000009                      46 RID    EQU   9                     DEVICE READ ID
000000                      47 REG    EQUR  0                     WORK REGISTER
00181E                      48 PRNTRTN EQU  X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
000232                      49 CPUTYPE EQU  X'0232'               ADDRESS OF PROCESSOR TYPE
                            50 *
                            51 *          PROGRAM HEADING AND CONTROL WORDS
                            52 *
000000  F6F4F0F0            53 $PID   DC    C'6400'               PROGRAM IDENTIFICATION
000004  0000                54        DC    XL2'0000'             CURRENT LEVEL OF PROGRAM
000006  0062                55        DC    A($PENT)              -> TO START EXEC ADDRESS
000008  004C                56        DC    A($DVAD)              -> TO DEVICE TABLE
00000A  0000                57 $RTNE  DC    A(*-*)                ROUTINE NUMBER BEING RUN
00000C  0000                58 $CKPT  DC    A(*-*)                LAST CHECK POINT PASSED
00000E  0000                60 OPTN1 DC     X'0000'               PROGRAM OPTION CONTROL WORD 1
                            61 *
                            62 * BIT FUNCTION
                            63 *
000003                      64 TM     EQU   3                     TERMINATE PROGRAM
00000E                      65 IND    EQU   14                    INDICATOR
00000F                      66 DIR    EQU   15                    SEEK DIRECTION INDICATOR
                            67 *
000010  0000                68 OPTN2 DC     X'0000'               PROGRAM OPTION CONTROL WORD 2
000012  0000                69 OPTN3 DC     X'0000'               PROGRAM OPTION CONTROL WORD 3
                            70 *
                            71 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                            72 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                            73 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR  EXPECTED PE
                            74 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                            75 *
                            76 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                            77 *  5  WRONG INTR LEVEL      LE       13  N.U.
                            78 *  6  LOAS INTERRUPT        LI       14  N.U.
                            79 *  7  CS STATUS IN PROGR    CS       15  N.U.
                            80 *                          BIT    HEX
000020                      81 MI     EQU   32      0        8     MYSTERY INTERRUPT HAPPENED
000021                      82 ER     EQU   33      1        4     ERROR RECEIVED ON INTERRUPT
000022                      83 XI     EQU   34      2        2     EXPECTED INTERRUPT CONTROL BIT
000023                      84 IN     EQU   35      3        1     INTERRUPT RECEIVED CONTROL BIT
000024                      85 XE     EQU   36      4        8     EXPECTED ERROR RESPONSE
000025                      86 LE     EQU   37      5        4     INTERRUPT ON WRONG LEVEL ERROR
000026                      87 LI     EQU   38      6        2     LOST INTERRUPT
000027                      88 CS     EQU   39      7        1     CYCLE STEALING IN PROGRESS
000028                      89 CE     EQU   40      8        8     CYCLE STEAL STATUS INERRRUPT ERROR
000029                      90 GI     EQU   41      9        4     GOOD INTERRUPT RECEIVED (EXPECTED ER)
00002A                      91 PE     EQU   42      10       2     PROBABLE ERROR EXPECTED
00002B                      92 NI     EQU   43      11       1     NO INTR. EXPECTED UNPREPED DEV.
000014  0000                94 $IOIN  DC    A(*-*)                I/O AND INTR CONDITION CODES
000016  0000                95 $ISB   DC    A(*-*)                R7, INTR STATUS BYTE & DEV ADRS
000018  0000                96 LSTIO  DC    A(*-*)                ADRS OF LAST IO + 4 BYTES
00001A  00000000            97 $DATA  DC    2A(*-*)               DEVICE DEPENDENT DATA
00001E  00000000            98 DEV3   DC    2A(*-*)               DEPENDENT DATA DEV3 / DEV4
000022  0000                99 DCBUF  DC    A(*-*)                LAST DCB TABLE, CONTROL WORD
000024  0000               100 DCB2   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
000026  0000               101 DCB3   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
000028  0000               102 DCB4   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
00002A  0000               103 DCB5   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
00002C  0000               104 DCB6   DC    A(*-*)                LAST DCB TABLE, CHAIN ADRS
00002E  0000               105 DCB7   DC    A(*-*)                LAST DCB TABLE, BYTE COUNT
000030  0000               106 DCB8   DC    A(*-*)                LAST DCB TABLE, BUFFER ADDRESS
000032                     107 CSBUF  EQU   *                     CYCLE STEAL DATA BUFFER
000032  0000               108 CSTL1  DC    A(*-*)                CYCLE STEAL BUFFER, RESIDUAL ADRS
000034  0000               109 CSTL2  DC    A(*-*)                CYCLE STEAL WD 2, DEVICE DEPEND
000036  0000               110 CSTL3  DC    A(*-*)                CYCLE STEAL WD 3, DEVICE DEPEND
000038  0000               111 CSTL4  DC    A(*-*)                CYCLE STEAL WD 4, DEVICE DEPEND
00003A  0000               112 CSTL5  DC    A(*-*)                CYCLE STEAL WD 5, DEVICE DEPEND
00003C  0000               113 CSTL6  DC    A(*-*)                CYCLE STEAL WD 6, DEVICE DEPEND
00003E  0000               114 CSTL7  DC    A(*-*)                CYCLE STEAL WD 7, DEVICE DEPEND
000040  0000               115 CSTL8  DC    A(*-*)                CYCLE STEAL WD 8, DEVICE DEPEND
000042  00000000           116 PCTR   DC    2A(*-*)               PASS COUNTER
000046  00000000           117 ECTR   DC    2A(*-*)               ERROR COUNTER
00004A  0005               118 ERNUM  DC    X'0005'               NUM OF ERRORS PROG CAN HAVE
00004C  0064               119 $DVAD  DC    X'0064'               DEVICE ADDRESS BEING TESTED
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00004E  0000000000000000   120        DC    XL8'00'
000056  0011               121 $INTL  DC    X'0011'               INTERRUPT LEVEL REQUESTED
000058  0206               122 $DVID  DC    X'0206'               DEVICE IDENTIFICATION
00005A  0009               123 $MXSL  DC    A(09)                 MAXIMUM SELECTABLE ROUTINES
00005C  0000               124 H0000  DC    X'0000'               CONSTANT
00005E  0001               125 H0001  DC    X'0001'               HEX WORD CONSTANT
000060  2300               126 TYPE23 DC    X'2300'               CONSTANT TO CHECK PROCESSOR AGAINST
                           128 ************************************************************************
                           129 *                                                                      *
                           130 *          PROGRAM CONTROL FUNCTIONS                                   *
                           131 *                                                                      *
                           132 ************************************************************************
000062  4020 060A 0562     133 $PENT MVA   XIOER,IOERR           RESTORE ERROR ADDRESS
000068  A82A 005C 0042     134       AD    H0000,PCTR            ADVANCE PASS COUNTER BY 1
00006E  4020 0056 0011     135       MVWI  X'0011',$INTL         INIT INTERRUPT LEVEL
000074  CE25 000A          136       MVWZ  $RTNE,R6              CLEAR OLD ROUTINE NUMBER
000078  4424 000E          137 $PUPD MVA   OPTN1,R4              R4 MUST BE SET TO 'OPTN1'
00007C  4C03               138 $PUP2 TBT   (R4,TM)               IS TERMINATE PGM REQUESTED
00007E  102D               139       JZ    $PUP8                 * NO, CONTINUE CHECKING
                           140 *
                           141 *          TERMINATE CONTROL BIT FOUND ON
                           142 *
000080  4020 060A 0092     143 $TERM MVA   $RETN,IOERR           INIT ERROR ADDRESS
000086  4020 060C 0494     144       MVA   DGDCB,IODCB           LOAD DCB ADDRESS INTO CONTROL BLK
00008C  4724 0608          145       MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
000090  6008               146       SVC   RESET                 ISSUE SVC
000092  4020 060E 000D     147 $RETN MVWI  X'000D',IOMOD         INIT MOD FIELD
000098  4020 060A 00B6     148       MVA   $RETI,IOERR           CHANGE ERROR ADDRESS
00009E  4724 0608          149       MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
0000A2  4C62               150       TBTS  (R4,XI)               TURN EXPECTED INTER BIT ON
0000A4  600A               151       SVC   START                 ISSUE START COMMAND
0000A6  4524 0000          152       MVWI  X'0000',R5            INIT COUNTER
0000AA  4CA3               153 $RETC TBTR  (R4,IN)               TEST FOR INTERRUPT
0000AC  1204               154       JON   $RETI                 BRANCH WHEN RECEIVED
0000AE  6002               155       SVC   IDLE                  EXIT FOR OTHER ROUTINES
0000B0  7DA1 0001          156       AWI   1,R5                  ADD TO COUNTER
0000B4  18FA               157       JNZ   $RETC                 BRANCH TO CONTINUE
0000B6  4020 060A 00CE     158 $RETI MVA   $TER1,IOERR           INIT ERROR ADDRESS
0000BC  8828 0056 060C     159       MVW   $INTL,IODCB           LOAD CURRENT INTERRUPT LEVEL
0000C2  4724 0608          160       MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
0000C6  402D 060C 0001     161       RBTWI X'0001',IODCB         TURN OF PREPARE 'I' BIT
0000CC  600C               162       SVC   PREP                  ISSUE SVC
0000CE  C720 004C          163 $TER1 MVB   $DVAD,R7              LOAD CURRENT DEV ADDRESS
0000D2  7FE4 FF00          164       RBTWI X'FF00',R7            ZERO HIGH ORDER BYTE
0000D6  6013               165       SVC   RICB                  ISSUE SVC
0000D8  6007               166       SVC   TERM                  ISSUE SVC
                           168 *
0000DA  A828 005E 000A     169 $PUP8 AW    H0001,$RTNE           ADVANCE ROUTINE NUMBER
0000E0  882B 005A 000A     170       CW    $MXSL,$RTNE           CHECK FOR LAST AUTOMATIC ROUTINE
0000E6  10BD               171       JE    $PENT                 * BCH AND START WITH RTN 1
                           172 *
                           173 *          GET RTN NUMBER AND BCH TO THAT RTN
                           174 *
0000E8  6E08 000A          175 $PSEL MVW   $RTNE,R6              MOVE RTN NUMBER IN REG
0000EC  CD25 000C          176       MVWZ  $CKPT,R5              ZERO CHECKPOINT
0000F0  CD25 001A          177       MVWZ  $DATA,R5              ZERO ALL FOUR WORDS OF DEV
0000F4  CD25 001C          178       MVWZ  $DATA+2,R5            * DEPENDENT DATA
0000F8  CD25 001E          179       MVWZ  DEV3,R5               *  -------------
0000FC  CD25 0020          180       MVWZ  DEV3+2,R5             *  -------------
000100  3609               181       SLL   1,R6                  DOUBLE FOR BRANCH TABLE
000102  68D2 0106          182       B     (R6,$RTAD)*           BCH VIA RTN TABLE
                           183 *
                           184 *          TABLE OF ROUTINE ADDRESSES
                           185 *
000106  0062               186 $RTAD DC    A($PENT)              NO RTN SELECTED
000108  0118               187       DC    A(RT01)               ROUTINE ADDRESS
00010A  01B6               188       DC    A(RT02)                     ''      ''
00010C  0228               189       DC    A(RT03)                     ''      ''
00010E  0298               190       DC    A(RT04)                     ''      ''
000110  0288               191       DC    A(RT05)                     ''      ''
000112  0318               192       DC    A(RT06)                     ''      ''
000114  0360               193       DC    A(RT07)                     ''      ''
000116  03C4               194       DC    A(RT08)                     ''      ''
                           196 ************************************************************************
                           197 *     CHANNEL INTERFACE TEST                                           *
                           198 *                                                                      *
                           199 *     TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS      *
                           200 *     THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO  *
                           201 *     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS  *
                           202 *     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS       *
                           203 *     EXCEPT LEVEL THREE.                                              *
                           204 ************************************************************************
000118  6E03 061C          205 RT01  BAL   $CONR,R6              CLEAR AND CONNECT I/O BLK
00011C  6A08 0056          206       MVW   $INTL,R2              SAVE SELECTED INTERRUPT
000120  C825 0444          207       MVWZ  WRCTL,REG             SET UP CONTROL WORD FOR TESTING
000124  C825 0450          208       MVWZ  WRBCT,REG             SET UP ZERO BYTE COUNT TO CK FOR INTR
000128  C825 0448          209       MVWZ  WRSKP,REG             SET UP SPACE COUNT OF ZERO
00012C  4020 0056 FFF1     210       MVWI  X'FFF1',$INTL         SET UP INTERRUPT LEVEL FOR PREP
000132  4029 0056 0010     211 ITST4 AWI   X'10',$INTL           ADV INTR LEVEL, STARTING AT 0
000138  6E03 0626          212       BAL   $CONC,R6              GO PREPARE ON NEW LEVEL
00013C  6A08 0056          213       MVW   $INTL,R2              SET UP POINTER TO CONTROL BLOCK
000140  6008               214       SVC   RESET                 CALL SUPVR TO ISSUE RESET
000142  4724 0608          215       MVA   IOBLK,R7              SET UP POINTER TO CONTROL BLOCK
000146  6009               216       SVC   RID                   CALL SUPVR TO ISSUE READ ID
000148  882B 0612 0058     217       CW    IORSP,$DVID           IS ID RECEIVED THE SAME
00014E  1008               218       JE    ITST5                 * YES, CONTINUE
000150  8828 0612 001E     219       MVW   IORSP,DEV3            LOAD RECEIVED ID INTO DEV3
000156  8828 0058 0020     220       MVW   $DVID,DEV3+2          LOAD EXPECTED ID INTO DEV4
00015C  6894               221       B     $PRNT                 BRANCH TO PRINT ERROR
000160  6E03 04AC          222 ITST5 BAL   XIOWR,R6              EXEC NO-OP TO GET AN INTR
000164  4029 000C 0001     223       AWI   1,$CKPT               BUMP CHECKPOINT
00016A  402F 0056 0021     224       CWI   X'21',$INTL           HAS INTR LEVEL COME DOWN TO 2
000170  18E0               225       JNE   ITST4                 * NO, BCH AND CONTINUE TEST
000172  6A0D 0056          226       MVW   R2,$INTL              RESTORE SELECTED INTR LEVEL
000176  6E03 0626          227       BAL   $CONC,R6              SET UP FOR START IO ON CORRECT LEV.
00017A  6E03 04CC          228 ITSTA BAL   XIODG,R6              SET UP FOR START IO
00017E  4224 0792          229 ITSTC MVA   WRBUF,R2              SET UP TO CHECK CHECKSUM
000182  6908 0792          230       MVW   WRBUF,R1              SET UP TO CHECK CHECKSUM VALUE
000186  690B 0794          231       XW    WRBUF+2,R1            * AGAINST SHOULD BE
00018A  7921 0001          232       AWI   1,R1                  CHECK FOR A VALID CHECKSUM
00018E  1005               233       JZ    ITST9                 BCH IF OKAY
000190  9028 0792 001E     234       MVD   WRBUF,DEV3            MOVE ERRORED CHECKSUM VALUE
000196  6802 0694          235       B     $PRNT                 BRANCH TO PRINT ERROR
00019A  6908 0796          236 ITST9 MVW   WRBUF+4,R1           SET UP TO CHECK CHECKSUM VALUE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00019E  690B 0798           237        XW    WRBUF+6,R1          * AGAINST SHOULD BE
0001A2  7921 0001           238        AWI   1,R1                CHECK FOR A VALID CHECKSUM
0001A6  1005                239        JZ    ITST7               BCH IF OKAY
0001A8  9028 0796 001E      240        MVD   WRBUF+4,DEV3        MOVE ERRORED CHECKSUM VALUE
0001AE  6802 0694           241        B     $PRNT               BRANCH TO PRINT ERROR
0001B2  6802 0078           242 ITST7  B     $PUPD               BRANCH TO CONTINUE
                            244 *********************************************************************
                            245 *     DISPLAY DATA                                                  *
                            246 *     TO VERIFY THAT ALL POSITONS CAN PRINT DATA                    *
                            247 *                                                                   *
                            248 *     THE DEFAULT DATA OF 'H' WILL BE PRINTED IN ALL POSITIONS      *
                            249 *     THEN THE DEFAULT DATA OF 'I' WILL BE PRINTED OVER THE 'H'     *
                            250 *     DATA SO THE USER CAN CHECK ALIGNMENT OF THE HEAD              *
                            251 *                                                                   *
                            252 *********************************************************************
0001B6  6E03 0626           253 RT02   BAL   $CONC,R6              PREPARE DEVICE ON CORRECT LEVEL
0001BA  6E03 04B4           254        BAL   XIOVF,R6              ISSUE OVERFLOW TO NEXT CHANNEL
0001BE  6E03 06D4           255        BAL   SETUP,R6              GO SET UP DCB FOR THE PRINTER
0001C2  0810                256        MVBI  16,REG                INIT COUNT REGISTER
0001C4  6E03 04A4           257        BAL   XIO8L,R6              BRANCH TO SET 8 LINES PER INCH
0001C8  4020 0444 0008      258        MVWI  X'0008',WRCTL         INDICATE THIS IN THE CONTROL WORD
0001CE  4124 001A           259 DSPL2  MVA   $DATA,R1              SET UP  TO  ADRS FOR THE MOVE
0001D2  4020 000C 0001      260        MVWI  1,$CKPT               INIT CHECKPOINT TO ONE
0001D8  4224 0792           261        MVA   WRBUF,R2              SET UP  TO  ADRS FOR THE MOVE
0001DC  0B23                262        MVBI  35,R3                 SET UP COUNT REGISTER
0001DE  4020 001A C8C8      263        MVWI  C'HH',$DATA           SET UP TYPE OF DATA TO MOVE
0001E4  4020 001C C8C8      264        MVWI  C'HH',$DATA+2         * INTO A DOUBLE WORD
0001EA  9184                265 DSPL3  MVD   (R1),(R2)+            MOVE DATA FROM THE DOUBLE WORD
0001EC  BBFE                266        JCT   DSPL3,R3              * FIELD TO THE BUFFER
0001EE  4020 0448 0001      267        MVWI  X'1000',WRSKP         INDICATE MOVE TO NEXT CHANNEL
0001F4  6E03 04AC           268 DSPL4  BAL   XIOWR,R6              BRANCH TO WRITE BUFFER
0001F8  4020 0448 0000      269        MVWI  X'0000',WRSKP         INDICATE NO MOVE TO NEXT CHANNEL
0001FE  0B23                270        MVBI  35,R3                 SET UP COUNT REG
000200  4124 001A           271        MVA   $DATA,R1              LOAD ADDRESS OF FROM DATA
000204  4224 0792           272        MVA   WRBUF,R2              LOAD ADDRESS OF TO DATA
000208  4020 000C 0002      273        MVWI  2,$CKPT               INIT CHECKPOINT TO TWO
00020E  4020 001A C9C9      274        MVWI  C'II',$DATA           MOVE DESIRED DATA INTO A
000214  4020 001C C9C9      275        MVWI  C'II',$DATA+2         * DOUBLE WORD
00021A  9184                276 DSPL5  MVD   (R1),(R2)+            MOVE THE DESIRED PRINT DATA
00021C  BBFE                277        JCT   DSPL5,R3              * INTO THE PRINT BUFFER
00021E  6E03 04AC           278 DSPL6  BAL   XIOWR,R6              BRANCH TO WRITE OUT DATA
000222  B8D5                279        JCT   DSPL2,REG             BRANCH FOR COUNT
000224  6802 0078           280        B     $PUPD               BRANCH TO CONTINUE
                            282 *********************************************************************
                            283 *     RIPPLE DISPLAY                                                *
                            284 *     TO VERIFY THAT ALL CHARACTERS CAN BE PRINTED IN ALL POSITIONS.*
                            285 *                                                                   *
                            286 *     EACH LINE ON THE PTR IS WRITTEN AND THEN THE BUFFER ADDRESS   *
                            287 *     IS ADVANCED IN ORDER TO CHAIN THE STARTING CHARACTER.         *
                            288 *********************************************************************
000228  6E03 0626           289 RT03   BAL   $CONC,R6              PREPARE THE DEVICE ON PROPER LEVEL
00022C  6E03 04B4           290        BAL   XIOVF,R6              SKIP TO CHANNEL COMMAND
000230  6E03 06D4           291        BAL   SETUP,R6              SET UP WRITE DCB
000234  0860                292        MVBI  96,REG                SET UP LINE COUNTER
000236  4020 0452 0732      293        MVA   ALPHA,WRADR           SET WRITE BUFFER ADRS
00023C  4029 000C 0001      294        AWI   1,$CKPT               BUMP CHECKPOINT
000242  A828 005E 0452      295 RIPL3  AW    H0001,WRADR           ADVANCE WRITE BUFFER ADRS
000248  6E03 04AC           296 RIPL4  BAL   XIOWR,R6              GO WRITE DATA & READ BUFFER
00024C  402D 0448 FF00      297        RBTWI X'FF00',WRSKP         REMOVE SKIP CNTL IF IT IS ON
000252  B8F7                298        JCT   RIPL3,REG             JUMP UNLESS COUNT ZERO
000254  6802 0078           299        B     $PUPD               BRANCH TO CONTINUE
                            301 *********************************************************************
                            302 *     SPACE TEST                                                    *
                            303 *     TO TEST VARIABLE SPACING                                      *
                            304 *                                                                   *
                            305 *     SPACING WILL BEGIN WITH ONE AND INCREASE TO VERIFY THAT       *
                            306 *     VARIABLE SPACING CAN BE DONE.                                 *
                            307 *********************************************************************
000258  6E03 0626           308 RT04   BAL   $CONC,R6              PREPARE DEVICE ON PROPER LEVEL
00025C  6E03 04B4           309        BAL   XIOVF,R6              MOVE TO DESIRED CHANNEL
000260  6E03 06D4           310        BAL   SETUP,R6              GO SETUP PRINTER DCB
000264  0808                311        MVBI  08,REG                SET UP SPACE COUNTER
000266  4029 000C 0001      312        AWI   1,$CKPT               BUMP CHECKPOINT
00026C  402D 0436 00FF      313        RBTWI X'FF',MSFMS           REMOVE LINE LENGTH FOR SPACE TEST
000272  4029 0448 0001      314 SPAC3  AWI   X'01',WRSKP           ADVANCE THE SPACE CONTROL VALUE
000278  6E03 04AC           315 SPAC4  BAL   XIOWR,R6              GO PRINT AND SPACE
00027C  402D 0448 FF00      316        RBTWI X'FF00',WRSKP         REMOVE SKIP CNTL IF IT IS ON
000282  B8F7                317        JCT   SPAC3,REG             * BCH IF NOT FINISHED
000284  6802 0078           318        B     $PUPD               BRANCH TO CONTINUE
                            320 *********************************************************************
                            321 *     CYCLE STEAL STATUS                                            *
                            322 *     THIS TEST WILL VERIFY THAT THE ATTACHMENT WILL SEND BACK THE  *
                            323 *     ADDRESS OF THE LAST CYCLE STEAL ADDRESS.                      *
                            324 *                                                                   *
                            325 *     A MESSAGE IS PRINTED AND KNOWING THE LAST BUFFER LOCATION USED*
                            326 *     THE RESIDUAL ADDRESS CAN BE COMPUTED.  THE START CYCLE STATUS IS*
                            327 *     EXECUTED AND THE TWO ADDRESSES ARE COMPARED.                  *
                            328 *     ANOTHER START CYCLE STEAL STATUS IS EXECUTED AND IT WILL VERIFY *
                            329 *     THAT START CYCLE STATUS DOES NOT DESTROY THE RESIDUAL ADDRESS.*
                            330 *********************************************************************
000288  6E03 0626           331 RT05   BAL   $CONC,R6              PREPARE DEVICE ON CORRECT LEVEL
00028C  6E03 04B4           332        BAL   XIOVF,R6              MOVE TO NEW CHANNEL
000290  6E03 06D4           333        BAL   SETUP,R6              SET UP THE PRINTER DCB
000294  402D 0436 00FF      334        RBTWI X'FF',MSFMS           REMOVE LINE LENGTH FOR SPACE TEST
00029A  4029 000C 0001      335 CSST2  AWI   1,$CKPT               BUMP CHECKPOINT
0002A0  4724 02EC           336        MVA   MSGCS,R7              LOAD ADDRESS OF LEN OF MESSAGE
0002A4  402D 0434 8000      337        RBTWI X'8000',MSCTL         TURN OFF CHAINING ADDRESS BIT
0002AA  6E03 04BC           338        BAL   DISPF,R6              GO DISPLAY MESSAGE
0002AE  402C 0434 8000      339        OWI   X'8000',MSCTL         TURN ON CHAINING ADDRESS BIT
0002B4  4124 0316           340        MVA   MSGND-1,R1            LAST CYCLE ADRS USED
0002B8  4029 000C 0001      341        AWI   1,$CKPT               BUMP CHECKPOINT
0002BE  6E03 04EC           342        BAL   XIOCS,R6              GO GET STATUS FROM LAST I/O
0002C2  C924 0032           343        CW    CSBUF,R1              COMPARE LAST STG  LOCATION USED
0002C6  1004                344        JE    CSST4                 BRANCH IF GOOD ADDRESS
0002C8  690D 0020           345        MVW   R1,DEV3+2             LOAD EXPECTED ADDRESS INTO DEV4
0002CC  6802 0694           346        B     $PRNT                 BRANCH TO PRINT ERROR
0002D0  4029 000C 0001      347 CSST4  AWI   1,$CKPT               BUMP CHECKPOINT
0002D6  6E03 04EC           348 CSST5  BAL   XIOCS,R6              EXECUTE 2 ND START CS STS
0002DA  C924 0032           349        CW    CSBUF,R1              CK IF 2 ND CS STS DESTROYED RESID ADR
0002DE  1004                350        JE    CSST7                 IF THE RESIDUAL ADRS OK, BCH
0002E0  690D 0020           351        MVW   R1,DEV3+2             MOVE EXPECTED VALUE INTO DEV4
0002E4  6802 0694           352        B     $PRNT                 BRANCH TO PRINT ERROR
0002E8  6802 0078           353 CSST7  B     $PUPD                 BRANCH TO CONTINUE
0002EC  0029                354 MSGCS  DC    A(MSGND-MSGCS-2)      LENGTH OF MESSAGE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
0002EE  D9D6E4E3C9D5C540E   355        DC    C'ROUTINE TO CHECK FOR CS STATUS PARAMETERS'
000317                      356 MSGND  EQU   *                     END OF MESSAGE
000317  00                  357        ALIGN WORD
                            359 *********************************************************************
                            360 *     PRINTER ERRORS                                                *
                            361 *     CHECK ALL POSSIBLE INTERRUPTING ERRORS                        *
                            362 *                                                                   *
                            363 *     THE ATTACHMENT WILL REJECT INVALID PARAMETERS IN THE DCB      *
                            364 *     AND THIS WILL VERIFY THAT THE ATTACHMENT CAN DO IT.           *
                            365 *     THE ROUTINE HEADINGS IS CHAINED TO THE INVALID COMMAND.       *
                            366 *********************************************************************
000318  6E03 0626           367 RT06   BAL   $CONC,R6              PREPAR ON CORRECT LEVEL
00031C  6E03 04B4           368        BAL   XIOVF,R6              MOVE TO NEXT CHANNEL
000320  6E03 06D4           369        BAL   SETUP,R6              GO SET UP THE PRINTER DCB
000324  4020 0452 0346      370        MVA   MSGPE+2,WRADR         SET UP ERROR MSG IF A FAILURE HAPPENS
00032A  4020 0450 00C8      371 IKEY1  MVWI  200,WRBCT             SET UP BYTE COUNT THAT IS TOO LARGE
000330  4C64                372        TBTS  (R4,X2)               SET EXPECTED INDICATOR
000332  4724 0344           373        MVA   MSGPE,R7              SET UP MSG POINTER TO PRINT TITLE
000336  4029 000C 0001      374        AWI   1,$CKPT               BUMP CHECKPOINT
00033C  6E03 04BC           375        BAL   DISPF,R6              ISSUE ERROR COMMAND
000340  6802 0078           376        B     $PUPD               BRANCH TO CONTINUE
000344  001A                377 MSGPE  DC    A(MSGPN-MSGPE-2)    LENGTH OF MESSAGE
000346  C2E8E3C540C3D6E4D   378        DC    C'BYTE COUNT TOO LARGE TEST '
000360                      379 MSGPN  EQU   *                     END OF MESSAGE
                            380        ALIGN WORD
                            382 *********************************************************************
                            383 *     DIAGNOSTIC MODE                                               *
                            384 *     CHECK ALL POSSIBLE FUNCTION OF DIAGNOSTIC MODE                *
                            385 *                                                                   *
                            386 *     WRITE CONTROL STORE WITH EXECUTIBLE CODE AND AFTER IT HAS BEEN *
                            387 *     EXECUTED, READ IT BACK AND VERITY IT HAS NOT BEEN CHANGED.    *
                            388 *********************************************************************
000360  6E03 0626           389 RT07   BAL   $CONC,R6              PREPARE DEVICE ON CORRECT LEVEL
000364  6E03 04B4           390        BAL   XIOVF,R6              MOVE TO NEXT CHANNEL
000368  6E03 06D4           391        BAL   SETUP,R6              GO SET UP THE PRINTER DCB
00036C  4020 0484 0010      392 VARI3  MVWI  X'10',FMCTL           SET UP DIAG CONTROL
000372  4020 0492 070E      393        MVA   DIAGX,FMADR           SET UP BUFFER ADRS
000378  4029 000C 0001      394        AWI   1,$CKPT               BUMP CHECKPOINT
00037E  6E03 04DA           395        BAL   XIOFM,R6              WRITE FORMS
000382  4020 0484 2010      396        MVWI  X'2010',FMCTL         SET UP READ CONTROL
000388  4020 0492 0706      397        MVA   SETCH,FMADR           SET UP BUFFER ADRS
00038E  4029 000C 0001      398        AWI   1,$CKPT               BUMP CHECKPOINT
000394  6E03 04DA           399        BAL   XIOFM,R6              READ FORMS
000398  4020 0492 0706      400        MVA   SETCH,FMADR           SET UP THE BUFFER ADRS
00039E  902B 0706 070E      401        CD    SETCH,DIAGX           COMPARE WAS AND S/B VALUES
0003A4  1008                402        JE    VARI6                 * AND BCH IF THE SAME
0003A6  9028 0706 001A      403 VARI1  MVD   SETCH,$DATA           MVE READ VALUE INTO DEV1 - DEV4
0003AC  9028 070A 001E      404        MVD   SETCH+4,DEV3          *****
0003B2  6802 0694           405        B     $PRNT                 BRANCH TO PRINT ERROR
0003B6  902B 070A 0712      406 VARI6  CD    SETCH+4,DIAGX+4       COMPARE WAS AND S/B VALUES
0003BC  1001                407        JE    VARI7                 * AND BCH IF THE SAME
0003BE  50F3                408        J     VARI1                 BRANCH IF ERROR
0003C0  6802 0078           409 VARI7  B     $PUPD                 BRANCH TO CONTINUE
                            411 *********************************************************************
                            412 *     RANDOM LENGTH PRINTING                                        *
                            413 *     CHECK RANDOM PRINT LINE LENGTHS                               *
                            414 *                                                                   *
                            415 *     FILL THE BUFFER WITH RANDOM LENGTHS OF DATA AND VARY THE PRINT *
                            416 *     POSITION.                                                     *
                            417 *********************************************************************
0003C4  6E03 0626           418 RT08   BAL   $CONC,R6              PREPARE DEVICE ON CORRECT LEVEL
0003C8  6E03 04B4           419        BAL   XIOVF,R6              MOVE TO NEXT CHANNEL
0003CC  6E03 06D4           420        BAL   SETUP,R6              GO SET UP THE PRINTER DCB
0003D0  402D 0436 00FF      421        RBTWI X'00FF',MSFMS         REMOVE OVERFLOW LINE FOR THIS TEST
0003D6  4724 0108           422        MVWI  MXCT,R7               LOAD R7 WITH BUFFER LENGTH
0003DA  4324 0040           423        MVWI  X'40',R3              INIT R3 WITH A BLANK
0003DE  4524 0792           424        MVA   WRBUF,R5              LOAD ADDRESS OF WRITE BUFFER
0003E2  2BAC                425        FFN   R3,(R5)               BLANK OUT LINE
0003E4  0F08                426        MVBI  8,R7                  SET UP BYTE COUNT
0003E6  4324 0732           427        MVA   ALPHA,R3              SET UP ADDRESS FROM
0003EA  4524 078A           428        MVA   WRBUF-8,R5            SET UP ADDRESS TO AND
0003EE  6D0E 0450           429        AW    WRBCT,R5              * MODIFY IT WITH THE BYTE COUNT
0003F2  2BA0                430        MVFN  (R3),(R5)             AND MAKE THE MOVE
0003F4  4124 0792           431        MVA   WRBUF,R1              SET UP STARTING BUFFER ADRS
0003F8  690E 0450           432        AW    WRBCT,R1              * AND ADJUST WITH CURRENT BYTE COUNT
0003FC  4029 000C 0001      433        AWI   1,$CKPT               BUMP CHECKPOINT
000402  4029 0452 0006      434 RAND4  AWI   6,WRADR               ADVANCE BUFFER ADRS
000408  6E03 04AC           435 RAND5  BAL   XIOWR,R6              WRITE ANOTHER LINE
00040C  C924 0452           436        CW    WRADR,R1              HAS BUFFER ADRS REACHED THE LIMIT
000410  1DF8                437        JGT   RAND4                 * NO, CONTINUE
000412  4124 0792           438        MVA   WRBUF,R1              * YES, REDUCE LIMIT AND START DOWN
000416  4029 000C 0001      439        AWI   1,$CKPT               BUMP CHECKPOINT
00041C  6E03 04AC           440 RAND7  BAL   XIOWR,R6              GO WRITE ANOTHER LINE
000420  4124 0792           441        MVA   WRBUF,R1              LOAD ADDRESS OF WRITE BUFFER
000424  4029 0452 FFF9      442        AWI   -7,WRADR              REDUCE WRITE BUFFER ADRS
00042A  C924 0452           443        CW    WRADR,R1              CHECK FOR LOWER LIMIT
00042E  15F6                444        JLE   RAND7                 * AND BCH IF NOT REACHED
000430  6802 0078           445        B     $PUPD               BRANCH TO CONTINUE
                            447 *********************************************************************
                            448 *          DCB'S USED DURING TESTING                                *
                            449 *********************************************************************
                            450 *
                            451 *          MESSAGE DATA CONTROL BLOCK
                            452 *
000434                      453 MSDCB  EQU   *                     USE FOR DCB REFERENCE ONLY
000434  8080                454 MSCTL  DC    X'8080'               CONTROL WORD
000436  0000                455 MSFMS  DC    X'0000'               FORMS LENGTH / SKIP CONTROL
000438  0002                456 MSSKP  DC    X'0002'               SKIP TO / NUMBER OF SPACES
00043A  0000                457        DC    X'0000'
00043C  0000                458        DC    X'0000'
00043E  0444                459 MSCHN  DC    A(WRDCB)              CHAIN ADRS
000440  0000                460 MSBCT  DC    X'0000'               BYTE COUNT
000442  0000                461 MSADR  DC    A(*-*)                BUFFER ADDRESS
                            462 *
                            463 *          WRITE DATA CONTROL BLOCK
                            464 *
000444                      465 WRDCB  EQU   *                     USE FOR DCB REFERENCE ONLY
000444  0000                466 WRCTL  DC    X'0000'               CONTROL WORD
000446  0000                467 WRFMS  DC    X'0000'               FORM LENGTH / SKIP CONTROL
000448  0001                468 WRSKP  DC    X'0001'               SKIP TO / NUMBER OF SPACES
00044A  0000                469        DC    A(000)
00044C  0000                470        DC    A(000)
00044E  0000                471 WRCHN  DC    A(*-*)                CHAIN ADRS
000450  0000                472 WRBCT  DC    A(*-*)                BYTE COUNT
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000452  0792               473 WRADR DC    A(WRBUF)                 BUFFER ADRS
                           474 *
                           475 *           CYCLE STEAL DATA CONTROL BLOCK
                           476 *
000454                     477 CSDCB EQU   *                        USE FOR DCB REFERENCE ONLY
000454  2000               478 CSCTL DC    X'2000'                  CONTROL WORD
000456  0000               479 CSFMS DC    X'0000'                  NOT USED
000458  0000               480 CSSKP DC    X'0000'                  NOT USED
00045A  0000               481       DC    X'0000'
00045C  0000               482       DC    X'0000'
00045E  0000               483 CSCHN DC    A(0000)                  CHAIN ADRS, NOT USED
000460  000E               484 CSBCT DC    X'000E'                  BYTE COUNT
000462  0032               485 CSADR DC    A(CSBUF)                 BUFFER ADRS
                           487 *
                           488 *           SKIP TO ONE DATA CONTROL BLOCK
                           489 *
000464                     490 OVDCB EQU   *                        USE FOR DCB REFERENCE ONLY
000464  0000               491 OVCTL DC    X'0000'                  CONTROL WORD
000466  0000               492 OVFMS DC    X'0000'                  NOT USED
000468  0001               493 OVSKP DC    X'0001'                  SKIP TO ONE
00046A  0000               494       DC    X'0000'
00046C  0000               495       DC    X'0000'
00046E  0000               496 OVCHN DC    A(0000)                  CHAIN ADRS, NOT USED
000470  0000               497 OVBCT DC    X'0000'                  BYTE COUNT, NOT USED
000472  0000               498 OVADR DC    A(0000)                  BUFFER ADRS, NOT USED
                           499 *
                           500 *           SET EIGHT LINES PER INCH CONTROL BLOCK
                           501 *
000474                     502 DCB8L EQU   *                        USE FOR DCB REFERENCE ONLY
000474  0010               503 L8CTL DC    X'0010'                  CONTROL WORD
000476  0000               504       DC    X'0000'                  NOT USED
000478  0000               505       DC    X'0000'                  NOT USED
00047A  0000               506       DC    X'0000'                  NOT USED
00047C  00A4               507       DC    X'00A4'                  DIAG ADDRESS
00047E  0000               508       DC    X'0000'                  NOT USED
000480  001C               509       DC    X'001C'                  BYTE COUNT
000482  0716               510 L8ADR DC    A(LINE8)                 BUFFER ADRS
                           511 *
                           512 *           LOAD CHAIN FORMAT DATA CONTROL BLOCK
                           513 *
000484                     514 FMDCB  EQU  *                        USED FOR DCB REFERENCE ONLY
000484  0000               515 FMCTL  DC   X'0000'                  CONTROL WORD
000486  0000               516 FMDC2  DC   X'0000'                  N.U.
000488  0000               517 FMDC3  DC   X'0000'                  SKIP TO / NUM OF SPACES
00048A  0000               518 FMDC4  DC   X'0000'
00048C  0000               519 FMDC5  DC   X'0000'
00048E  0000               520 FMCHN  DC   A(0000)                  CHAIN ADDRESS
000490  0008               521 FMBCT  DC   X'0008'                  BYTE COUNT
000492  0706               522 FMADR  DC   A(SETCH)                 BUFFER ADDRESS
                           523 *
                           524 *           DIAGNOSTIC  DATA CONTROL BLOCK
                           525 *
000494                     526 DGDCB  EQU  *                        USED FOR DCB REFERENCE ONLY
000494  2000               527 DGCTL  DC   X'2000'                  CONTROL WORD
000496  0000               528 DGDC2  DC   X'0000'                  N.U.
000498  0000               529 DGDC3  DC   X'0000'                  SKIP TO / NUM OF SPACES
00049A  0000               530 DGDC4  DC   X'0000'
00049C  0000               531 DGDC5  DC   X'0000'
00049E  0000               532 DGCHN  DC   A(0000)                  CHAIN ADDRESS
0004A0  000C               533 DGBCT  DC   X'000C'                  BYTE COUNT
0004A2  0792               534 DGADR  DC   A(WRBUF)                 BUFFER ADDRESS
                           536 ************************************************************************
                           537 *     ISSUE ALL I/O COMMANDS FROM A COMMON SUBROUTINE                  *
                           538 *     TO DISPLAY INSTRUCTIONS AND OPERATING PROCEDURES TO THE OPERATOR *
                           539 *     AND SET UP ANY REQUIREMENTS FOR OTHER I/O COMMANDS               *
                           540 *                                                                      *
                           541 * --> B   XIO8L,R6                  INIT 8 LINES PER INCH            *
                           542 * --> BAL  XIOWR,R6                 XEQ WRITE COMMAND                *
                           543 * --> BAL  XIOVF,R6                 XEQ OVERFLOW TO THE NEXT PAGE    *
                           544 * --> BAL  DISPF,R6                 GO DISPLAY MESSAGE AND SKIP TO 1 *
                           545 * --> BAL  XIODG,R6                 XEQ DIAGNOSTIC COMMAND           *
                           546 * --> BAL  XIOFM,R6                 XEQ FORMAT COMMAND               *
                           547 *                                                                      *
                           548 ************************************************************************
0004A4  4020 060C 0474     549 XIO8L MVA   DCB8L,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0004AA  501B               550       J     XIO                      BRANCH
0004AC  4020 060C 0444     551 XIOWR MVA   WRDCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0004B2  5017               552       J     XIO                      BRANCH
0004B4  4020 060C 0464     553 XIOVF MVA   OVDCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0004BA  5013               554       J     XIO                      BRANCH
0004BC                     555 DISPF EQU   *
0004BC  8F18 0440          556       MVW   (R7)+,MSBCT              SET UP BYTE COUNT
0004C0  6F0D 0442          557       MVW   R7,MSADR                 SET UP BUFFER ADRS
0004C4  4020 060C 0434     558       MVA   MSDCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0004CA  500B               559       J     XIO                      GO DISPLAY MESSAGE
0004CC  4020 060C 0494     560 XIODG MVA   DGDCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0004D2  4020 060E 000D     561       MVWI  X'0D',IOMOD              MOVE MODIFIER INTO CONTROL BLOCK
0004D8  5013               562       J     XIO1                     BRANCH
0004DA  4020 060C 0484     563 XIOFM MVA   FMDCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0004E0  5000               564       J     XIO                      BRANCH
                           566 ************************************************************************
                           567 *                                                                      *
                           568 * SOUBROUTINE                                                         *
                           569 *                                                                      *
                           570 *     EXECUTE INPUT AND OUTPUT COMMANDS                                *
                           571 *                                                                      *
                           572 * PURPOSE                                                             *
                           573 *                                                                      *
                           574 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.                 *
                           575 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:                 *
                           576 *                                                                      *
                           577 *     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED *
                           578 *        THE I/O COMMAND.                                              *
                           579 *     2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS    *
                           580 *        ISSUED BY THIS SUBROUTINE.                                    *
                           581 *     3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE           *
                           582 *        START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.             *
                           583 *     4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT   *
                           584 *        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,  *
                           585 *        MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.                    *
                           586 *     5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE     *
                           587 *        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'.    *
                           588 *     6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING  *
                           589 *        STARTS TO DETERMINE A LOST INTERRUPT.                         *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           590 *     7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF  *
                           591 *        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.        *
                           592 *     8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.                   *
                           593 *     9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.       *
                           594 *    10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.         *
                           595 *    11. CHECK IS A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS     *
                           596 *        ISSUED BY THIS SUBROUTINE.                                    *
                           597 *    12. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A       *
                           598 *        CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON, *
                           599 *        COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.   *
                           600 *                                                                      *
                           601 * CALLING SEQUENCE                                                    *
                           602 *                                                                      *
                           603 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                          *
                           604 *                                                                      *
                           605 * --> B     XIO                    XEQ ANY CYCLE STEAL COMMAND, MOD=0 *
                           606 * --> BAL   XIOCS,R6               XEQ START CYCLE STEAL STATUS, MOD=F *
                           607 *                                                                      *
                           608 * RETURN CONTROL                                                      *
                           609 *                                                                      *
                           610 *     BXS   (R6)                   RETURN TO USER NO ERROR            *
                           611 ************************************************************************
0004E2  CB25 060E          613 XIO   MVWZ  IOMOD,R3                 SET MOF OF 0 FOR CYCLE STEAL OP
0004E6  500C               614       J     XIO1                     CS I/O'S ARE NOT RETRIED
0004E8  4CA8               615       TBTR  (R4,CE)                  RESET CS STATUS INTER ERROR INDICAT.
0004EA  4C67               616       TBTS  (R4,CS)                  SET 'CYCLE STEAL STATUS' IN PROGRESS
0004EC  4020 060C 0454     617 XIOCS MVA   CSDCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0004F2  4020 060E 000F     618       MVWI  X'000F',IOMOD            SET CYCLE STEAL MODIFIER
0004F8  4C27               619       TBT   (R4,CS)                  IS CS IN PROGRESS, ERROR CONDITION
0004FA  1218               620       JON   XIO2                     * YES, BYPASS SAVING I/O ADRS
0004FC  4C23               621       TBT   (R4,IN)                  TEST FOR INTERRUPT
0004FE  1261               622       JON   XIOCK                    BRANCH IF YES
000500  6B0D 0018          623 XIO1  MVW   R6,LSTIO                 SAVE IAR FOR RETRY IF REQUESTED
000504  402E 0018 0004     624       SWI   4,LSTIO                  DECREMENT FOR LAS INSTRUCTION
00050A  4324 0000          625       MVA   $PID,R3                  LOAD ADDRESS OF PROGRAM START
00050E  CB2F 0018          626       SW    R3,LSTIO                 SUB TO OBTAIN LISTING ADDRESS
000512  4324 0022          627       MVA   DCBUF,R3                 SET UP TO ADRS TO MOVE DCB TABLE
000516  6D08 060C          628       MVW   IODCB,R5                 * AND THE FROM ADRS, ALONG WITH
00051A  0F10               629       MVBI  16,R7                    * THE NUMBER OF MOVES
00051C  2D64               630       MVFN  (R5),(R3)                MOVE 1 STATUS WORD AND ADJUST
00051E  4C0E               631       TBT   (R4,IND)                 IS THIS A RETRY DUE TO FORMS CHECK
000520  1205               632       JON   XIO2                     *  YES BRANCH AROUND CS RE-INIT
000522  0BFF               633       MVBI  255,R3                   CLEAR CYCLE STATUS BUFFER
000524  4524 0032          634       MVA   CSBUF,R5                 *  TO ALL ONES  *
000528  0F10               635       MVBI  16,R7                    *
00052A  2BAC               636       FFN   R3,(R5)                  *
00052C  4CA3               637 XIO2  TBTR  (R4,IN)                  CLEAR INTERRUPT RECEIVED CNTL BIT
00052E  1249               638       JON   XIOCK                    BRANCH IF ON
000530  4724 0608          639       MVA   IOBLK,R7                 SET UP CONTROL BLOCK FOR SUPVR
000534  802B 0232 0060     640       CB    CPUTYPE,TYPE23           CHECK FOR PROCESSOR 23
00053A  1803               641       JNE   XIO5                     BRANCH NOT EQUAL
00053C  C000               642       MVWI  X'C000',R5               LOAD LOOP COUNT
000540  5001               643       J     XIO6                     BRANCH
000542  75AA               644 XIO5  SW    R5,R5                    LOAD LOOP COUNT
000544  4C62               645 XIO6  TBTS  (R4,XI)                  SET EXPECTED INTR CONTROL BIT
000546  600A               646       SVC   START                    CALL SUPVR FOR I/O COMMAND
000548  6002               647 XIO8  SVC   IDLE                     ALLOW OTHER PROG TIME
00054A  4C03               648       TBT   (R4,TM)                  IS TERMINATE BIT ON
00054C  6A00 0080          649       BON   $TERM                    BRANCH IF ON
000550  4CA3               650       TBTR  (R4,IN)                  HAS INTERRUPT BEEN RECEIVED
000552  1237               651       JON   XIOCK                    * YES, CHECK IF ALL WAS SATISFACTORY
000554  7DA1 0001          652       AWI   1,R5                     ADVANCE TIME OUT COUNT
000558  18F7               653       JNZ   XIO8                     BCH IF TIME OUT NOT REACHED
00055A  4C61               654       TBTS  (R4,ER)                  SET ON ERROR CONTROL BIT
00055C  4C66               655       TBTS  (R4,LI)                  SET LOST INTERRUPT CONTROL BIT
00055E  6802 0694          656       B     $PRNT                    * BCH TO FINISH ERROR SEQUENCE
                           658 ************************************************************************
                           659 *                                                                      *
                           660 * SUBROUTINE                                                          *
                           661 *                                                                      *
                           662 *     I/O EXECUTE ERROR HANDLING ROUTINE                               *
                           663 *                                                                      *
                           664 * PURPOSE                                                             *
                           665 *                                                                      *
                           666 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE      *
                           667 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE    *
                           668 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                              *
                           669 *                                                                      *
                           670 * CALLING SEQUENCE                                                    *
                           671 *                                                                      *
                           672 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND           *
                           673 *                                                                      *
                           674 * RETURN CONTROL                                                      *
                           675 *                                                                      *
                           676 *     B     $PRNT                  DUMP STATUS BEFORE TERMINATION     *
                           677 *                                                                      *
                           678 ************************************************************************
                           679 XIOER CPLSR R3                      SAVE CONDITION CODE ON I/O ERROR
000562  706E               680       SRL   13,R3                    POSITION CC CODE TO BITS 13-15
000564  336A               681       MVB   R3,$IOIN                 * PUT IN LOG OUT AREA
000566  C328 0014          682       B     $PRNT                    BRANCH TO PRINT ERROR
00056A  6802 0694          684 ************************************************************************
                           685 *                                                                      *
                           686 * SOUBROUTINE                                                         *
                           687 *                                                                      *
                           688 *     ERROR INTERRUPT              RUNS ON INTERRUPT LEVEL '$INTL'     *
                           689 *                                                                      *
                           690 * PURPOSE                                                             *
                           691 *                                                                      *
                           692 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR     *
                           693 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE       *
                           694 *     EXPECTED CODE.                                                   *
                           695 *                                                                      *
                           696 * CALLING SEQUENCE                                                    *
                           697 *                                                                      *
                           698 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT        *
                           699 *                                                                      *
                           700 * RETURN CONTROL                                                      *
                           701 *                                                                      *
                           702 *     SVC   EXIT                   RETURN TO USER VIA SUPVR           *
                           703 *                                                                      *
                           704 ************************************************************************
                           705 INTER CPLSR R3                      SAVE INDICATORS
000570  706E               706       SRL   13,R3                    POSITION INDICATORS IN R3
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
000572  4424 000E           707        MVA   OPTN1,R4                SET UP BASE ADRS
000576  4C27                708        TBT   (R4,CS)                 IS CS IN PROGRESS
000578  1006                709        JOFF  INTET                   * NO
00057A  4C68                710        TBTS  (R4,CE)                 TURN ON CYCLE STEAL INTER ERROR
00057C  6F0D 0040           711        MVW   R7,CSTL8                SAVE CS ERR ISB VALUE, BITS 0-7
000580  C328 0041           712        MVB   R3,CSTL8+1              * AND THE COND CODE
000584  5009                713        J     INTR1                   BRANCH
000586  4C61                714 INTET  TBTS  (R4,ER)                 SET ERROR ON I/O COMMAND CNTL BIT
000588  5007                715        J     INTR1                   BRANCH
                            716 ********************************************************************
                            717 *                                                                  *
                            718 * SOUBROUTINE                                                      *
                            719 *                                                                  *
                            720 *     OKAY  INTERRUPT               RUNS ON INTERRUPT LEVEL '$INTL'*
                            721 *                                                                  *
                            722 * PURPOSE                                                          *
                            723 *                                                                  *
                            724 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                 *
                            725 *                                                                  *
                            726 * CALLING SEQUENCE                                                 *
                            727 *                                                                  *
                            728 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED       *
                            729 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE      *
                            730 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE           *
                            731 *     COMMON SECTION IS HANDLED HERE.                              *
                            732 *                                                                  *
                            733 * RETURN CONTROL                                                   *
                            734 *                                                                  *
                            735 *     SVC   EXIT                    RETURN TO USER VIA SUPVR       *
                            736 *                                                                  *
                            737 ********************************************************************
00058A  706E                738 INTOK  CPLSR R3                      SAVE INDICATORS
00058C  336A                739        SRL   13,R3                   POSITION INDICATORS IN R3
00058E  4424 000E           740        MVA   OPTN1,R4                SET UP BASE ADRS
000592  4C24                741        TBT   (R4,XE)                 TEST EXPECTED ERROR BIT
000594  1001                742        JOFF  INTR1                   BRANCH IF OFF
000596  4C69                743        TBTS  (R4,GI)                 SET GOOD INTERRUPT BIT
000598  4C63                744 INTR1  TBTS  (R4,IN)                 SET  INTERRUPT RECEIVED
00059A  4C27                745        TBT   (R4,CS)                 IS 'CS IN PROGRESS' ON
00059C  1204                746        JON   INTR2                   * YES, BCH AROUND UPDATE
00059E  C328 0015           747        MVB   R3,$IOIN+1              SAVE INTERRUPTING CC CODE
0005A2  6F0D 0016           748        MVW   R7,$ISB                 SAVE INTR STATUS AND DEV ADRS
0005A6  78B9                749 INTR2  CPCL  R5
0005A8  3521                750        SLL   4,R5                    POSITION INTR LEVEL AND PUT
0005AA  0501                751        ABI   *-1,R5                  * IN 'I' BIT
0005AC  CD24 0056           752        CW    $INTL,R5                IS THIS THE CORRECT INTR LEVEL
0005B0  1004                753        JE    INTR3                   * YES, GO EXIT THIS LEVEL
0005B2  3521                754        SLL   4,R5                    POSITION RECEIVED LEVEL
0005B4  6D0D 0020           755        MVW   R5,DEV3+2               STORE INTO DEV4
0005B8  4C65                756        TBTS  (R4,LE)                 SET INTR LEVEL ERROR CONTROL BIT
0005BA  4CA2                757 INTR3  TBTR  (R4,XI)                 WAS INTERRUPT EXPECTED
0005BC  1201                758        JON   INTRX                   * YES, EXIT OFF THIS INTR LEVEL
0005BE  4C60                759        TBTS  (R4,MI)                 * NO, SET MYSTERY INTR CONTROL BIT
0005C0  6006                760 INTRX  SVC   EXIT                    EXIT THIS LEVEL VIA SUPVR TO PGM
                            761 ********************************************************************
                            762 *
                            763 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                            764 *     HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN
                            765 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
                            766 *
                            767 ********************************************************************
0005C2  4C20                768 XIOCK  TBT   (R4,MI)                 WAS THERE AN UNEXPECTED INTERRUPT
0005C4  1217                769        JON   XIOCU                   BRANCH IF YES
0005C6  4C25                770        TBT   (R4,LE)                 WAS AN INTR LEVEL ERROR FOUND
0005C8  1002                771        JOFF  XIOCM                   * NO, CONTINUE CHECKING
0005CA  4C61                772        TBTS  (R4,ER)                 SET ERROR CONTROL BIT ON
0005CC  5013                773        J     XIOCU                   BRANCH
0005CE  4CAA                774 XIOCM  TBTR  (R4,PE)                 WAS A PROBABLE ERROR EXPECTED
0005D0  6AC0 0000           775        BON   (R6)                    BRANCH YES
0005D4  4C24                776        TBT   (R4,XE)                 WAS AN ERROR EXPECTED
0005D6  1214                777        JN    XIOGI                   * YES, BRANCH
0005D8  4C27                778        TBT   (R4,CS)                 WAS AUTO CS IN PROGRESS
0005DA  1005                779        JOFF  XIOCY                   * NO, CONTINUE CHECKING
0005DC  4C28                780        TBT   (R4,CE)                 IS CS IN AN ERR CONDITION
0005DE  6800 0658           781        BOFF  CSRTN                   * NO, BCH
0005E2  6802 0694           782        B     $PRNT                   GO LOG CS ERROR
0005E6  4C21                783 XIOCV  TBT   (R4,ER)                 WAS ERROR INTR CONTROL BIT ON
0005E8  1007                784        JOFF  XIOCX                   * NO, EXIT THIS ROUTINE
0005EA  4C0E                785 XIOCQ  TBT   (R4,IND)                TEST FOR INDICATOR ON
0005EC  6A00 0694           786        BON   $PRNT                   PRINT ERROR IF ON
0005F0  6802 04E8           787        B     XIOCS-4                 * AVAILABLE, GO AND GET IT
0005F4  6802 0694           788 XIOCU  B     $PRNT                   PRINT ERROR
0005F8  CB25 0012           789 XIOCX  MVWZ  OPTN3,R3                CLEAR OUT OPTION 3 CNTL BITS
0005FC  68C2 0000           790        B     (R6)                    RETURN TO USER VIA REG 6
000600  4C29                791 XIOGI  TBT   (R4,GI)                 WAS A GOOD INTERRUPT RECEIVED
000602  12F8                792        JON   XIOCU                   YES BRANCH
000604  68C2 0000           793        B     (R6)                    RETURN
                            794 *
                            795 *           I/O   PARAMETER LIST
                            796 *
000608  004C                797 IOBLK  DC    A($DVAD)                ADRS OF DEVICE ADRS
00060A  0562                798 IOERR  DC    A(XIOER)                ERROR ROUTINE ADRS
00060C  0000                799 IODCB  DC    A(*-*)                  DCB ADRS OR LEVEL & INTR
00060E  0000                800 IOMOD  DC    A(*-*)                  MODIFIER
000610  0000                801        DC    A(*-*)                  ADRS OF LAST SVC CALL
000612  0000                802 IORSP  DC    A(*-*)                  SECOND WORD OF LAST IDCB
                            803 *
                            804 *           INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                            805 *
000614  004C                806 INTBL  DC    A($DVAD)                ADRS OF DEVICE ADRS
000616  0588                807 INTO1  DC    A(INTOK)                INTERRUPT OK RETURN ADRS
000618  056E                808 INTO2  DC    A(INTER)                INTERRUPT ERROR ADRS
00061A  0003                809 INTCC  DC    X'0003'                 INTERRUPT CODE EXPECTED
                            810 ********************************************************************
                            811 *                                                                  *
                            812 * SUBROUTINE                                                      *
                            813 *                                                                  *
                            814 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE             *
                            815 *                                                                  *
                            816 * PURPOSE                                                         *
                            817 *                                                                  *
                            818 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND    *
                            819 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE *
                            820 *     TO INTERRUPT.                                                *
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
                            821 *                                                                  *
                            822 * CALLING SEQUENCE                                                *
                            823 *                                                                  *
                            824 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                   *
                            825 *                                                                  *
                            826 * --> BAL   $CONC,R6                CLEAR DEV DEP STG AND CONNECT I/O BLK
                            827 * --> BAL   $CONB,R6                BCH TO CONNECT                 *
                            828 * --> BAL   $CONP,R6                PREPARE DEVICE ONLY            *
                            829 *                                                                  *
                            830 * RETURN CONTROL                                                  *
                            831 *                                                                  *
                            832 *     BXS   (R6)                    RETURN TO USER VIA REG 6       *
                            833 *                                                                  *
                            834 ********************************************************************
00061C                      835 $CONR  EQU   *
00061C  4724 0614           836        MVA   INTBL,R7                SET R7 TO CONTROL BLOCK AND
000620  6014                837        SVC   CICB                    * CONNECT IT TO THIS DEVICE
000622  68C2 0000           838        B     (R6)                    RETURN
000626                      839 $CONC  EQU   *
000626  CB25 0012           840        MVWZ  OPTN3,R3                CLEAR OLD CONTROLS FOR NEW ROUTINE
00062A  4C6E                841        TBTR  (R4,IND)                TURN OFF IND INDICATOR
00062C  8828 0056 060C      842 $CONP  MVW   $INTL,IODCB             PUT IN LEVEL & INTR PARAMETER
000632  4724 0608           843        MVA   IOBLK,R7                SET R7 TO CONTROL BLOCK TO PREPARE
000636  4020 0014 07FF      844        MVWI  X'07FF',$IOIN           INITIALIZE CONDITION CODE STORAGE
00063C  CB25 0016           845        MVWZ  $ISB,R3                 * AND CLEAR OLD ISB VALUE
000640  6E0D 0018           846        MVW   R6,LSTIO                SET UP ADDRESS THAT STARTED LAST I/O
000644  402E 0018 0004      847        SWI   4,LSTIO                 DECREMENT TO POINT AT INSTRUCTION
00064A  4324 0000           848        MVA   $PID,R3                 LOAD ADDRESS OF START OF PROG
00064E  CB2F 0018           849        SW    R3,LSTIO                SUB TO OBTAIN LISTING ADDRESS
000652  600C                850        SVC   PREP                    * AND CALL ON SUPVR
000654  68C2 0000           851        B     (R6)                    RETURN
000658  402B 0034 0010      852 CSRTN  TWI   X'0010',CSTL2           IS OVERFLW BIT ON
00065E  1201                853        JON   RESUM                   BRANCH YES
000660  5015                854        J     CCRTP                   BRANCH
000662  4C8E                855 RESUM  TBTR  (R4,IND)                HAS INDICATOR BEEN SET
000664  6A00 0694           856        BON   $PRNT                   BRANCH YES
000668  4CA1                857        TBTR  (R4,ER)                 RESET ERROR INDICATOR
00066A  4CA7                858        TBTR  (R4,CS)                 RESET CS STATUS INDICATOR
00066C  4C4E                859        TBTS  (R4,IND)                SET INDICATOR
00066E  6E0D 068A           860        MVW   R6,SAVEA                SAVE R6
000672  402C 0444 0001      861        OWI   1,WRCTL                 OR IN RETRY BIT
000678  6E03 04AC           862        BAL   XIOWR,R6                RETRY LAST WRITE COMMAND
00067C  4020 0444 0001      863        RBTWI 1,WRCTL                 TURN OFF RETRY BIT
000682  6E08 068A           864        MVW   SAVEA,R6                RESTORE R6
000686  4C8E                865        TBTR  (R4,IND)                TURN OFF INDICATOR
000688  5600                866        BXS   (R6)                    RETURN
00068A  0000                867 SAVEA  DC    A(*-*)                  SAVE AREA FOR R6
00068C  4C21                868 CCRTP  TBT   (R4,ER)                 TEST FOR ERROR
00068E  6A00 0694           869        BON   $PRNT                   BRANCH IF YES
000692  5600                870        BXS   (R6)                    RETURN
                            871 ********************************************************************
                            872 *                                                                  *
                            873 *                COMMON PRINT ERROR INTERFACE ROUTINE              *
                            874 *                                                                  *
                            875 * ----> R6      LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE *
                            876 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                            877 * ----> R4      LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE *
                            878 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                            879 * ----> R3      LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE     *
                            880 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                            881 * ----> PRNTRTN THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST ) *
                            882 *                POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                            883 *                WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN *
                            884 *                                                                  *
                            885 ********************************************************************
000694  4624 0012           886 $PRNT  MVA   OPTN3,R6                LOAD ADDRESS OF OPTION WORD THREE
000698  6D08 181E           887        MVW   PRNTRN,R5               LOAD ADDRESS OF COMMON PRNT ROUTINE
00069C  4424 0000           888        MVA   $PID,R4                 LOAD ADDRESS OF START OF PROG
0006A0  4324 0042           889        MVA   PCTR,R3                 LOAD ADDRESS OF PASS COUNTER
0006A4  6FA3 0000           890        BAL   (R5),R7                 BRANCH TO COMMON PRINT ROUTINE
0006A8  CE25 0012           891        MVWZ  OPTN3,R6                ZERO OUT ALL FLAGS
0006AC  4424 000E           892        MVA   OPTN1,R4                LOAD BASE ADDRESS FOR INDICATORS
0006B0  802B 0232 0060      893        CB    CPUTYPE,TYPE23          IS THIS A TYPE 23 PROCESSOR
0006B6  1A04                894        JNE   $PRN2                   BRANCH IF NO
0006B8  4524 E000           895        MVWI  X'E000',R5              INIT LOOP COUNTER
0006BC  5002                896        J     $PRN1                   BRANCH
0006BE  4524 8000           897 $PRN2  MVWI  X'8000',R5              INIT LOOP COUNTER
0006C2  6002                898 $PRN1  SVC   IDLE                    DELAY
0006C4  4C03                899        TBT   (R4,TM)                 SHOULD PROG TERMINATE
0006C6  6A00 0080           900        BON   $TERM                   BRANCH YES
0006CA  7D41 0001           901        AMI   1,R5                    INCREMENT LOOP COUNTER
0006CE  18F9                902        JNZ   $PRN1                   BRANCH NOT ZERO
0006D0  6802 0062           903        B     $PENT                   BRANCH TO RESTART FROM BEGINING
                            904 ********************************************************************
                            905 *     DCB SETUP                                                    *
                            906 *                                                                  *
                            907 *     THIS ROUTINE SETS UP THE PRINTER DCB FOR 'STANDARD FUNCTIONS'  *
                            908 *     AND ANY ROUTINE MUST MAKE 'SPECIAL' MODIFICATIONS AS REQUIRED. *
                            909 *                                                                  *
                            910 *     BAL   SETUP,R6                                               *
                            911 *                                                                  *
                            912 ********************************************************************
0006D4  4324 0732           913 SETUP  MVA   ALPHA,R3                MOVE AN ALPHANUMERIC FIELD TO MAKE
0006D8  4524 0792           914        MVA   WRBUF,R5                * A LARGER WRITE BUFFER
0006DC  4724 0108           915        MVWI  MXCT,R7                 SET UP MOVE BYTE COUNT
0006E0  22B4                916        MVFN  (R3),(R5)               * AND MOVE IT
0006E2  4020 0452 0792      917        MVA   WRBUF,WRADR             SET UP WRITE ADRS
0006E8  CF25 0444           918        MVWZ  WRCTL,R7                SET UP CONTROL WORD
0006EC  4020 0450 0084      919        MVWI  132,WRBCT               * AND THE BYTE COUNT
0006F2  4020 0446 100E      920 SETU4  MVWI  X'100E',WRFMS           * MOVE IN CONTROLS
0006F8  4020 0436 100E      921        MVWI  X'100E',MSFMS           * MOVE IN CONTROLS
0006FE  4020 0448 0001      922        MVWI  1,WRSKP                 SET UP SINGLE SPACE CONTROL
000704  5600                923        BXS   (R6)                    RETURN
                            924 ********************************************************************
                            925 *     THIS TABLE HAS THE REPLACEMENT CODE USED                     *
                            926 ********************************************************************
000706  0000000000000000    927 SETCH  DC    X'0000000000000000'     96 CHARACTER SET  0
00070E  23456789ABCDF001    928 DIAGX  DC    X'23456789ABCDF001'     SPECIAL DIAGNOSTIC
000716  98F1498EF33845A4    929 LINE8  DC    X'98F1498EF33845A4'     CODE TO CHANGE PRINTER FROM
00071E  E8B142E445D4E339    930        DC    X'E8B142E445D4E339'     * A SIX LINE PER INCH PRINTER
000726  4294D3394229F001    931        DC    X'4294D3394229F001'     * TO AN EIGHT LINE PER INCH
00072E  D8A5D8B9            932        DC    X'D8A5D8B9'             * PRINTER.
                            933 ********************************************************************
                            934 ********************************************************************
                            935 *           ALPHANUMERIC BUFFER STORAGE                            *
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 LOCTR   OBJECT TEXT         STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                              944 ************************************************************************
000732  00                   945 ALPHA DC    X'00'                  NULL
000733  C1C240C3C4C540C6C    946       DC    C'AB CDE FGH I'
00073F  4A                   947       DC    X'4A'                  CENT SIGN
000740  4B404C4D4E404F       948       DC    C'. <(+ |'
000747  D0                   949       DC    X'D0'                  CLOSING BRACE
000748  D140D2D3D440D5D6D    950       DC    C'J KLM NOP QR! $*) ;¬'
00075C  E040A1               951       DC    X'E040A1'                 REV SLASH, TILDE
00075F  E2E340E4E5E640E7E    952       DC    C'ST UVW XYZ '
00076A  6A                   953       DC    X'6A'                  VERTICAL LINE
00076B  6B6C406D6E6F40F0F    954       DC    C', %_>? 012 345 678 9:# @''= "'
000787  C0                   955       DC    X'C0'                  OPENING BRACE
000788  50406061             956       DC    C'&& -/'
00078C  79404AA1E040         957       DC    X'79404AA1E040'           GRVE ACC, CENT,TILDE,REV SL
000108                       958 MXCT  EQU   264                    MAXIMUM LENGTH OF WRITE BUFFER
                             959 ************************************************************************
000792                       960 WRBUF EQU   *                      MAXIMUM WRITE BUFFER
                             961 ************************************************************************
000062                       962       END   $PENT
```


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DECLARED  NAME      ATTRIBUTES AND REFERENCES
      47  .REG.      ABSOLUTE, HEX VALUE(00000000)
                     207   208   209   256   279   292   298   311   317
       0  .R1.       ABSOLUTE, HEX VALUE(00000001)
                     230   231   232   236   237   238   259   265   271
                     276   340   343   345   349   351   431   432   436
                     438   441   443
       0  .R2.       ABSOLUTE, HEX VALUE(00000002)
                     206   226   229   261   265   272   276
       0  .R3.       ABSOLUTE, HEX VALUE(00000003)
                     262   266   270   277   423   425   427   430   613
                     625   626   627   630   633   636   679   680   681
                     705   706   712   739   740   748   791   844   849
                     852   853   894   919   922
       0  .R4.       ABSOLUTE, HEX VALUE(00000004)
                     137   138   150   153   372   615   616   619   621
                     631   637   645   648   650   654   655   707   708
                     710   714   741   742   744   745   746   757   758
                     760   770   772   774   776   778   780   782   785
                     787   793   845   860   862   863   864   870   873
                     893   897   904
       0  .R5.       ABSOLUTE, HEX VALUE(00000005)
                     152   156   176   177   178   179   180   424   425
                     428   429   430   628   630   634   636   642   644
                     644   652   750   751   752   753   755   756   892
                     895   900   902   906   920   922
       0  .R6.       ABSOLUTE, HEX VALUE(00000006)
                     136   175   181   182   205   212   222   227   228
                     253   254   255   257   268   278   289   290   291
                     296   308   309   310   315   331   332   333   338
                     342   348   367   368   369   375   389   390   391
                     395   399   418   419   420   435   440   623   777
                     792   795   842   850   855   865   867   869   871
                     875   891   896   929
       0  .R7.       ABSOLUTE, HEX VALUE(00000007)
                     145   149   160   163   164   213   215   336   373
                     422   426   556   557   629   635   639   711   749
                     840   847   895   921   924
      58  $CKPT      ADDRESS, HEX LOCATION(0000000C) IN CSECT(E64E0   ) LENGTH(2)
                     176   223   260   273   294   312   335   341   347
                     374   394   398   433   439
     843  $CONC      ADDRESS, HEX LOCATION(00000626) IN CSECT(E64E0   ) LENGTH(1)
                     212   227   253   289   308   331   367   389   418
     839  $CONR      ADDRESS, HEX LOCATION(0000061C) IN CSECT(E64E0   ) LENGTH(1)
                     205
      97  $DATA      ADDRESS, HEX LOCATION(0000001A) IN CSECT(E64E0   ) LENGTH(2)
                     177   178   259   263   264   271   274   275   403
     119  $DVAD      ADDRESS, HEX LOCATION(0000004C) IN CSECT(E64E0   ) LENGTH(2)
                      56   163   800   809
     122  $DVID      ADDRESS, HEX LOCATION(00000058) IN CSECT(E64E0   ) LENGTH(2)
                     217   220
     121  $INTL      ADDRESS, HEX LOCATION(00000056) IN CSECT(E64E0   ) LENGTH(2)
                     135   159   206   210   211   224   226   753   846
      94  $IOIN      ADDRESS, HEX LOCATION(00000014) IN CSECT(E64E0   ) LENGTH(2)
                     681   748   848
      95  $ISB       ADDRESS, HEX LOCATION(00000016) IN CSECT(E64E0   ) LENGTH(2)
                     749   849
     123  $MXSL      ADDRESS, HEX LOCATION(0000005A) IN CSECT(E64E0   ) LENGTH(2)
                     170
     133  $PENT      ADDRESS, HEX LOCATION(00000062) IN CSECT(E64E0   ) LENGTH(6)
                      55   171   186   908   962
      53  $PID       ADDRESS, HEX LOCATION(00000000) IN CSECT(E64E0   ) LENGTH(4)
                     625   852   893
     891  $PRNT      ADDRESS, HEX LOCATION(00000694) IN CSECT(E64E0   ) LENGTH(4)
                     221   235   241   346   352   405   656   682   784
                     788   790   861   874
     903  $PRN1      ADDRESS, HEX LOCATION(000006C2) IN CSECT(E64E0   ) LENGTH(2)
                     901   907
     902  $PRN2      ADDRESS, HEX LOCATION(000006BE) IN CSECT(E64E0   ) LENGTH(4)
                     899
     137  $PUPD      ADDRESS, HEX LOCATION(00000078) IN CSECT(E64E0   ) LENGTH(4)
                     242   280   299   318   353   376   409   445
     169  $PUP8      ADDRESS, HEX LOCATION(000000DA) IN CSECT(E64E0   ) LENGTH(6)
                     139
     153  $RETC      ADDRESS, HEX LOCATION(000000AA) IN CSECT(E64E0   ) LENGTH(2)
                     157
     158  $RETI      ADDRESS, HEX LOCATION(000000B6) IN CSECT(E64E0   ) LENGTH(6)
                     148   154
     147  $RETN      ADDRESS, HEX LOCATION(00000092) IN CSECT(E64E0   ) LENGTH(6)
                     143
     186  $RTAD      ADDRESS, HEX LOCATION(00000106) IN CSECT(E64E0   ) LENGTH(2)
                     182
      57  $RTNE      ADDRESS, HEX LOCATION(0000000A) IN CSECT(E64E0   ) LENGTH(2)
                     136   169   170   175
     143  $TERM      ADDRESS, HEX LOCATION(00000080) IN CSECT(E64E0   ) LENGTH(6)
                     649   905
     163  $TER1      ADDRESS, HEX LOCATION(000000CE) IN CSECT(E64E0   ) LENGTH(4)
                     158
     945  ALPHA      ADDRESS, HEX LOCATION(00000732) IN CSECT(E64E0   ) LENGTH(1)
                     293   427   919
     873  CCRTP      ADDRESS, HEX LOCATION(0000068C) IN CSECT(E64E0   ) LENGTH(2)
                     859
      89  CE         ABSOLUTE, HEX VALUE(00000028)
                     615   710   782
      38  CICB       ABSOLUTE, HEX VALUE(00000014)
                     841
      49  CPUTYPE    ABSOLUTE, HEX VALUE(00000232)
                     640   898
      88  CS         ABSOLUTE, HEX VALUE(00000027)
                     616   619   708   746   780   863
     107  CSBUF      ADDRESS, HEX LOCATION(00000032) IN CSECT(E64E0   ) LENGTH(1)
                     343   349   485   634
     477  CSDCB      ADDRESS, HEX LOCATION(00000454) IN CSECT(E64E0   ) LENGTH(1)
                     617
     857  CSRTN      ADDRESS, HEX LOCATION(00000658) IN CSECT(E64E0   ) LENGTH(6)
                     783
     347  CSST4      ADDRESS, HEX LOCATION(000002D0) IN CSECT(E64E0   ) LENGTH(6)
                     344
     353  CSST7      ADDRESS, HEX LOCATION(000002E8) IN CSECT(E64E0   ) LENGTH(4)
                     350
     109  CSTL2      ADDRESS, HEX LOCATION(00000034) IN CSECT(E64E0   ) LENGTH(2)
                     857
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
     115  CSTL8       ADDRESS. HEX LOCATION(00000040) IN CSECT(E64E0   ) LENGTH(2)
                      711   712
      99  DCBUF       ADDRESS. HEX LOCATION(00000022) IN CSECT(E64E0   ) LENGTH(2)
                      627
     502  DCB8L       ADDRESS. HEX LOCATION(00000474) IN CSECT(E64E0   ) LENGTH(1)
                      549
      98  DEV3        ADDRESS. HEX LOCATION(0000001E) IN CSECT(E64E0   ) LENGTH(2)
                      179   180   219   220   234   240   345   351   404
                      756
     526  DGDCB       ADDRESS. HEX LOCATION(00000494) IN CSECT(E64E0   ) LENGTH(1)
                      144   560
     935  DIAGX       ADDRESS. HEX LOCATION(0000070E) IN CSECT(E64E0   ) LENGTH(8)
                      393   401   406
     555  DISPF       ADDRESS. HEX LOCATION(000004BC) IN CSECT(E64E0   ) LENGTH(1)
                      338   375
     259  DSPL2       ADDRESS. HEX LOCATION(000001CE) IN CSECT(E64E0   ) LENGTH(4)
                      279
     265  DSPL3       ADDRESS. HEX LOCATION(000001EA) IN CSECT(E64E0   ) LENGTH(2)
                      266
     276  DSPL5       ADDRESS. HEX LOCATION(0000021A) IN CSECT(E64E0   ) LENGTH(2)
                      277
      82  ER          ABSOLUTE. HEX VALUE(00000021)
                      654   714   774   785   862   873
      39  EXIT        ABSOLUTE. HEX VALUE(00000006)
                      761
      36  E64E0       CSECT. START(00000000) LENGTH(1938) ESDID(0)
                       36
     522  FMADR       ADDRESS. HEX LOCATION(00000492) IN CSECT(E64E0   ) LENGTH(2)
                      393   397   400
     515  FMCTL       ADDRESS. HEX LOCATION(00000484) IN CSECT(E64E0   ) LENGTH(2)
                      392   396
     514  FMDCB       ADDRESS. HEX LOCATION(00000484) IN CSECT(E64E0   ) LENGTH(1)
                      563
      90  GI          ABSOLUTE. HEX VALUE(00000029)
                      744   793
     124  H0000       ADDRESS. HEX LOCATION(0000005C) IN CSECT(E64E0   ) LENGTH(2)
                      134
     125  H0001       ADDRESS. HEX LOCATION(0000005E) IN CSECT(E64E0   ) LENGTH(2)
                      169   295
      40  IDLE        ABSOLUTE. HEX VALUE(00000002)
                      155   647   903
      84  IN          ABSOLUTE. HEX VALUE(00000023)
                      153   621   637   650   745
      65  IND         ABSOLUTE. HEX VALUE(0000000E)
                      631   787   845   860   864   870
     809  INTBL       ADDRESS. HEX LOCATION(00000614) IN CSECT(E64E0   ) LENGTH(2)
                      840
     705  INTER       ADDRESS. HEX LOCATION(0000056E) IN CSECT(E64E0   ) LENGTH(2)
                      811
     714  INTET       ADDRESS. HEX LOCATION(00000586) IN CSECT(E64E0   ) LENGTH(2)
                      709
     739  INTOK       ADDRESS. HEX LOCATION(0000058A) IN CSECT(E64E0   ) LENGTH(2)
                      810
     761  INTRX       ADDRESS. HEX LOCATION(000005C0) IN CSECT(E64E0   ) LENGTH(2)
                      759
     745  INTR1       ADDRESS. HEX LOCATION(00000598) IN CSECT(E64E0   ) LENGTH(2)
                      713   715   743
     750  INTR2       ADDRESS. HEX LOCATION(000005A6) IN CSECT(E64E0   ) LENGTH(2)
                      747
     758  INTR3       ADDRESS. HEX LOCATION(000005BA) IN CSECT(E64E0   ) LENGTH(2)
                      754
     800  IOBLK       ADDRESS. HEX LOCATION(00000608) IN CSECT(E64E0   ) LENGTH(2)
                      145   149   160   213   215   639   847
     802  IODCB       ADDRESS. HEX LOCATION(0000060C) IN CSECT(E64E0   ) LENGTH(2)
                      144   159   161   549   551   553   558   560   563
                      617   628   846
     801  IOERR       ADDRESS. HEX LOCATION(0000060A) IN CSECT(E64E0   ) LENGTH(2)
                      133   143   148   158
     803  IOMOD       ADDRESS. HEX LOCATION(0000060E) IN CSECT(E64E0   ) LENGTH(2)
                      147   561   613   618
     805  IORSP       ADDRESS. HEX LOCATION(00000612) IN CSECT(E64E0   ) LENGTH(2)
                      217   219
     211  ITST4       ADDRESS. HEX LOCATION(00000132) IN CSECT(E64E0   ) LENGTH(6)
                      225
     222  ITST5       ADDRESS. HEX LOCATION(00000160) IN CSECT(E64E0   ) LENGTH(4)
                      218
     242  ITST7       ADDRESS. HEX LOCATION(000001B2) IN CSECT(E64E0   ) LENGTH(4)
                      239
     236  ITST9       ADDRESS. HEX LOCATION(0000019A) IN CSECT(E64E0   ) LENGTH(4)
                      233
      86  LE          ABSOLUTE. HEX VALUE(00000025)
                      757   772
      87  LI          ABSOLUTE. HEX VALUE(00000026)
                      655
     936  LINE8       ADDRESS. HEX LOCATION(00000716) IN CSECT(E64E0   ) LENGTH(8)
                      510
      96  LSTIO       ADDRESS. HEX LOCATION(00000018) IN CSECT(E64E0   ) LENGTH(2)
                      623   624   626   850   851   853
      81  MI          ABSOLUTE. HEX VALUE(00000020)
                      760   770
     461  MSADR       ADDRESS. HEX LOCATION(00000442) IN CSECT(E64E0   ) LENGTH(2)
                      557
     460  MSBCT       ADDRESS. HEX LOCATION(00000440) IN CSECT(E64E0   ) LENGTH(2)
                      556
     454  MSCTL       ADDRESS. HEX LOCATION(00000434) IN CSECT(E64E0   ) LENGTH(2)
                      337   339
     453  MSDCB       ADDRESS. HEX LOCATION(00000434) IN CSECT(E64E0   ) LENGTH(1)
                      558
     455  MSFMS       ADDRESS. HEX LOCATION(00000436) IN CSECT(E64E0   ) LENGTH(2)
                      313   334   421   927
     354  MSGCS       ADDRESS. HEX LOCATION(000002EC) IN CSECT(E64E0   ) LENGTH(2)
                      336   354
     356  MSGND       ADDRESS. HEX LOCATION(00000317) IN CSECT(E64E0   ) LENGTH(1)
                      340   354
     377  MSGPE       ADDRESS. HEX LOCATION(00000344) IN CSECT(E64E0   ) LENGTH(2)
                      370   373   377
     379  MSGPN       ADDRESS. HEX LOCATION(00000360) IN CSECT(E64E0   ) LENGTH(1)
                      377
     958  MXCT        ABSOLUTE. HEX VALUE(00000108)
                      422   921
      60  OPTN1       ADDRESS. HEX LOCATION(0000000E) IN CSECT(E64E0   ) LENGTH(2)
```


CROSS-REFERENCE LISTING

```
DECLARED  NAME      ATTRIBUTES AND REFERENCES
                      137   707   741   897
      69  OPTN3       ADDRESS. HEX LOCATION(00000012) IN CSECT(E64E0   ) LENGTH(2)
                      791   844   891   896
     490  OVDCB       ADDRESS. HEX LOCATION(00000464) IN CSECT(E64E0   ) LENGTH(1)
                      553
     116  PCTR        ADDRESS. HEX LOCATION(00000042) IN CSECT(E64E0   ) LENGTH(2)
                      134   894
      91  PE          ABSOLUTE. HEX VALUE(0000002A)
                      776
      41  PREP        ABSOLUTE. HEX VALUE(0000000C)
                      162   854
      48  PRNTRTN     ABSOLUTE. HEX VALUE(0000181E)
                      892
     434  RAND4       ADDRESS. HEX LOCATION(00000402) IN CSECT(E64E0   ) LENGTH(6)
                      437
     440  RAND7       ADDRESS. HEX LOCATION(0000041C) IN CSECT(E64E0   ) LENGTH(4)
                      444
      45  RESET       ABSOLUTE. HEX VALUE(00000008)
                      146   214
     860  RESUM       ADDRESS. HEX LOCATION(00000662) IN CSECT(E64E0   ) LENGTH(2)
                      858
      42  RICB        ABSOLUTE. HEX VALUE(00000013)
                      165
      46  RID         ABSOLUTE. HEX VALUE(00000009)
                      216
     295  RIPL3       ADDRESS. HEX LOCATION(00000242) IN CSECT(E64E0   ) LENGTH(6)
                      298
     205  RT01        ADDRESS. HEX LOCATION(00000118) IN CSECT(E64E0   ) LENGTH(4)
                      187
     253  RT02        ADDRESS. HEX LOCATION(000001B6) IN CSECT(E64E0   ) LENGTH(4)
                      188
     289  RT03        ADDRESS. HEX LOCATION(00000228) IN CSECT(E64E0   ) LENGTH(4)
                      189
     308  RT04        ADDRESS. HEX LOCATION(00000258) IN CSECT(E64E0   ) LENGTH(4)
                      190
     331  RT05        ADDRESS. HEX LOCATION(00000288) IN CSECT(E64E0   ) LENGTH(4)
                      191
     367  RT06        ADDRESS. HEX LOCATION(00000318) IN CSECT(E64E0   ) LENGTH(4)
                      192
     389  RT07        ADDRESS. HEX LOCATION(00000360) IN CSECT(E64E0   ) LENGTH(4)
                      193
     418  RT08        ADDRESS. HEX LOCATION(000003C4) IN CSECT(E64E0   ) LENGTH(4)
                      194
     872  SAVEA       ADDRESS. HEX LOCATION(0000068A) IN CSECT(E64E0   ) LENGTH(2)
                      865   869
     934  SETCH       ADDRESS. HEX LOCATION(00000706) IN CSECT(E64E0   ) LENGTH(8)
                      397   400   401   403   404   406   522
     919  SETUP       ADDRESS. HEX LOCATION(000006D4) IN CSECT(E64E0   ) LENGTH(4)
                      255   291   310   333   369   391   420
     314  SPAC3       ADDRESS. HEX LOCATION(00000272) IN CSECT(E64F0   ) LENGTH(6)
                      317
      43  START       ABSOLUTE. HEX VALUE(0000000A)
                      151   646
      44  TERM        ABSOLUTE. HEX VALUE(00000007)
                      166
      64  TM          ABSOLUTE. HEX VALUE(00000003)
                      138   648   904
     126  TYPE23      ADDRESS. HEX LOCATION(00000060) IN CSECT(E64E0   ) LENGTH(2)
                      640   898
     403  VARI1       ADDRESS. HEX LOCATION(000003A6) IN CSECT(E64E0   ) LENGTH(6)
                      408
     406  VARI6       ADDRESS. HEX LOCATION(000003B6) IN CSECT(E64E0   ) LENGTH(6)
                      402
     409  VARI7       ADDRESS. HEX LOCATION(000003C0) IN CSECT(E64F0   ) LENGTH(4)
                      407
     473  WRADR       ADDRESS. HEX LOCATION(00000452) IN CSECT(E64E0   ) LENGTH(2)
                      293   295   370   434   436   442   443   923
     472  WRBCT       ADDRESS. HEX LOCATION(00000450) IN CSECT(E64E0   ) LENGTH(2)
                      208   371   429   432   925
     960  WRBUF       ADDRESS. HEX LOCATION(00000792) IN CSECT(E64E0   ) LENGTH(1)
                      229   230   231   234   236   237   240   261   272
                      424   428   431   438   441   473   534   920   923
     466  WRCTL       ADDRESS. HEX LOCATION(00000444) IN CSECT(E64E0   ) LENGTH(2)
                      207   258   866   868   924
     465  WRDCB       ADDRESS. HEX LOCATION(00000444) IN CSECT(E64E0   ) LENGTH(1)
                      459   551
     467  WRFMS       ADDRESS. HEX LOCATION(00000446) IN CSECT(E64E0   ) LENGTH(2)
                      926
     468  WRSKP       ADDRESS. HEX LOCATION(00000448) IN CSECT(E64E0   ) LENGTH(2)
                      209   267   269   297   314   316   928
      85  XE          ABSOLUTE. HEX VALUE(00000024)
                      372   742   778
      83  XI          ABSOLUTE. HEX VALUE(00000022)
                      150   645   758
     613  XIO         ADDRESS. HEX LOCATION(000004E2) IN CSECT(E64E0   ) LENGTH(4)
                      550   552   554   559   564
     770  XIOCK       ADDRESS. HEX LOCATION(000005C2) IN CSECT(E64E0   ) LENGTH(2)
                      622   638   651
     776  XIOCM       ADDRESS. HEX LOCATION(000005CE) IN CSECT(E64E0   ) LENGTH(2)
                      773
     617  XIOCS       ADDRESS. HEX LOCATION(000004EC) IN CSECT(E64E0   ) LENGTH(6)
                      342   348   789
     790  XIOCU       ADDRESS. HEX LOCATION(000005F4) IN CSECT(E64E0   ) LENGTH(4)
                      771   775   794
     785  XIOCV       ADDRESS. HEX LOCATION(000005E6) IN CSECT(E64E0   ) LENGTH(2)
                      781
     791  XIOCX       ADDRESS. HEX LOCATION(000005F8) IN CSECT(E64E0   ) LENGTH(4)
                      786
     560  XIODG       ADDRESS. HEX LOCATION(000004CC) IN CSECT(E64E0   ) LENGTH(6)
                      228
     679  XIOER       ADDRESS. HEX LOCATION(00000562) IN CSECT(E64E0   ) LENGTH(2)
                      133   801
     563  XIOFM       ADDRESS. HEX LOCATION(000004DA) IN CSECT(E64E0   ) LENGTH(6)
                      395   399
     793  XIOGI       ADDRESS. HEX LOCATION(00000600) IN CSECT(E64E0   ) LENGTH(2)
                      779
     553  XIOVF       ADDRESS. HEX LOCATION(000004B4) IN CSECT(E64E0   ) LENGTH(6)
                      254   290   309   332   368   390   419
     551  XIOWR       ADDRESS. HEX LOCATION(000004AC) IN CSECT(E64E0   ) LENGTH(6)
                      222   268   278   296   315   435   440   867
     623  XIO1        ADDRESS. HEX LOCATION(00000500) IN CSECT(E64E0   ) LENGTH(4)
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		562 614
637	XIO2	ADDRESS. HEX LOCATION(0000052C) IN CSECT(E64E0) LENGTH(2)
		620 632
644	XIO5	ADDRESS. HEX LOCATION(00000542) IN CSECT(E64E0) LENGTH(2)
		641
645	XIO6	ADDRESS. HEX LOCATION(00000544) IN CSECT(E64E0) LENGTH(2)
		643
647	XIO8	ADDRESS. HEX LOCATION(00000548) IN CSECT(E64E0) LENGTH(2)
		653
549	XIO8L	ADDRESS. HEX LOCATION(000004A4) IN CSECT(E64E0) LENGTH(6)
		257

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976

                             3 ************************************************************************
                             4 *                                                                      *
                             5 *                    ***       PREREQUISITES        ***               *
                             6 *                                                                      *
                             7 *                                NONE                                  *
                             8 *                                                                      *
                             9 ************************************************************************
                            10 *                                                                      *
                            11 *                    ***       MODIFICATIONS        ***               *
                            12 *                                                                      *
                            13 *                  CHANGES MADE TO PRINT 8 LINES PER INCH              *
                            14 *                                                                      *
                            15 ************************************************************************
                            16 *                                                                      *
                            17 *                    ***     REA'S INCORPORATED     ***               *
                            18 *                                                                      *
                            19 *                                NONE                                  *
                            20 *                                                                      *
                            21 ************************************************************************
                            22 *                                                                      *
                            23 *                    ***    SPECIAL INSTRUCTIONS    ***               *
                            24 *                                                                      *
                            25 *                                NONE                                  *
                            26 *                                                                      *
                            27 ************************************************************************
                            28 *                                                                      *
                            29 *                    ***       E. C. HISTORY        ***               *
                            30 *                                                                      *
                            31 *        DATE 06MAY77  DATE 15SEP77  DATE 09DEC77  DATE                *
                            32 *        E.C. 578756   E.C. 754882   E.C. 755104   E.C.                  *
                            33 *                                                                      *
                            34 ************************************************************************
 000000                     36 E68E0 START X'0000'
                            37 *                SUPERVISOR EQUATES
 000014                     38 CICB   EQU   20                    CONNECT INTERRUPT CONTROL BLOCK
 000006                     39 EXIT   EQU   6                     EXIT INTERRUPT LEVEL
 000002                     40 IDLE   EQU   2                     SHARE PROGRAM TIME WITH OTHER PGMS
 00000C                     41 PREP   EQU   12                    PREPARE DEVICE
 000013                     42 RICB   EQU   19                    RELEASE INTERRUPT CONTROL BLOCK
 00000A                     43 START  EQU   10                    START CYCLE STEAL COMMAND
 000007                     44 TERM   EQU   7                     TERMINATE THIS PROGRAM
 000008                     45 RESET  EQU   8                     DEVICE RESET
 000009                     46 RID    EQU   9                     DEVICE READ ID
 000000                     47 REG    EQUR  0                     WORK REGISTER
 00181E                     48 PRNTRTN EQU  X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
 000232                     49 CPUTYPE EQU  X'0232'               ADDRESS OF PROCESSOR TYPE
                            50 *
                            51 *                PROGRAM HEADING AND CONTROL WORDS
                            52 *
 000000  F6F8F0F0           53 $PID   DC    C'6800'               PROGRAM IDENTIFICATION
 000004  0000               54        DC    XL2'0000'             CURRENT LEVEL OF PROGRAM
 000006  0062               55        DC    A($PENT)              -> TO START EXEC ADDRESS
 000008  004C               56        DC    A($DVAD)              -> TO DEVICE TABLE
 00000A  0000               57 $RTNE  DC    A(*-*)                ROUTINE NUMBER BEING RUN
 00000C  0000               58 $CKPT  DC    A(*-*)                LAST CHECK POINT PASSED
 00000E  0000               60 OPTN1  DC    X'0000'               PROGRAM OPTION CONTROL WORD 1
                            61 *
                            62 * BIT FUNCTION
                            63 *
 000003                     64 TM     EQU   3                     TERMINATE PROGRAM
 00000E                     65 IND    EQU   14                    INDICATOR
 00000F                     66 DIR    EQU   15                    SEEK DIRECTION INDICATOR
                            67 *
 000010  0000               68 OPTN2  DC    X'0000'               PROGRAM OPTION CONTROL WORD 2
 000012  0000               69 OPTN3  DC    X'0000'               PROGRAM OPTION CONTROL WORD 3
                            70 *
                            71 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                            72 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                            73 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                            74 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                            75 *
                            76 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                            77 *  5  WRONG INTR LEVEL      LE       13  N.U.
                            78 *  6  LOAS INTERRUPT        LI       14  N.U.
                            79 *  7  CS STATUS IN PROGR    CS       15  N.U.
                            80 *                           BIT     HEX
 000020                     81 MI     EQU   32      0       8     MYSTERY INTERRUPT HAPPENED
 000021                     82 ER     EQU   33      1       4     ERROR RECEIVED ON INTERRUPT
 000022                     83 XI     EQU   34      2       2     EXPECTED INTERRUPT CONTROL BIT
 000023                     84 IN     EQU   35      3       1     INTERRUPT RECEIVED CONTROL BIT
 000024                     85 XE     EQU   36      4       8     EXPECTED ERROR RESPONSE
 000025                     86 LE     EQU   37      5       4     INTERRUPT ON WRONG LEVEL ERROR
 000026                     87 LI     EQU   38      6       2     LOST INTERRUPT
 000027                     88 CS     EQU   39      7       1     CYCLE STATUS IN PROGRESS
 000028                     89 CE     EQU   40      8       8     CYCLE STEAL STATUS INERRRUPT ERROR
 000029                     90 GI     EQU   41      9       4     GOOD INTERRUPT RECEIVED (EXPECTED ER)
 00002A                     91 PE     EQU   42      10      2     PROBABLE ERROR EXPECTED
 00002B                     92 NI     EQU   43      11      1     NO INTR. EXPECTED UNPREPED DEV.
 000014  0000               94 $IOIN  DC    A(*-*)                I/O AND INTR CONDITION CODES
 000016  0000               95 $ISB   DC    A(*-*)                R7, INTR STATUS BYTE & DEV ADRS
 000018  0000               96 LSTIO  DC    A(*-*)                ADRS OF LAST I/O + 4 BYTES
 00001A  00000000           97 $DATA  DC    2A(*-*)               DEVICE DEPENDENT DATA
 00001E  00000000           98 DEV3   DC    2A(*-*)               DEPENDENT DATA DEV3 / DEV4
 000022  0000              99 DCB1   DC    A(*-*)                LAST DCB TABLE, CONTROL WORD
 000024  0000              100 DCB2   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000026  0000              101 DCB3   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000028  0000              102 DCB4   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002A  0000              103 DCB5   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002C  0000              104 DCB6   DC    A(*-*)                LAST DCB TABLE, CHAIN ADRS
 00002E  0000              105 DCB7   DC    A(*-*)                LAST DCB TABLE, BYTE COUNT
 000030  0000              106 DCB8   DC    A(*-*)                LAST DCB TABLE, BUFFER ADDRESS
 000032                    107 CSBUF  EQU   *                     CYCLE STEAL DATA BUFFER
 000032  0000              108 CSTL1  DC    A(*-*)                CYCLE STEAL BUFFER, RESIDUAL ADRS
 000034  0000              109 CSTL2  DC    A(*-*)                CYCLE STEAL WD 2, DEVICE DEPEND
 000036  0000              110 CSTL3  DC    A(*-*)                CYCLE STEAL WD 3, DEVICE DEPEND
 000038  0000              111 CSTL4  DC    A(*-*)                CYCLE STEAL WD 4, DEVICE DEPEND
 00003A  0000              112 CSTL5  DC    A(*-*)                CYCLE STEAL WD 5, DEVICE DEPEND
 00003C  0000              113 CSTL6  DC    A(*-*)                CYCLE STEAL WD 6, DEVICE DEPEND
 00003E  0000              114 CSTL7  DC    A(*-*)                CYCLE STEAL WD 7, DEVICE DEPEND
 000040  0000              115 CSTL8  DC    A(*-*)                CYCLE STEAL WD 8, DEVICE DEPEND
 000042  00000000          116 PCTR   DC    2A(*-*)               PASS COUNTER
 000046  00000000          117 ECTR   DC    2A(*-*)               ERROR COUNTER
 00004A  0005              118 ERNUM  DC    X'0005'               NUM OF ERRORS PROG CAN HAVE
 00004C  0068              119 $DVAD  DC    X'0068'               DEVICE ADDRESS BEING TESTED
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976

 00004E  0000000000000000  120        DC    XL8'00'
 000056  0011              121 $INTL  DC    X'0011'               INTERRUPT LEVEL REQUESTED
 000058  0306              122 $DVID  DC    X'0306'               DEVICE IDENTIFICATION
 00005A  000A              123 $MXSL  DC    A(10)                 MAXIMUM SELECTABLE ROUTINES
 00005C  0000              124 H0000  DC    X'0000'               CONSTANT
 00005E  0001              125 H0001  DC    X'0001'               HEX WORD CONSTANT
 000060  2300              126 TYPE23 DC    X'2300'               CONSTANT TO CHECK PROCESSOR AGAINST
                           128 ************************************************************************
                           129 *                                                                      *
                           130 *                PROGRAM CONTROL FUNCTIONS                             *
                           131 *                                                                      *
                           132 ************************************************************************
 000062  4020 06E6 063E    133 $PENT  MVA   XIOER,IOERR               RESTORE ERROR ADDRESS
 000068  A82A 005C 0042    134        AD    H0000,PCTR               ADVANCE PASS COUNTER BY 1
 00006E  4020 0056 0011    135        MVWI  X'0011',$INTL            INIT INTERRUPT LEVEL
 000074  CE25 000A          136        MVWZ  $RTNE,R6                 CLEAR OLD ROUTINE NUMBER
 000078  4424 000E          137 $PUPD  MVA   OPTN1,R4                 R4 MUST BE SET TO 'OPTN1'
 00007C  4C03              138 $PUP2  TBT   (R4,TM)                  IS TERMINATE PGM REQUESTED
 00007E  1036              139        JZ    $PUP8                    * NO, CONTINUE CHECKING
                           140 *
                           141 *                TERMINATE CONTROL BIT FOUND ON
                           142 *
 000080  4020 06E6 00C8    143 $TERM  MVA   $RETI,IOERR              INIT ERROR ADDRESS
 000086  CE25 06EA          144        MVWZ  IOMOD,R7                 ZERO MOD FIELD
 00008A  4724 06E4          145        MVA   IOBLK,R7                 LOAD ADDRESS OF CONTROL BLOCK
 00008E  6008               146        SVC   RESET                    ISSUE SVC
 000090  4020 06E8 0532    147        MVA   WRDCB,IODCB              LOAD DCB ADDRESS INTO CONTROL BLK
 000096  4020 06E6 00B8    148        MVA   $RETN,IOERR              CHANGE ERROR ADDRESS
 00009C  4724 06E4          149        MVA   IOBLK,R7                 LOAD ADDRESS OF CONTROL BLOCK
 0000A0  4020 0532 0080    150        MVWI  X'0080',WRCTL            CHANGE FORMS TO SIX LINES PER INCH
 0000A6  4020 0534 5800    151        MVWI  X'5800',WRFMS            FORMS TO CHANGE TO
 0000AC  C825 053E          152        MVWZ  WRBCT,REG                ZERO DCB WORD
 0000B0  CB25 0536          153        MVWZ  WRSKP,REG                ZERO DCB WORD
 0000B4  4C62               154        TBTS  (R4,XI)                  TURN EXPECTED INTER BIT ON
 0000B6  600A               155        SVC   START                    ISSUE START COMMAND
 0000B8  4524 0000          156 $RETN  MVWI  X'0000',R5               INIT COUNTER
 0000BC  4CA3               157 $RETC  TBTR  (R4,IN)                  TEST FOR INTERRUPT
 0000BE  1204               158        JON   $RETI                    BRANCH WHEN RECEIVED
 0000C0  6002               159        SVC   IDLE                     EXIT FOR OTHER ROUTINES
 0000C2  7DA1 0001          160        AHI   1,R5                     ADD TO COUNTER
 0000C6  18FA               161        JNZ   $RETC                    BRANCH TO CONTINUE
 0000C8  4020 06E6 00E0    162 $RETI  MVA   $TER1,IOERR              INIT ERROR ADDRESS
 0000CE  8828 0056 06E8    163        MVW   $INTL,IODCB              LOAD CURRENT INTERRUPT LEVEL
 0000D4  4724 06E4          164        MVA   IOBLK,R7                 LOAD ADDRESS OF CONTROL BLOCK
 0000D8  402D 06E8 0001    165        RBTWI X'0001',IODCB            TURN OF PREPARE 'I' BIT
 0000DE  600C               166        SVC   PREP                     ISSUE SVC
 0000E0  C720 004C          167 $TER1  MVB   $DVAD,R7                 LOAD CURRENT DEV ADDRESS
 0000E4  7FE4 FF00          168        RBTWI X'FF00',R7               ZERO HIGH ORDER BYTE
 0000E8  6013               169        SVC   RICB                     ISSUE SVC
 0000EA  6007               170        SVC   TERM                     ISSUE SVC
                           172 *
 0000EC  A828 005E 000A    173 $PUP8  AW    H0001,$RTNE              ADVANCE ROUTINE NUMBER
 0000F2  882B 005A 000A    174        CW    $MXSL,$RTNE              CHECK FOR LAST AUTOMATIC ROUTINE
 0000F8  10B4               175        JE    $PENT                    * BCH AND START WITH RTN 1
                           176 *
                           177 *                GET RTN NUMBER AND BCH TO THAT RTN
                           178 *
 0000FA  6E08 000A          179 $PSEL  MVW   $RTNE,R6                 MOVE RTN NUMBER IN REG
 0000FE  CD25 000C          180        MVWZ  $CKPT,R5                 ZERO CHECKPOINT
 000102  CD25 001A          181        MVWZ  $DATA,R5                 ZERO ALL FOUR WORDS OF DEV
 000106  CD25 001C          182        MVWZ  $DATA+2,R5               * DEPENDENT DATA
 00010A  CD25 001E          183        MVWZ  DEV3,R5                  *  -------------
 00010E  CD25 0020          184        MVWZ  DEV3+2,R5                *  -------------
 000112  3609               185        SLL   1,R6                     DOUBLE FOR BRANCH TABLE
 000114  68D2 0118          186        B     (R6,$RTAD)*              BCH VIA RTN TABLE
                           187 *
                           188 *                TABLE OF ROUTINE ADDRESSES
                           189 *
 000118  0062              190 $RTAD  DC    A($PENT)                 NO RTN SELECTED
 00011A  012C              191        DC    A(RT01)                  ROUTINE ADDRESS
 00011C  01B2              192        DC    A(RT02)                        ''      ''
 00011E  0256              193        DC    A(RT03)                        ''      ''
 000120  02EC              194        DC    A(RT04)                        ''      ''
 000122  031C              195        DC    A(RT05)                        ''      ''
 000124  034E              196        DC    A(RT06)                        ''      ''
 000126  0380              197        DC    A(RT07)                        ''      ''
 000128  049C              198        DC    A(RT08)                        ''      ''
 00012A  04CA              199        DC    A(RT09)                        ''      ''
                           201 ************************************************************************
                           202 *    CHANNEL INTERFACE TEST                                            *
                           203 *                                                                      *
                           204 *    TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS       *
                           205 *    THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO   *
                           206 *    AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS   *
                           207 *    COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS        *
                           208 *    EXCEPT LEVEL THREE. THEN ISSUE A DIAG READ AND CHECK CHECKSUM.    *
                           209 ************************************************************************
 00012C  6E03 06F8         210 RT01   BAL   $CONR,R6                 CLEAR AND CONNECT I/O BLK
 000130  6A08 0056          211        MVW   $INTL,R2                 SAVE SELECTED INTERRUPT
 000134  C825 0532          212        MVWZ  WRCTL,REG                SET UP CONTROL WORD FOR TESTING
 000138  C825 053E          213        MVWZ  WRBCT,REG                SET UP ZERO BYTE COUNT TO CK FOR INTR
 00013C  C825 0536          214        MVWZ  WRSKP,REG                SET UP SPACE COUNT OF ZERO
 000140  4020 0056 FFF1    215        MVWI  X'FFF1',$INTL            SET UP INTERRUPT LEVEL FOR PREP
 000144  1020 0056 0010    216 ITST4  AWI   X'10',$INTL              ADV INTR LEVEL, STARTING AT 0
 000148  6E03 0702          217        BAL   $CONC,R6                 GO PREPARE ON NEW LEVEL
 000150  4724 06E4          218        MVA   IOBLK,R7                 SET UP POINTER TO CONTROL BLOCK
 000154  6008               219        SVC   RESET                    CALL SUPVR TO ISSUE RESET
 000156  4724 06E4          220        MVA   IOBLK,R7                 SET UP POINTER TO CONTROL BLOCK
 00015A  6009               221        SVC   RID                      CALL SUPVR TO ISSUE READ ID
 00015C  882B 06EE 0058    222        CW    IORSP,$DVID              IS ID RECEIVED THE SAME
 000162  10B2               223        JE    ITST5                    * YES, CONTINUE
 000164  8828 06EE 001E    224        MVW   IORSP,DEV3               LOAD RECEIVED ID INTO DEV3
 00016A  8828 0058 0020    225        MVW   $DVID,DEV3+2             LOAD EXPECTED ID INTO DEV4
 000170  6802 0770          226        B     $PRNT                    BRANCH TO PRINT ERROR
 000174  6E03 0582          227 ITST5  BAL   XIOWR,R6                 EXEC NO-OP TO GET AN INTR
 000178  4029 000C 0001    228        AWI   1,$CKPT                  BUMP CHECKPOINT
 00017E  402F 0056 0021    229        CHI   X'21',$INTL              HAS INTR LEVEL COME DOWN TO 2
 000184  10D0               230        JNE   ITST4                    * NO, BCH AND CONTINUE TEST
 000186  6A0D 0056          231        MVW   R2,$INTL                 RESTORE SELECTED INTR LEVEL
 00018A  6E03 0702          232        BAL   $CONC,R6                 SET UP FOR START IO ON CORRECT LEV.
 00018E  6E03 05A8          233 ITSTA  BAL   XIODG,R6                 SET UP FOR START IO
 000192  4224 0916          234 ITSTC  MVA   WRBUF,R2                 SET UP TO CHECK CHECKSUM
 000196  6908 0916          235        MVW   WRBUF,R1                 SET UP TO CHECK CHECKSUM VALUE
 00019A  690B 0918          236        XW    WRBUF+2,R1               * AGAINST SHOULD BE
```

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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
00019E 7921 0001          237         AWI   1,R1                  CHECK FOR A VALID CHECKSUM
0001A2 1005               238         JZ    ITST9                 BCH IF OKAY
0001A4 9028 0916 001E     239         MVD   WRBUF,DEV3            MOVE ERRORED CHECKSUM VALUE
0001AA 6802 0770          240         B     $PRNT                 BRANCH TO PRINT ERROR
0001AE 6908 091A          241 ITST9   MVW   WRBUF+4,R1            SET UP TO CHECK CHECKSUM VALUE
0001B2 690B 091C          242         XW    WRBUF+6,R1            * AGAINST SHOULD BE
0001B6 7921 0001          243         AWI   1,R1                  CHECK FOR A VALID CHECKSUM
0001BA 1005               244         JZ    ITST8                 BCH IF OKAY
0001BC 9028 091A 001E     245         MVD   WRBUF+4,DEV3          MOVE ERRORED CHECKSUM VALUE
0001C2 6802 0770          246         B     $PRNT                 BRANCH TO PRINT ERROR
0001C6 6908 091E          247 ITST8   MVW   WRBUF+8,R1            SET UP TO CHECK CHECKSUM VALUE
0001CA 690B 0920          248         XW    WRBUF+10,R1           * AGAINST SHOULD BE
0001CE 7921 0001          249         AWI   1,R1                  CHECK FOR A VALID CHECKSUM
0001D2 1005               250         JZ    ITST7                 BCH IF OKAY
0001D4 9028 091E 001E     251         MVD   WRBUF+8,DEV3          MOVE ERRORED CHECKSUM VALUE
0001DA 6802 0770          252         B     $PRNT                 BRANCH TO PRINT ERROR
0001DE 6802 0078          253 ITST7   B     $PUPD                 BRANCH TO CONTINUE
                          255 ********************************************************************
                          256 *     DISPLAY DATA                                                   *
                          257 *     TO VERIFY THAT ALL POSITONS CAN PRINT DATA                     *
                          258 *                                                                    *
                          259 *     THE DEFAULT DATA OF 'H' WILL BE PRINTED IN ALL POSITIONS       *
                          260 *     THEN THE DEFAULT DATA OF 'I' WILL BE PRINTED OVER THE 'H'      *
                          261 *     DATA SO THE USER CAN CHECK ALIGNMENT OF THE HEAD               *
                          262 *                                                                    *
                          263 ********************************************************************
0001E2 6E03 0702          264 RT02    BAL   $CONC,R6                PREPARE DEVICE ON CORRECT LEVEL
0001E6 6E03 058A          265         BAL   XIOVF,R6                ISSUE OVERFLOW TO NEXT CHANNEL
0001EA 6E03 07B0          266         BAL   SETUP,R6                GO SET UP DCB FOR THE PRINTER
0001EE 0810               267         MVBI  16,REG                  INIT COUNT REGISTER
0001F0 4020 0532 0088     268         MVWI  X'0088',WRCTL           SET UP TO PRINT EIGHT LINES PER INCH
0001F6 4020 0534 5800     269         MVWI  X'5800',WRFMS           INSURE VALID FORMS PARAMETERS
0001FC 4124 001A          270 DSPL2   MVA   $DATA,R1                SET UP   TO  ADRS FOR THE MOVE
000200 4020 000C 0001     271         MVWI  1,$CKPT                 INIT CHECKPOINT TO ONE
000206 4224 0916          272         MVA   WRBUF,R2                SET UP   TO  ADRS FOR THE MOVE
00020A 0B23               273         MVBI  35,R3                   SET UP COUNT REGISTER
00020C 4020 001A C8C8     274         MVWI  C'HH',$DATA             SET UP TYPE OF DATA TO MOVE
000212 4020 001C C8C8     275         MVWI  C'HH',$DATA+2           * INTO A DOUBLE WORD
000218 9184               276 DSPL3   MVD   (R1),(R2)+              MOVE DATA FROM THE  DOUBLE WORD
00021A BBFE               277         JCT   DSPL3,R3                * FIELD TO THE BUFFER
00021C 4020 0536 0001     278         MVWI  X'0001',WRSKP           INDICATE MOVE TO NEXT CHANNEL
000222 6E03 0582          279 DSPL4   BAL   XIOWR,R6                BRANCH TO WRITE BUFFER
000226 4020 0536 0000     280         MVWI  X'0000',WRSKP           INDICATE NO MOVE TO NEXT CHANNEL
00022C 0B23               281         MVBI  35,R3                   SET UP COUNT REG
00022E 4124 001A          282         MVA   $DATA,R1                LOAD ADDRESS OF FROM DATA
000232 4224 0916          283         MVA   WRBUF,R2                LOAD ADDRESS OF TO DATA
000236 4020 000C 0002     284         MVWI  2,$CKPT                 INIT CHECKPOINT TO TWO
00023C 4020 001A C9C9     285         MVWI  C'II',$DATA             MOVE DESIRED DATA INTO A
000242 4020 001C C9C9     286         MVWI  C'II',$DATA+2           * DOUBLE WORD
000248 9184               287 DSPL5   MVD   (R1),(R2)+              MOVE THE DESIRED PRINT DATA
00024A BBFE               288         JCT   DSPL5,R3                * INTO THE PRINT BUFFER
00024C 6E03 0582          289 DSPL6   BAL   XIOWR,R6                BRANCH TO WRITE OUT DATA
000250 B8D5               290         JCT   DSPL2,REG               BRANCH FOR COUNT
000252 6802 0078          291         B     $PUPD                   BRANCH TO CONTINUE
                          293 ********************************************************************
                          294 *     CYCLE STEAL STATUS                                             *
                          295 *     THIS TEST WILL VERIFY THAT THE ATTACHMENT WILL SEND BACK THE   *
                          296 *     ADDRESS OF THE LAST CYCLE STEAL ADDRESS.                       *
                          297 *                                                                    *
                          298 *     A MESSAGE IS PRINTED AND KNOWING THE LAST BUFFER LOCATION USED *
                          299 *     THE RESIDUAL ADDRESS CAN BE COMPUTED.  THE START CYCLE STATUS IS*
                          300 *     EXECUTED AND THE TWO ADDRESSES ARE COMPARED.                   *
                          301 *     ANOTHER START CYCLE STEAL STATUS IS EXECUTED AND IT WILL VERIFY *
                          302 *     THAT START CYCLE STATUS DOES NOT  DESTROY THE RESIDUAL ADDRESS. *
                          303 ********************************************************************
000256 6E03 0702          304 RT03    BAL   $CONC,R6                PREPARE DEVICE ON CORRECT LEVEL
00025A 6E03 058A          305         BAL   XIOVF,R6                MOVE TO NEW CHANNEL
00025E 6E03 07B0          306         BAL   SETUP,R6                SET UP THE PRINTER DCB
000262 402D 0524 00FF     307         RBTWI X'FF',MSFMS             REMOVE LINE LENGTH FOR SPACE TEST
000268 4029 000C 0001     308 CSST2   AWI   1,$CKPT                 BUMP CHECKPOINT
00026E 4724 02C0          309         MVA   MSGCS,R7                LOAD ADDRESS OF LEN OF MESSAGE
000272 402D 0522 8000     310         RBTWI X'8000',MSCTL           TURN OFF CHAINING ADDRESS BIT
000278 6E03 0592          311         BAL   DISPP,R6                GO TO DISPLAY PROGRAM
00027C 402C 0522 8000     312         OWI   X'8000',MSCTL           TURN ON CHAINING ADDRESS BIT
000282 4124 02EA          313         MVA   MSGND-1,R1              LAST CYCLE ADRS USED
000286 4029 000C 0001     314         AWI   1,$CKPT                 BUMP CHECKPOINT
00028C 6E03 05C8          315         BAL   XIOCS,R6                GO GET STATUS FROM LAST I/O
000290 8028 0040 082B     316         MVB   CSTL8,CHNTY+1           SAVE CHAIN TYPE
000296 C924 0032          317         CW    CSBUF,R1                COMPARE LAST STG LOCATION USED
00029A 1004               318         JE    CSST4                   BRANCH IF GOOD ADDRESS
00029C 690D 0020          319         MVW   R1,DEV3+2               LOAD EXPECTED ADDRESS INTO DEV4
0002A0 6802 0770          320         B     $PRNT                   BRANCH TO PRINT ERROR
0002A4 4029 000C 0001     321 CSST4   AWI   1,$CKPT                 BUMP CHECKPOINT
0002AA 6E03 05C8          322 CSST5   BAL   XIOCS,R6                EXECUTE 2 ND START CS STS
0002AE C924 0032          323         CW    CSBUF,R1                CK IF 2 ND CS STS DESTROYED RESID ADR
0002B2 1004               324         JE    CSST7                   IF THE RESIDUAL ADRS OK, BCH
0002B4 690D 0020          325         MVW   R1,DEV3+2               MOVE EXPECTED VALUE INTO DEV4
0002B8 6802 0770          326         B     $PRNT                   BRANCH TO PRINT ERROR
0002BC 6802 0078          327 CSST7   B     $PUPD                   BRANCH TO CONTINUE
0002C0 0029               328 MSGCS   DC    A(MSGND-MSGCS-2)        LENGTH OF MESSAGE
0002C2 D9D6E4E3C9D5C540E  329         DC    C'ROUTINE TO CHECK FOR CS STATUS PARAMETERS'
0002EB                    330 MSGND   EQU   *                       END OF MESSAGE
0002EB 00                 331         ALIGN WORD
                          333 ********************************************************************
                          334 *     SPACE TEST                                                     *
                          335 *     TO TEST VARIABLE SPACING                                       *
                          336 *                                                                    *
                          337 *     SPACING WILL BEGIN WITH ONE AND INCREASE TO VERIFY THAT        *
                          338 *     VARIABLE SPACING CAN BE DONE.                                  *
                          339 ********************************************************************
0002EC 6E03 0702          340 RT04    BAL   $CONC,R6                PREPARE DEVICE ON PROPER LEVEL
0002F0 6E03 058A          341         BAL   XIOVF,R6                MOVE TO DESIRED CHANNEL
0002F4 6E03 07B0          342         BAL   SETUP,R6                GO SETUP PRINTER DCB
0002F8 0808               343         MVBI  08,REG                  SET UP SPACE COUNTER
0002FA 4029 000C 0001     344         AWI   1,$CKPT                 BUMP CHECKPOINT
000300 402D 0524 00FF     345         RBTWI X'FF',MSFMS             REMOVE LINE LENGTH FOR SPACE TEST
000306 4029 0536 0001     346 SPAC3   AWI   X'01',WRSKP             ADVANCE THE SPACE CONTROL VALUE
00030C 6E03 0582          347 SPAC4   BAL   XIOWR,R6                GO PRINT AND SPACE
000310 402D 0536 FF00     348         RBTWI X'FF00',WRSKP           REMOVE SKIP CNTL IF IT IS ON
000316 B8F7               349         JCT   SPAC3,REG               * BCH IF NOT FINISHED
000318 6802 0078          350         B     $PUPD                   BRANCH TO CONTINUE
                          352 ********************************************************************
                          353 *     RIPPLE DISPLAY                                                 *
                          354 *     TO VERIFY THAT ALL CHARACTERS CAN BE PRINTED IN ALL POSITIONS. *
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
                          355 *                                                                    *
                          356 *     EACH LINE ON THE PTR IS WRITTEN AND THEN THE BUFFER ADDRESS    *
                          357 *     IS ADVANCED IN ORDER TO CHAIN THE STARTING CHARACTER.          *
                          358 ********************************************************************
00031C 6E03 0702          359 RT05    BAL   $CONC,R6                PREPARE THE DEVICE ON PROPER LEVEL
000320 6E03 058A          360         BAL   XIOVF,R6                SKIP TO CHANNEL COMMAND
000324 6E03 07B0          361         BAL   SETUP,R6                SET UP WRITE DCB
000328 6808 082C          362         MVW   CHNTP,REG               SET UP LINE COUNTER
00032C 4020 0540 0916     363         MVWA  WRBUF,WRADR             SET WRITE BUFFER ADRS
000332 4029 000C 0001     364         AWI   1,$CKPT                 BUMP CHECKPOINT
000338 A828 005E 0540     365 RIPL3   AW    H0001,WRADR             ADVANCE WRITE BUFFER ADRS
00033E 6E03 0582          366 RIPL4   BAL   XIOWR,R6                GO WRITE DATA & READ BUFFER
000342 402D 0536 FF00     367         RBTWI X'FF00',WRSKP           REMOVE SKIP CNTL IF IT IS ON
000348 B8F7               368         JCT   RIPL3,REG               JUMP UNLESS COUNT ZERO
00034A 6802 0078          369         B     $PUPD                   BRANCH TO CONTINUE
                          371 ********************************************************************
                          372 *     PRINTER ERRORS                                                 *
                          373 *     CHECK ALL POSSIBLE INTERRUPTING ERRORS                         *
                          374 *                                                                    *
                          375 *     THE ATTACHMENT WILL REJECT INVALID PARAMETERS IN THE DCB       *
                          376 *     AND THIS WILL VERIFY THAT THE ATTACHMENT CAN DO IT.            *
                          377 *     THE ROUTINE HEADINGS IS CHAINED TO THE INVALID COMMAND.        *
                          378 ********************************************************************
00034E 6E03 0702          379 RT06    BAL   $CONC,R6                PREPAR ON CORRECT LEVEL
000352 6E03 058A          380         BAL   XIOVF,R6                MOVE TO NEXT CHANNEL
000356 6E03 07B0          381         BAL   SETUP,R6                GO SET UP THE PRINTER DCB
00035A 4020 0540 037C     382         MVA   MSGPE+2,WRADR           SET UP ERROR MSG IF A FAILURE HAPPENS
000360 4020 053E 00C8     383 IKEY1   MVWI  200,WRBCT               SET UP BYTE COUNT THAT IS TOO LARGE
000366 4C64               384         TBTS  (R4,XE)                 SET EXPECTED INDICATOR
000368 4724 037A          385         MVA   MSGPE,R7                SET UP MSG POINTER TO PRINT TITLE
00036C 4029 000C 0001     386         AWI   1,$CKPT                 BUMP CHECKPOINT
000372 6E03 0592          387         BAL   DISPP,R6                ISSUE ERROR COMMAND
000376 6802 0078          388         B     $PUPD                   BRANCH TO CONTINUE
00037A 0004               389 MSGPE   DC    A(MSGPN-MSGPE-2)        LENGTH OF MESSAGE
00037C 40404040           390         DC    C'    '
000380                    391 MSGPN   EQU   *                       END OF MESSAGE
                          392         ALIGN WORD
                          394 ********************************************************************
                          395 *     DIAGNOSTIC MODE                                                *
                          396 *     CHECK ALL POSSIBLE FUNCTION OF DIAGNOSTIC MODE                 *
                          397 *                                                                    *
                          398 *     WRITE CONTROL STORE WITH EXECUTIABLE CODE AND AFTER IT HAS BEEN *
                          399 *     EXECUTED, READ IT BACK AND VERIFY IT HAS NOT CHANGED.          *
                          400 *     THEN WRITE CONTROL STORE WITH EXECUTIBLE CODE AND AFTER IT HAS  *
                          401 *     BEEN EXECUTED, READ IT BACK AND VERIFY IT HAS BEEN CHANGED.    *
                          402 ********************************************************************
000380 6E03 0702          403 RT07    BAL   $CONC,R6                PREPARE DEVICE ON CORRECT LEVEL
000384 6E03 058A          404         BAL   XIOVF,R6                MOVE TO NEXT CHANNEL
000388 6E03 07B0          405         BAL   SETUP,R6                GO SET UP THE PRINTER DCB
00038C 4020 0562 0010     406 VARI3   MVWI  X'10',FMCTL             SET UP DIAG CONTROL
000392 4020 0570 0812     407         MVA   DIAGX,FMADR             SET UP BUFFER ADRS
000398 4020 056E 000B     408         MVWI  X'000B',FHBCT           SET BYTE COUNT TO END ON ODD BOUNDRY
00039E 4029 000C 0001     409         AWI   1,$CKPT                 BUMP CHECKPOINT
0003A4 6E03 05B6          410         BAL   XIOFM,R6                WRITE FORMS
0003A8 4020 0562 2010     411         MVWI  X'2010',FMCTL           SET UP READ CONTROL
0003AE 4020 0570 0806     412         MVA   SETCH,FMADR             SET UP BUFFER ADRS
0003B4 4029 000C 0001     413         AWI   1,$CKPT                 BUMP CHECKPOINT
0003BA 6E03 05B6          414         BAL   XIOFM,R6                READ FORMS
0003BE 4020 0570 0806     415         MVA   SETCH,FMADR             SET UP THE BUFFER ADRS
0003C4 4029 000C 0001     416         AWI   1,$CKPT                 BUMP CHECKPOINT
0003CA 902B 0806 0812     417         CD    SETCH,DIAGX             COMPARE WAS AND S/B VALUES
0003D0 1008               418         JE    VARI6                   * AND BCH IF THE SAME
0003D2 9028 0806 001A     419 VARI1   MVD   SETCH,$DATA             MOVE READ VALUE INTO DEV1 - DEV2
0003D8 9028 0812 001E     420         MVD   DIAGX,DEV3              MOVE EXPECTED VALUE INTO DEV3 - DEV4
0003DE 6802 0770          421         B     $PRNT                   BRANCH TO PRINT ERROR
0003E2 902B 080A 0816     422 VARI6   CD    SETCH+4,DIAGX+4         COMPARE WAS AND S/B VALUES
0003E8 1008               423         JE    VARI7                   * AND BCH IF THE SAME
0003EA 9028 080A 001A     424         MVD   SETCH+4,$DATA           MOVE READ VALUE INTO DEV1 - DEV2
0003F0 9028 0816 001E     425         MVD   DIAGX+4,DEV3            MOVE EXPECTED DATA INTO DEV3 - DEV4
0003F6 6802 0770          426         B     $PRNT                   BRANCH TO PRINT ERROR
0003FA 902B 080E 081A     427 VARI7   CD    SETCH+8,DIAGX+8         COMPARE WAS AND S/B VALUES
000400 1008               428         JE    VARI8                   BRANCH IF YES
000402 9028 080E 001A     429         MVD   SETCH+8,$DATA           MOVE READ DATA INTO DEV1 - DEV2
000408 9028 081A 001E     430         MVD   DIAGX+8,DEV3            MOVE EXPECTED DATA INTO DEV3 - DEV4
00040E 6802 0770          431         B     $PRNT                   BRANCH TO PRINT ERROF
000412 4020 0562 0010     432 VARI8   MVWI  X'10',FMCTL             SET UP DIAG CONTROL
000418 4020 0570 0812     433         MVA   DIAGX,FMADR             SET UP BUFFER ADRS
00041E 4020 056E 000A     434         MVWI  X'000A',FMBCT           SET BYTE COUNT TO END ON EVEN BOUNDRY
000424 4029 000C 0001     435         AWI   1,$CKPT                 BUMP CHECKPOINT
00042A 6E03 05B6          436         BAL   XIOFM,R6                WRITE FORMS
000420 4020 0562 2010     437         MVWI  X'2010',FMCTL           SET UP READ CONTROL
000434 4020 0570 0806     438         MVA   SETCH,FMADR             SET UP BUFFER ADRS
00043A 4029 000C 0001     439         AWI   1,$CKPT                 BUMP CHECKPOINT
000440 6E03 05B6          440         BAL   XIOFM,R6                READ FORMS
000444 4020 0570 0806     441         MVA   SETCH,FMADR             SET UP THE BUFFER ADRS
00044A 4029 000C 0001     442         AWI   1,$CKPT                 BUMP CHECKPOINT
000450 902B 0806 081E     443         CD    SETCH,DIAG1             COMPARE WAS AND S/B VALUES
000456 1008               444         JE    VAR16                   * AND BCH IF THE SAME
000458 9028 0806 001A     445 VAR11   MVD   SETCH,$DATA             MOVE READ VALUE INTO DEV1 - DEV2
00045E 9028 081E 001E     446         MVD   DIAG1,DEV3              MOVE EXPECTED VALUE INTO DEV3 - DEV4
000464 6802 0770          447         B     $PRNT                   BRANCH TO PRINT ERROR
000468 902B 080A 0822     448 VAR16   CD    SETCH+4,DIAG1+4         COMPARE WAS AND S/B VALUES
00046E 1008               449         JE    VAR17                   * AND BCH IF THE SAME
000470 9028 080A 001A     450         MVD   SETCH+4,$DATA           MOVE READ VALUE INTO DEV1 - DEV2
000476 9028 0822 001E     451         MVD   DIAG1+4,DEV3            MOVE EXPECTED DATA INTO DEV3 - DEV4
00047C 6802 0770          452         B     $PRNT                   BRANCH TO PRINT ERROR
000480 902B 080E 0826     453 VAR17   CD    SETCH+8,DIAG1+8         COMPARE WAS AND S/B VALUES
000486 1008               454         JE    VAR18                   BRANCH IF YES
000488 9028 080E 001A     455         MVD   SETCH+8,$DATA           MOVE READ DATA INTO DEV1 - DEV2
00048E 9028 0826 001E     456         MVD   DIAG1+8,DEV3            MOVE EXPECTED DATA INTO DEV3 - DEV4
000494 6802 0770          457         B     $PRNT                   BRANCH TO PRINT ERROR
000498 6802 0078          458 VAR18   B     $PUPD                   BRANCH TO CONTINUE
                          460 ********************************************************************
                          461 *     STRESS TEST                                                    *
                          462 *     CHECK PRINTER DURING PPINTING OF A MAX STRESS PRINT LINE       *
                          463 *                                                                    *
                          464 *     FILL THE BUFFER WITH GIVIN STRESS PATTERN THEN PRINT.          *
                          465 ********************************************************************
00049C 6E03 0702          466 RT08    BAL   $CONC,R6                PREPARE DEVICE ON CORRECT LEVEL
0004A0 6E03 058A          467         BAL   XIOVF,R6                MOVE TO NEXT CHANNEL
0004A4 6E03 07B0          468         BAL   SETUP,R6                GO SET UP THE PRINTEP DCB
0004A8 402D 0524 00FF     469         RBTWI X'00FF',MSFMS           REMOVE OVERFLOW LINE FOR THIS TEST
0004AE 4724 0108          470         MVWI  MXCT,R7                 LOAD R7 WITH BUFFER LENGTH
0004B2 4324 0892          471         MVA   STRES,R3                SET UP ADDRESS FROM
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0004B6  4524 0916             472        MVA   WRBUF,R5             SET UP ADDRESS TO AND
0004BA  2BA4                  473        MVFN  (R3),(R5)            AND MAKE THE MOVE
0004BC  4029 000C 0001        474        AWI   1,$CKPT              BUMP CHECKPOINT
0004C2  6E03 0582             475 RAND5  BAL   XIOWR,R6             WRITE LINE
0004C6  6802 0078             476        B     $PUPD                BRANCH TO CONTINUE
                              478 ********************************************************************
                              479 *     SINGLE CHAR PRINTING                                         *
                              480 *     CHECK EVERY HAMMER TO DETERMINE IF ALL ARE FIREING           *
                              481 *                                                                  *
                              482 *     FILL THE BUFFER WITH A SINGLE A AND THEN PRINT IN ALL 132    *
                              483 *     PRINT POSITIONS.                                             *
                              484 ********************************************************************
0004CA  6E03 0702             485 RT09   BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
0004CE  6E03 058A             486        BAL   XIOVF,R6             MOVE TO NEXT CHANNEL
0004D2  6E03 07B0             487        BAL   SETUP,R6             GO SET UP THE PRINTER DCB
0004D6  402D 0524 00FF        488        RBTWI X'00FF',MSFMS        REMOVE OVERFLOW LINE FOR THIS TEST
0004DC  4724 0108             489        MVWI  MXCT,R7              LOAD R7 WITH BUFFER LENGTH
0004E0  4324 0040             490        MVWI  X'40',R3             SET UP BLANK CHAR
0004E4  4524 0916             491        MVA   WRBUF,R5             SET UP ADDRESS TO
0004E8  2BAC                  492        FFN   R3,(R5)              AND FILL BUFFER WITH BLANKS
0004EA  4029 000C 0001        493        AWI   1,$CKPT              BUMP CHECKPOINT
0004F0  8028 082E 0999        494        MVB   ALPHA,WRBUF+131      LOAD BUFFER WITH SINGLE CHAR
0004F6  4024 0084             495        MVWI  132,REG              SET UP COUNT REG
0004FA  4020 0540 0916        496        MVA   WRBUF,WRADR          POINT DCB AT WRITE BUFFER
000500  4029 0540 0083        497        AWI   131,WRADR            POINT AT CORRECT START LOCATION
000506  6E03 0582             498 RT091  BAL   XIOWR,R6             WRITE LINE
00050A  4020 0536 0000        499        MVWI  X'0000',WRSKP        REMOVE SKIP CONTROL
000510  A829 005E 0540        500        SW    H0001,WRADR          DECREMENT BUFFER START POINT
000516  B8F7                  501        JCT   RT091,REG            BRANCH TO FILL ENTIRE LINE
000518  4020 0536 0001        502        MVWI  X'0001',WRSKP        RESTORE SKIP CONTROL
00051E  6802 0078             503        B     $PUPD                BRANCH TO CONTINUE
                              505 ********************************************************************
                              506 *          DCB'S USED DURING TESTING OF THE PRINTER                *
                              507 ********************************************************************
                              508 *
                              509 *          MESSAGE DATA CONTROL BLOCK
                              510 *
000522                        511 MSDCB  EQU   *                    USE FOR DCB REFERENCE ONLY
000522  8080                  512 MSCTL  DC    X'8080'              CONTROL WORD
000524  0000                  513 MSFMS  DC    X'0000'              FORMS LENGTH / SKIP CONTROL
000526  0102                  514 MSSKP  DC    X'0102'              SKIP TO / NUMBER OF SPACES
000528  0000                  515        DC    X'0000'
00052A  0000                  516        DC    X'0000'
00052C  0532                  517 MSCHN  DC    A(WRDCB)             CHAIN ADRS
00052E  0000                  518 MSBCT  DC    X'0000'              BYTE COUNT
000530  0000                  519 MSADR  DC    A(*-*)               BUFFER ADDRESS
                              520 *
                              521 *          WRITE DATA CONTROL BLOCK
                              522 *
000532                        523 WRDCB  EQU   *                    USE FOR DCB REFERENCE ONLY
000532  0000                  524 WRCTL  DC    X'0000'              CONTROL WORD
000534  0000                  525 WRFMS  DC    X'0000'              FORM LENGTH / SKIP CONTROL
000536  0001                  526 WRSKP  DC    X'0001'              SKIP TO / NUMBER OF SPACES
000538  0000                  527        DC    A(000)
00053A  0000                  528        DC    A(000)
00053C  0000                  529 WRCHN  DC    A(*-*)               CHAIN ADRS
00053E  0000                  530 WRBCT  DC    A(*-*)               BYTE COUNT
000540  0916                  531 WRADR  DC    A(WRBUF)             BUFFER ADRS
                              532 *
                              533 *          CYCLE STEAL DATA CONTROL BLOCK
                              534 *
000542                        535 CSDCB  EQU   *                    USE FOR DCB REFERENCE ONLY
000542  2000                  536 CSCTL  DC    X'2000'              CONTROL WORD
000544  0000                  537 CSFMS  DC    X'0000'              NOT USED
000546  0000                  538 CSSKP  DC    X'0000'              NOT USED
000548  0000                  539        DC    X'0000'
00054A  0000                  540        DC    X'0000'
00054C  0000                  541 CSCHN  DC    A(0000)              CHAIN ADRS, NOT USED
00054E  0010                  542 CSBCT  DC    X'0010'              BYTE COUNT
000550  0032                  543 CSADR  DC    A(CSBUF)             BUFFER ADRS
                              545 *
                              546 *          SKIP TO ONE DATA CONTROL BLOCK
                              547 *
000552                        548 OVDCB  EQU   *                    USE FOR DCB REFERENCE ONLY
000552  0000                  549 OVCTL  DC    X'0000'              CONTROL WORD
000554  0000                  550 OVFMS  DC    X'0000'              NOT USED
000556  0001                  551 OVSKP  DC    X'0001'              SKIP TO ONE
000558  0000                  552        DC    X'0000'
00055A  0000                  553        DC    X'0000'
00055C  0000                  554 OVCHN  DC    A(0000)              CHAIN ADRS, NOT USED
00055E  0000                  555 OVBCT  DC    X'0000'              BYTE COUNT, NOT USED
000560  0000                  556 OVADR  DC    A(0000)              BUFFER ADRS, NOT USED
                              557 *
                              558 *          LOAD CHAIN FORMAT DATA CONTROL BLOCK
                              559 *
000562                        560 FMDCB  EQU   *                    USED FOR DCB REFERENCE ONLY
000562  0000                  561 FMCTL  DC    X'0000'              CONTROL WORD
000564  0000                  562 FMDC2  DC    X'0000'              N.U.
000566  0000                  563 FMDC3  DC    X'0000'              SKIP TO / NUM OF SPACES
000568  0000                  564 FMDC4  DC    X'0000'
00056A  0000                  565 FMDC5  DC    X'0000'
00056C  0000                  566 FMCHN  DC    A(0000)              CHAIN ADDRESS
00056E  000A                  567 FMBCT  DC    X'000A'              BYTE COUNT
000570  0806                  568 FMADR  DC    A(SETCH)             BUFFER ADDRESS
                              569 *
                              570 *          DIAGNOSTIC  DATA CONTROL BLOCK
                              571 *
000572                        572 DGDCB  EQU   *                    USED FOR DCB REFERENCE ONLY
000572  2000                  573 DGCTL  DC    X'2000'              CONTROL WORD
000574  0000                  574 DGDC2  DC    X'0000'              N.U.
000576  0000                  575 DGDC3  DC    X'0000'              SKIP TO / NUM OF SPACES
000578  0000                  576 DGDC4  DC    X'0000'
00057A  0000                  577 DGDC5  DC    X'0000'
00057C  0000                  578 DGCHN  DC    A(0000)              CHAIN ADDRESS
00057E  000E                  579 DGBCT  DC    X'000E'              BYTE COUNT
000580  0916                  580 DGADR  DC    A(WRBUF)             BUFFER ADDRESS
                              582 ********************************************************************
                              583 *     ISSUE ALL I/O COMMANDS FROM A COMMON SUBROUTINE              *
                              584 *     TO DISPLAY INSTRUCTIONS AND OPERATING PROCEDURES TO THE OPERATOR*
                              585 *     AND SET UP ANY REQUIREMENTS FOR OTHER I/O COMMANDS           *
                              586 *                                                                  *
                              587 * --> BAL   XIOWR,R6                XEQ WRITE COMMAND              *
                              588 * --> BAL   XIOVF,R6                XEQ OVERFLOW TO THE NEXT PAGE  *
                              589 * --> BAL   DISPF,R6                GO DISPLAY MESSAGE AND SKIP TO 1 *
```



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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                              590 * --> BAL   XIODG,R6                XEQ DIAGNOSTIC COMMAND        *
                              591 * --> BAL   XIOFM,R6                XEQ FORMAT COMMAND            *
                              592 *                                                                 *
                              593 ********************************************************************
000582  4020 06E8 0532        594 XIOWR  MVA   WRDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
000588  501A                  595        J     XIO                  BRANCH
00058A  4020 06E8 0552        596 XIOVF  MVA   OVDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
000590  5016                  597        J     XIO                  BRANCH
000592  0B01                  598 DISPF  MVBI  1,R3                 SET A SKIP TO 1 IN R3
000594  C328 0526             599        MVB   R3,MSSKP             * AND SET SKP CONTROL
000598  8F18 052E             600        MVW   (R7)+,MSBCT          SET UP BYTE COUNT
00059C  6F0D 0530             601        MVW   R7,MSADR             SET UP BUFFER ADRS
0005A0  4020 06E8 0522        602        MVA   MSDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
0005A6  500B                  603        J     XIO                  GO DISPLAY MESSAGE
0005A8  4020 06E8 0572        604 XIODG  MVA   DGDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
0005AE  4020 06EA 000D        605        MVWI  X'0D',IOMOD          MOVE MODIFIER INTO CONTROL BLOCK
0005B4  5013                  606        J     XIO1                 BRANCH
0005B6  4020 06E8 0562        607 XIOFM  MVA   FMDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
0005BC  5000                  608        J     XIO                  BRANCH
                              610 ********************************************************************
                              611 *                                                                 *
                              612 * SOUBROUTINE                                                     *
                              613 *                                                                 *
                              614 *     EXECUTE INPUT AND OUTPUT COMMANDS                           *
                              615 *                                                                 *
                              616 * PURPOSE                                                         *
                              617 *                                                                 *
                              618 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.            *
                              619 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:            *
                              620 *                                                                 *
                              621 *     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED *
                              622 *        THE I/O COMMAND.                                         *
                              623 *     2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS *
                              624 *        ISSUED BY THIS SUBROUTINE.                               *
                              625 *     3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE      *
                              626 *        START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.        *
                              627 *     4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT *
                              628 *        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND, *
                              629 *        MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.               *
                              630 *     5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE *
                              631 *        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'. *
                              632 *     6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING *
                              633 *        STARTS TO DETERMINE A LOST INTERRUPT.                    *
                              634 *     7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF *
                              635 *        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.   *
                              636 *     8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.              *
                              637 *     9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.  *
                              638 *    10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.    *
                              639 *    11. CHECK IS A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS *
                              640 *        ISSUED BY THIS SUBROUTINE.                               *
                              641 *    12. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A *
                              642 *        CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON, *
                              643 *        COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED. *
                              644 *                                                                 *
                              645 * CALLING SEQUENCE                                               *
                              646 *                                                                 *
                              647 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                     *
                              648 *                                                                 *
                              649 * --> B     XIO                     XEQ ANY CYCLE STEAL COMMAND, MOD=0 *
                              650 * --> BAL   XIOCS,R6                XEQ START CYCLE STEAL STATUS, MOD=F *
                              651 *                                                                 *
                              652 * RETURN CONTROL                                                 *
                              653 *                                                                 *
                              654 *     BXS   (R6)                    RETURN TO USER NO ERROR       *
                              655 ********************************************************************
0005BE  CB25 06EA             657 XIO    MVWZ  IOMOD,R3               SET MOF OF 0 FOR CYCLE STEAL OP
0005C2  500C                  658        J     XIO1                   CS I/O'S ARE NOT RETRIED
0005C4  4CA8                  659        TBTR  (R4,CE)                RESET CS STATUS INTER ERROR INDICAT.
0005C6  4C67                  660        TBTS  (R4,CS)                SET 'CYCLE STEAL STATUS' IN PROGRESS
0005C8  4020 06E8 0542        661 XIOCS  MVA   CSDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
0005CE  4020 06EA 000F        662        MVWI  X'000F',IOMOD          SET CYCLE STEAL MODIFIER
0005D4  4C27                  663        TBT   (R4,CS)                IS CS IN PROGRESS, ERROR CONDITION
0005D6  1218                  664        JON   XIO2                   * YES, BYPASS SAVING I/O ADRS
0005D8  4C23                  665        TBT   (R4,IN)                TEST FOR INTERRUPT
0005DA  1261                  666        JON   XIOCK                  BRANCH IF YES
0005DC  6E0D 0018             667 XIO1   MVW   R6,LSTIO               SAVE IAR FOR RETRY IF REQUESTED
0005E0  402E 0018 0004        668        SWI   4,LSTIO                DECREMENT FOR LAS INSTRUCTION
0005E6  4B24 0000             669        MVA   $PID,R3                LOAD ADDRESS OF PROGRAM START
0005EA  CB2F 0018             670        SW    R3,LSTIO               SUB TO OBTAIN LISTING ADDRESS
0005EE  4324 0022             671        MVA   DCBUF,R3               SET UP TO ADRS TO MOVE DCB TABLE
0005F2  6D08 06E8             672        MVW   IODCB,R5               * AND THE FROM ADRS, ALONG WITH
0005F6  0F10                  673        MVBI  16,R7                  * THE NUMBER OF MOVES
0005F8  2D64                  674        MVFN  (R5),(R3)              MOVE 1 STATUS WORD AND ADJUST
0005FA  4C02                  675        TBT   (R4,IND)               IS THIS A RETRY DUE TO FORMS CHECK
0005FC  1205                  676        JON   XIO2                   *  YES BRANCH AROUND CS RE-INIT
0005FE  0BFF                  677        MVBI  255,R3                 CLEAR CYCLE STATUS BUFFER
000600  4524 0032             678        MVA   CSBUF,R5               *   TO ALL ONES  *
000604  0F10                  679        MVBI  16,R7                  *
000606  2BAC                  680        FFN   R3,(R5)                *
000608  4CA3                  681 XIO2   TBTR  (R4,IN)                CLEAR INTERRUPT RECEIVED CNTL BIT
00060A  1249                  682        JON   XIOCK                  BRANCH IF ON
00060C  4724 06E4             683        MVA   IOBLK,R7               SET UP CONTROL BLOCK FOR SUPVR
000610  0B2F 0232 0060        684        CB    CPUTYPE,TYPE23         CHECK FOR PROCESSOR 23
000616  1803                  685        JNE   XIO5                   BRANCH NOT EQUAL
000618  4524 C000             686        MVWI  X'C000',R5             LOAD LOOP COUNT
00061C  5001                  687        J     XIO6                   BRANCH
00061E  75AA                  688 XIO5   SW    R5,R5                  LOAD LOOP COUNT
000620  4C62                  689 XIO6   TBTS  (R4,XI)                SET EXPECTED INTR CONTROL BIT
000622  600A                  690        SVC   START                  CALL SUPVR FOR I/O COMMAND
000624  6002                  691 XIO8   SVC   IDLE                   ALLOW OTHER PROG TIME
000626  4C03                  692        TBT   (R4,TM)                IS TERMINATE BIT ON
000628  6A00 0080             693        BON   $TERM                  BRANCH IF ON
00062C  4CA3                  694        TBTR  (R4,IN)                HAS INTERRUPT BEEN RECEIVED
00062E  1237                  695        JON   XIOCK                  * YES, CHECK IF ALL WAS SATISFACTORY
000630  7DA1 0001             696        AWI   1,R5                   ADVANCE TIME OUT COUNT
000634  18F7                  697        JNZ   XIO8                   BCH IF TIME OUT NOT REACHED
000636  4C61                  698        TBTS  (R4,ER)                SET ON ERROR CONTROL BIT
000638  4C66                  699        TBTS  (R4,LI)                SET LOST INTERRUPT CONTROL BIT
00063A  6802 0770             700        B     $PRNT                  * BCH TO FINISH ERROR SEQUENCE
                              702 ********************************************************************
                              703 *                                                                 *
                              704 * SUBROUTINE                                                     *
                              705 *                                                                 *
                              706 *     I/O EXECUTE ERROR HANDLING ROUTINE                          *
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           707 *                                                                          *
                           708 * PURPOSE                                                                 *
                           709 *                                                                          *
                           710 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE        *
                           711 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE      *
                           712 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                                *
                           713 *                                                                          *
                           714 * CALLING SEQUENCE                                                       *
                           715 *                                                                          *
                           716 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND             *
                           717 *                                                                          *
                           718 * RETURN CONTROL                                                         *
                           719 *                                                                          *
                           720 *     B     $PRNT                 DUMP STATUS BEFORE TERMINATION       *
                           721 *                                                                          *
                           722 ****************************************************************************
000063E  706E              723 XIOER CPLSR R3                  SAVE CONDITION CODE ON I/O ERROR
000640  336A              724       SRL   13,R3               POSITION CC CODE TO BITS 13-15
000642  C328 0014          725       MVB   R3,$IOIN            * PUT IN LOG OUT AREA
000646  6802 0770          726       B     $PRNT               BRANCH TO PRINT ERROR
                           727 ****************************************************************************
                           728 *                                                                          *
                           729 * SOUBROUTINE                                                            *
                           730 *                                                                          *
                           731 *     ERROR INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'      *
                           732 *                                                                          *
                           733 * PURPOSE                                                                *
                           734 *                                                                          *
                           735 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR       *
                           736 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE         *
                           737 *     EXPECTED CODE.                                                     *
                           738 *                                                                          *
                           739 * CALLING SEQUENCE                                                       *
                           740 *                                                                          *
                           741 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT           *
                           742 *                                                                          *
                           743 * RETURN CONTROL                                                         *
                           744 *                                                                          *
                           745 *     SVC   EXIT                  RETURN TO USER VIA SUPVR             *
                           746 *                                                                          *
                           747 ****************************************************************************
00064A  706E              748 INTER CPLSR R3                  SAVE INDICATORS
00064C  336A              749       SRL   13,R3               POSITION INDICATORS IN R3
00064E  4424 000E          750       MVA   OPTN1,R4            SET UP BASE ADRS
000652  4C27              751       TBT   (R4,CS)             IS CS IN PROGRESS
000654  1006              752       JOFF  INTET               * NO
000656  4C68              753       TBTS  (R4,CE)             TURN ON CYCLE STEAL INTER ERROR
000658  6F0D 0040          754       MVW   R7,CSTL8            SAVE CS ERR ISB VALUE, BITS 0-7
00065C  C328 0041          755       MVB   R3,CSTL8+1          * AND THE COND CODE
000660  5009              756       J     INTR1               BRANCH
000662  4C61              757 INTET TBTS  (R4,ER)             SET ERROR ON I/O COMMAND CNTL BIT
000664  5007              758       J     INTR1               BRANCH
                           759 ****************************************************************************
                           760 *                                                                          *
                           761 * SOUBROUTINE                                                            *
                           762 *                                                                          *
                           763 *     OKAY  INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'      *
                           764 *                                                                          *
                           765 * PURPOSE                                                                *
                           766 *                                                                          *
                           767 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                       *
                           768 *                                                                          *
                           769 * CALLING SEQUENCE                                                       *
                           770 *                                                                          *
                           771 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED             *
                           772 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE            *
                           773 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE                 *
                           774 *     COMMON SECTION IS HANDLED HERE.                                    *
                           775 *                                                                          *
                           776 * RETURN CONTROL                                                         *
                           777 *                                                                          *
                           778 *     SVC   EXIT                  RETURN TO USER VIA SUPVR             *
                           779 *                                                                          *
                           780 ****************************************************************************
000666  706E              781 INTOK CPLSR R3                  SAVE INDICATORS
000668  336A              782       SRL   13,R3               POSITION INDICATORS IN R3
00066A  4424 000E          783       MVA   OPTN1,R4            SET UP BASE ADRS
00066E  4C24              784       TBT   (R4,XE)             TEST EXPECTED ERROR BIT
000670  1001              785       JOFF  INTR1               BRANCH IF OFF
000672  4C69              786       TBTS  (R4,GI)             SET GOOD INTERRUPT BIT
000674  4C63              787 INTR1 TBTS  (R4,IN)             SET   INTERRUPT RECEIVED
000676  4C27              788       TBT   (R4,CS)             IS 'CS IN PROGRESS' ON
000678  1204              789       JON   INTR2               * YES, BCH AROUND UPDATE
00067A  C328 0015          790       MVB   R3,$IOIN+1          SAVE INTERRUPTING CC CODE
00067E  6F0D 0016          791       MVW   R7,$ISB             SAVE INTR STATUS AND DEV ADRS
000682  78B9              792 INTR2 CPCL  R5                  COPY INTERRUPT LEVEL TO CHECK
000684  3521              793       SLL   4,R5                POSITION INTR LEVEL AND PUT
000686  0501              794       ABI   1,R5                * IN 'I' BIT
000688  CD24 0056          795       CW    $INTL,R5            IS THIS THE CORRECT INTR LEVEL
00068C  1004              796       JE    INTR3               * YES, GO EXIT THIS LEVEL
00068E  3521              797       SLL   4,R5                POSITION RECEIVED LEVEL
000690  6D0D 0020          798       MVW   R5,DEV3+2           STORE INTO DEV4
000694  4C65              799       TBTS  (R4,LE)             SET INTR LEVEL ERROR CONTROL BIT
000696  4CA2              800 INTR3 TBTR  (R4,XI)             WAS INTERRUPT EXPECTED
000698  1201              801       JON   INTRX               * YES, EXIT OFF THIS INTR LEVEL
00069A  4C60              802       TBTS  (R4,MI)             * NO, SET MYSTERY INTR CONTROL BIT
00069C  6006              803 INTRX SVC   EXIT                 EXIT THIS LEVEL VIA SUPVR TO PGM
                           804 ****************************************************************************
                           805 *
                           806 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                           807 *     HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN
                           808 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
                           809 *
                           810 ****************************************************************************
00069E  4C20              811 XIOCK TBT   (R4,MI)             WAS THERE AN UNEXPECTED INTERRUPT
0006A0  1217              812       JON   XIOCU               BRANCH IF YES
0006A2  4C25              813       TBT   (R4,LE)             WAS AN INTR LEVEL ERROR FOUND
0006A4  1002              814       JOFF  XIOCM               * NO, CONTINUE CHECKING
0006A6  4C61              815       TBTS  (R4,ER)             SET ERROR CONTROL BIT ON
0006A8  5013              816       J     XIOCU               BRANCH
0006AA  4CAA              817 XIOCM TBTR  (R4,PE)             WAS A PROBABLE ERROR EXPECTED
0006AC  6AC0 0000          818       BON   (R6)                BRANCH YES
0006B0  4C24              819       TBT   (R4,XE)             WAS AN ERROR EXPECTED
0006B2  1214              820       JN    XIOGI               * YES, BRANCH
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
0006B4  4C27              821       TBT   (R4,CS)             WAS AUTO CS IN PROGRESS
0006B6  1005              822       JOFF  XIOCV               * NO, CONTINUE CHECKING
0006B8  4C28              823       TBT   (R4,CE)             IS CS IN AN ERR CONDITION
0006BA  6800 0734          824       BOFF  CSRTN               * NO, BCH
0006BE  6802 0770          825       B     $PRNT               GO LOG CS ERROR
0006C2  4C21              826 XIOCV TBT   (R4,ER)             WAS ERROR INTR CONTROL BIT ON
0006C4  1007              827       JOFF  XIOCY               * NO, EXIT THIS ROUTINE
0006C6  4C0E              828 XIOCQ TBT   (R4,IND)            TEST FOR INDICATOR ON
0006C8  6A00 0770          829       BON   $PRNT               PRINT ERROR IF ON
0006CC  6802 05C4          830       B     XIOCS-4             * AVAILABLE, GO AND GET IT
0006D0  6802 0770          831 XIOCU B     $PRNT               PRINT ERROR
0006D4  CB25 0012          832 XIOCX MVWZ  OPTN3,R3            CLEAR OUT OPTION 3 CNTL BITS
0006D8  6821 0000          833       B     (R6)                RETURN TO USER VIA REG 6
0006DC  4C29              834 XIOGI TBT   (R4,GI)             WAS A GOOD INTERRUPT RECEIVED
0006DE  12F8              835       JON   XIOCU               YES BRANCH
0006E0  68C2 0000          836       B     (R6)                RETURN
                           837 *
                           838 *          I/O   PARAMETER LIST
                           839 *
0006E4  004C              840 IOBLK DC    A($DVAD)            ADRS OF DEVICE ADRS
0006E6  063E              841 IOERR DC    A(XIOER)            ERROR ROUTINE ADRS
0006E8  0000              842 IODCB DC    A(*-*)              DCB ADRS OR LEVEL & INTR
0006EA  0000              843 IOMOD DC    A(*-*)              MODIFIER
0006EC  0000              844       DC    A(*-*)              ADRS OF LAST SVC CALL
0006EE  0000              845 IORSP DC    A(*-*)              SECOND WORD OF LAST IDCB
                           846 *
                           847 *          INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                           848 *
0006F0  004C              849 INTBL DC    A($DVAD)            ADRS OF DEVICE ADRS
0006F2  0666              850 INT01 DC    A(INTOK)            INTERRUPT OK RETURN ADRS
0006F4  064A              851 INT02 DC    A(INTER)            INTERRUPT ERROR ADRS
0006F6  0003              852 INTCC DC    X'0003'             INTERRUPT CODE EXPECTED
                           853 ****************************************************************************
                           854 *                                                                          *
                           855 * SUBROUTINE                                                             *
                           856 *                                                                          *
                           857 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE                   *
                           858 *                                                                          *
                           859 * PURPOSE                                                                *
                           860 *                                                                          *
                           861 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND          *
                           862 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE     *
                           863 *     TO INTERRUPT.                                                      *
                           864 *                                                                          *
                           865 * CALLING SEQUENCE                                                       *
                           866 *                                                                          *
                           867 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                         *
                           868 *                                                                          *
                           869 * --> BAL   $CONC,R6              CLEAR DEV DEP STG AND CONNECT I/O BLK *
                           870 * --> BAL   $CONR,R6              BCH TO CONNECT                        *
                           871 * --> BAL   $CONP,R6              PREPARE DEVICE ONLY                   *
                           872 *                                                                          *
                           873 * RETURN CONTROL                                                         *
                           874 *                                                                          *
                           875 *     BXS   (R6)                  RETURN TO USER VIA REG 6             *
                           876 *                                                                          *
                           877 ****************************************************************************
0006F8                     878 $CONR EQU   *
0006F8  4724 06F0          879       MVA   INTBL,R7            SET R7 TO CONTROL BLOCK AND
0006FC  6014              880       SVC   CICB                * CONNECT IT TO THIS DEVICE
0006FE  68C2 0000          881       B     (R6)                RETURN
000702                     882 $CONC EQU   *
000702  CB25 0012          883       MVWZ  OPTN3,R3            CLEAR OLD CONTROLS FOR NEW ROUTINE
000706  4C8E              884       TBTR  (R4,IND)            TURN OFF IND INDICATOR
000708  8828 0056 06E8     885 $CONP MVW   $INTL,IODCB         PUT IN LEVEL & INTR PARAMETER
00070E  4724 06E4          886       MVA   IOBLK,R7            SET R7 TO CONTROL BLOCK TO PREPARE
000712  4020 0014 07FF     887       MVWI  X'07FF',$IOIN       INITIALIZE CONDITION CODE STORAGE
000718  CB25 0016          888       MVWZ  $ISB,R3             * AND CLEAR OLD ISB VALUE
00071C  6F0D 0018          889       MVW   R6,LSTIO            SET UP ADDRESS THAT STARTED LAST I/O
000720  402E 0018 0004     890       SWI   4,LSTIO             DECREMENT TO POINT AT INSTRUCTION
000726  4324 0000          891       MVA   $PID,R3             LOAD ADDRESS OF START OF PROG
00072A  CB2F 0018          892       SW    R3,LSTIO            SUB TO OBTAIN LISTING ADDRESS
00072E  600C              893       SVC   PREP                * AND CALL ON SUPVR
000730  68C2 0000          894       B     (R6)                RETURN
000734  402B 0034 0010     895 CSRTN TWI   X'0010',CSTL2       IS OVERFLOW BIT ON
00073A  1201              896       JON   RESUM               BRANCH YES
00073C  5015              897       J     CCRTP               BRANCH
00073E  4C8E              898 RESUM TBTR  (R4,IND)            HAS INDICATOR BEEN SET
000740  6A00 0770          899       BON   $PRNT               BRANCH YES
000744  4CA1              900       TBTR  (R4,ER)             RESET ERROR INDICATOR
000746  4CA7              901       TBTR  (R4,CS)             RESET CS STATUS INDICATOR
000748  4C4E              902       TBTS  (R4,IND)            SET INDICATOR
00074A  6F0D 0766          903       MVW   R6,SAVEA            SAVE R6
00074E  402C 0532 0001     904       OWI   1,WRCTL             OR IN RETRY BIT
000754  6E03 0582          905       BAL   XIOWR,R6            RETRY LAST WRITE COMMAND
000758  402D 0532 0001     906       RBTWI 1,WRCTL             TURN OFF RETRY BIT
00075E  6E08 0766          907       MVW   SAVEA,R6            RESTORE R6
000762  4C8E              908       TBTR  (R4,IND)            TURN OFF INDICATOR
000764  5600              909       BXS   (R6)                RETURN
000766  0000              910 SAVEA DC    A(*-*)              SAVE AREA FOR R6
000768  4C21              911 CCRTP TBT   (R4,ER)             TEST FOR ERROR
00076A  6A00 0770          912       BON   $PRNT               BRANCH IF YES
00076E  5600              913       BXS   (R6)                RETURN
                           914 ****************************************************************************
                           915 *                                                                          *
                           916 *          COMMON PRINT ERROR INTERFACE ROUTINE                        *
                           917 *                                                                          *
                           918 * ----> R6       LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE   *
                           919 *                 BRANCH IS TAKEN TO PRINT THE ERROR                     *
                           920 * ----> R4       LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE   *
                           921 *                 BRANCH IS TAKEN TO PRINT THE ERROR                     *
                           922 * ----> R3       LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE        *
                           923 *                 BRANCH IS TAKEN TO PRINT THE ERROR                     *
                           924 * ----> PRNTRTN THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST )  *
                           925 *                 POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                           926 *                 WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN      *
                           927 *                                                                          *
                           928 ****************************************************************************
000770  4624 0012          929 $PRNT MVA   OPTN3,R6            LOAD ADDRESS OF OPTION WORD THREE
000774  6D08 181E          930       MVW   PRNTRTN,R5          LOAD ADDRESS OF COMMON PRNT ROUTINE
000778  4424 0000          931       MVA   $PID,R4             LOAD ADDRESS OF START OF PROG
00077C  4324 0042          932       MVA   PCTR,R3             LOAD ADDRESS OF PASS COUNTER
000780  6FA3 0000          933       BAL   (R5),R7             BRANCH TO COMMON PRINT ROUTINE
000784  CB25 0012          934       MVWZ  OPTN3,R6            ZERO OUT ALL FLAGS
000788  4424 000E          935       MVA   OPTN1,R4            LOAD BASE ADDRESS FOR INDICATORS
```

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 LOCTR   OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

00078C  802B 0232 0060    942         CB    CPUTYPE,TYPE23        IS THIS A TYPE 23 PROCESSOR
000792  1803              943         JNE   $PRN2                 BRANCH IF NO
000794  4524 E000         944         MVWI  X'E000',R5            INIT LOOP COUNTER
000798  5002              945         J     $PRN1                 BRANCH
00079A  4524 8000         946 $PRN2   MVWI  X'8000',R5            INIT LOOP COUNTER
00079E  6002              947 $PRN1   SVC   IDLE                  DELAY
0007A0  4C03              948         TBT   (R4,TM)               SHOULD PROG TERMINATE
0007A2  6A00 0080         949         BON   $TERM                 BRANCH YES
0007A6  7DA1 0001         950         AWI   1,R5                  INCREMENT LOOP COUNTER
0007AA  18F9              951         JNZ   $PRN1                 BRANCH NOT ZERO
0007AC  6802 0062         952         B     $PENT                 BRANCH TO RESTART FROM BEGINING
                          954 ********************************************************************
                          955 *     DCB SETUP                                                    *
                          956 *                                                                  *
                          957 *     THIS ROUTINE SETS UP THE PRINTER DCB FOR 'STANDARD FUNCTIONS'*
                          958 *     AND ANY ROUTINE MUST MAKE 'SPECIAL' MODIFICATIONS AS REQUIRED.*
                          959 *                                                                  *
                          960 *     BAL   SETUP,R6                                               *
                          961 *                                                                  *
                          962 ********************************************************************
0007B0  6F08 082A         963 SETUP MVW   CHNTY,R7              LOAD CHAIN TYPE
0007B4  7F06 0080         964         CWI   X'0080',R7          IS CHAIN TYPE 128 CHAR SET
0007B8  1803              965         JNE   SETU1               BRANCH NO
0007BA  4020 082A 0040    966         MVWI  X'0040',CHNTY       IF 128 CHAR SET TEST WITH 64 CHAR SET
0007C0  372A              967 SETU1   SRL   5,R7                SHIFT TO OBTAIN BLANK COUNT
0007C2  6F0E 082A         968         AW    CHNTY,R7            AD BYTE COUNT TO CHAR COUNT
0007C6  4324 082E         969         MVA   ALPHA,R3            MOVE AN ALPHANUMERIC FIELD TO MAKE
0007CA  4524 0916         970         MVA   WRBUF,R5            * A LARGER WRITE BUFFER
0007CE  6F0D 082C         971         MVW   R7,CHNTP            SET UP MOVE BYTE COUNT
0007D2  2EA4              972         MVFN  (R3),(R5)           * AND MOVE IT
0007D4  4324 0916         973         MVA   WRBUF,R3            LOAD START ADDRESS
0007D8  4724 0108         974         MVWI  MXCT,R7             LOAD LENGTH OF BUFFER
0007DC  6F0F 082C         975         SW    CHNTP,R7            SUBTRACT LENGTH ALREADY INIT
0007E0  2BA4              976         MVFN  (R3),(R5)           INIT REST OF BUFFER
0007E2  4020 0540 0916    977         MVA   WRBUF,WRADR         SET UP WRITE ADRS
0007E8  CF25 0532         978         MVWZ  WRCTL,R7            SET UP CONTROL WORD
0007EC  4020 053E 0084    979         MVWI  132,WRBCT           * AND THE BYTE COUNT
0007F2  4020 0534 100E    980 SETU4   MVWI  X'100E',WRFMS       * MOVE IN CONTROLS
0007F8  4020 0524 100E    981         MVWI  X'100E',MSFMS       * MOVE IN CONTROLS
0007FE  4020 0536 0001    982         MVWI  1,WRSKP             SET UP SINGLE SPACE CONTROL
000804  5600              983         BXS   (R6)                RETURN
                          985 ********************************************************************
                          986 *     THIS TABLE HAS THE REPLACEMENT CODE USED                     *
                          987 ********************************************************************
000806  00000000000000000 988 SETCH DC    X'00000000000000000000'   96 CHARACTER SET  0
000810  0000              989         DC    X'0000'
000812  42FE42FFBC00F001D 990 DIAGX DC    X'42FE42FFBC00F001DC01'   SPECIAL DIAGNOSTIC NOT EXECUTED
00081C  0000              991         DC    X'0000'
00081E  FFFE42FFBC00F001D 992 DIAG1 DC    X'FFFE42FFBC00F001DC01'   SPECIAL DIAGNOSTIC EXECUTED
000828  0000              993         DC    X'0000'
                          994 ********************************************************************
00082A  0030              995 CHNTY DC    X'0030'                   DEFAULT CHAIN TYPE USED
00082C  0000              996 CHNTP DC    X'0000'                   TEMP SAVE AREA FOR CHAIN TYPE
                          997 ********************************************************************
                          998 *     ALPHANUMERIC BUFFER STORAGE                                  *
                          999 ********************************************************************
00082E  C1C2C3C4C5C6C7C8C 1000 ALPHA DC    C'ABCDEFGHI#@/JKLMNOPQR¢&,%STUVWXYZ-$*1234567890+.'' '
00085F  6E7A6F7E5D5F5E6D4 1001         DC    C'>:?=)¬;_|(<¢!'
00086C  E0797F40          1002         DC    X'E0797F40'
000870  818283848586878888 1003         DC    X'8182838485868788 89'
000879  9192939495969798 9 1004         DC    X'9192939495969798 99'
000882  A1A2A3A4A5A6A7A8A 1005         DC    X'A1A2A3A4A5A6A7A8A9'
00088B  186A9CC0D040      1006         DC    X'186A9CC0D04040'
                          1008 ********************************************************************
                          1009 *     STRESS TEST BUFFER STORAGE                                   *
                          1010 ********************************************************************
000892  F1F1F2F2F2F3F3F4F 1011 STRES DC    C'1122233444556667788899000##@@@//SSSTTUUUVVWWWXXYYYZZ'
0008C6  5050506B6B6C6C6CD 1012         DC    C'&&&&&&,,%%%JJKKKLLMMMNNOOOPPQQQRR---$$***AABBBCCDDDEE'
0008F8  C6C6C6C7C7C8C8C8C 1013         DC    C'FFFGGHHHII+++..''''''¢¢<<<(((|||!!'
                          1014 ********************************************************************
                          1015 ********************************************************************
000108                    1016 MXCT  EQU   264                     MAXIMUN LENGTH OF WRITE BUFFER
                          1017 ********************************************************************
000916  4040404040404040 1018 WRBUF DC    CL135' '                  MAXIMUM WRITE BUFFER
00099D  4040404040404040 1019         DC    CL129' '
000A1E                    1020 TSTEN EQU   *
                          1021 ********************************************************************
000062                    1022         END   $PENT
```


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DECLARED  NAME      ATTRIBUTES AND REFERENCES

    47    .REG.     ABSOLUTE. HEX VALUE(00000000)
                    152   153   212   213   214   267   290   343   349
                    362   368   495   501
     0    .R1.      ABSOLUTE. HEX VALUE(00000001)
                    235   236   237   241   242   243   247   248   249
                    270   276   282   287   313   317   319   323   325
     0    .R2.      ABSOLUTE. HEX VALUE(00000002)
                    211   231   234   272   276   283   287
     0    .R3.      ABSOLUTE. HEX VALUE(00000003)
                    273   277   281   288   471   473   490   492   598
                    599   657   669   670   671   674   677   680   723
                    724   725   749   750   756   783   784   792   835
                    888   893   896   897   938   969   972   973   976
     0    .R4.      ABSOLUTE. HEX VALUE(00000004)
                    137   138   154   157   384   659   660   663   665
                    675   681   689   692   694   698   699   751   752
                    754   758   785   786   788   789   790   801   802
                    804   814   816   818   820   822   824   826   829
                    831   837   889   904   906   907   908   914   917
                    937   941   948
     0    .R5.      ABSOLUTE. HEX VALUE(00000005)
                    156   160   180   181   182   183   184   472   473
                    491   492   672   674   678   680   686   688   688
                    696   794   795   796   797   799   800   936   939
                    944   946   950   970   972   976
     0    .R6.      ABSOLUTE. HEX VALUE(00000006)
                    136   179   185   186   210   217   227   232   233
                    264   265   266   279   289   304   305   306   311
                    315   322   340   341   342   347   359   360   361
                    366   379   380   381   387   403   404   405   410
                    414   436   440   466   467   468   475   485   486
                    487   498   667   821   836   839   886   894   899
                    909   911   913   915   919   935   940   983
     0    .R7.      ABSOLUTE. HEX VALUE(00000007)
                    144   145   149   164   167   168   218   220   309
                    385   470   489   600   601   673   679   683   755
                    793   884   891   939   963   964   967   968   971
                    974   975   978
    58    $CKPT     ADDRESS. HEX LOCATION(0000000C) IN CSECT(E68E0   ) LENGTH(2)
                    180   228   271   284   308   314   321   344   364
                    386   409   413   416   435   439   442   474   493
   887    $CONC     ADDRESS. HEX LOCATION(00000702) IN CSECT(E68E0   ) LENGTH(1)
                    217   232   264   304   340   359   379   403   466
                    485
   883    $CONR     ADDRESS. HEX LOCATION(000006F8) IN CSECT(E68E0   ) LENGTH(1)
                    210
    97    $DATA     ADDRESS. HEX LOCATION(0000001A) IN CSECT(E68E0   ) LENGTH(2)
                    181   182   270   274   275   282   285   286   419
                    424   429   445   450   455
   119    $DVAD     ADDRESS. HEX LOCATION(0000004C) IN CSECT(E68E0   ) LENGTH(2)
                     56   167   844   853
   122    $DVID     ADDRESS. HEX LOCATION(00000058) IN CSECT(E68E0   ) LENGTH(2)
                    222   225
   121    $INTL     ADDRESS. HEX LOCATION(00000056) IN CSECT(E68E0   ) LENGTH(2)
                    135   163   211   215   216   229   231   797   890
    94    $IOIN     ADDRESS. HEX LOCATION(00000014) IN CSECT(E68E0   ) LENGTH(2)
                    725   792   892
    95    $ISB      ADDRESS. HEX LOCATION(00000016) IN CSECT(E68E0   ) LENGTH(2)
                    793   893
   123    $MXSL     ADDRESS. HEX LOCATION(0000005A) IN CSECT(E68E0   ) LENGTH(2)
                    174
   133    $PENT     ADDRESS. HEX LOCATION(00000062) IN CSECT(E68E0   ) LENGTH(6)
                     55   175   190   952  1022
    53    $PID      ADDRESS. HEX LOCATION(00000000) IN CSECT(E68E0   ) LENGTH(4)
                    669   896   937
   935    $PRNT     ADDRESS. HEX LOCATION(00000770) IN CSECT(E68E0   ) LENGTH(4)
                    226   240   246   252   320   326   421   426   431
                    447   452   457   700   726   828   832   834   905
                    918
   947    $PRN1     ADDRESS. HEX LOCATION(0000079E) IN CSECT(E68E0   ) LENGTH(2)
                    945   951
   946    $PRN2     ADDRESS. HEX LOCATION(0000079A) IN CSECT(E68E0   ) LENGTH(4)
                    943
   137    $PUPD     ADDRESS. HEX LOCATION(00000078) IN CSECT(E68E0   ) LENGTH(4)
                    253   291   327   350   369   388   458   476   503
   173    $PUP8     ADDRESS. HEX LOCATION(000000EC) IN CSECT(E68E0   ) LENGTH(6)
                    139
   157    $RETC     ADDRESS. HEX LOCATION(000000BC) IN CSECT(E68E0   ) LENGTH(2)
                    161
   162    $RETI     ADDRESS. HEX LOCATION(000000C8) IN CSECT(E68E0   ) LENGTH(6)
                    143   158
   156    $RETN     ADDRESS. HEX LOCATION(000000B8) IN CSECT(E68E0   ) LENGTH(4)
                    148
   190    $RTAD     ADDRESS. HEX LOCATION(00000118) IN CSECT(E68E0   ) LENGTH(2)
                    186
    57    $RTNE     ADDRESS. HEX LOCATION(0000000A) IN CSECT(E68E0   ) LENGTH(2)
                    136   173   174   179
   143    $TERM     ADDRESS. HEX LOCATION(00000080) IN CSECT(E68E0   ) LENGTH(6)
                    693   949
   167    $TER1     ADDRESS. HEX LOCATION(000000E0) IN CSECT(E68E0   ) LENGTH(4)
                    162
  1000    ALPHA     ADDRESS. HEX LOCATION(0000082E) IN CSECT(E68E0   ) LENGTH(49)
                    494   969
   917    CCRTP     ADDRESS. HEX LOCATION(00000768) IN CSECT(E68E0   ) LENGTH(2)
                    903
    89    CE        ABSOLUTE. HEX VALUE(00000028)
                    659   754   826
   996    CHNTP     ADDRESS. HEX LOCATION(0000082C) IN CSECT(E68E0   ) LENGTH(2)
                    362   971   975
   995    CHNTY     ADDRESS. HEX LOCATION(0000082A) IN CSECT(E68E0   ) LENGTH(2)
                    316   963   966   968
    38    CICB      ABSOLUTE. HEX VALUE(00000014)
                    885
    49    CPUTYPE   ABSOLUTE. HEX VALUE(00000232)
                    684   942
    88    CS        ABSOLUTE. HEX VALUE(00000027)
                    660   663   752   790   824   907
   107    CSBUF     ADDRESS. HEX LOCATION(00000032) IN CSECT(E68E0   ) LENGTH(1)
                    317   323   543   678
   535    CSDCB     ADDRESS. HEX LOCATION(00000542) IN CSECT(E68E0   ) LENGTH(1)
                    661
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
     901  CSRTN      ADDRESS. HEX LOCATION(00000734) IN CSECT(E68E0   ) LENGTH(6)
                     827
     321  CSST4      ADDRESS. HEX LOCATION(000002A4) IN CSECT(E68E0   ) LENGTH(6)
                     318
     327  CSST7      ADDRESS. HEX LOCATION(000002BC) IN CSECT(E68E0   ) LENGTH(4)
                     324
     109  CSTL2      ADDRESS. HEX LOCATION(00000034) IN CSECT(E68E0   ) LENGTH(2)
                     901
     115  CSTL8      ADDRESS. HEX LOCATION(00000040) IN CSECT(E68E0   ) LENGTH(2)
                     316   755   756
      99  DCBUF      ADDRESS. HEX LOCATION(00000022) IN CSECT(E68E0   ) LENGTH(2)
                     671
      98  DEV3       ADDRESS. HEX LOCATION(0000001E) IN CSECT(E68E0   ) LENGTH(2)
                     183   184   224   225   239   245   251   319   325
                     420   425   430   446   451   456   800
     572  DGDCB      ADDRESS. HEX LOCATION(00000572) IN CSECT(E68E0   ) LENGTH(1)
                     604
     990  DIAGX      ADDRESS. HEX LOCATION(00000812) IN CSECT(E68E0   ) LENGTH(10)
                     407   417   420   422   425   427   430   433
     992  DIAG1      ADDRESS. HEX LOCATION(0000081E) IN CSECT(E68E0   ) LENGTH(10)
                     443   446   448   451   453   456
     598  DISPF      ADDRESS. HEX LOCATION(00000592) IN CSECT(E68E0   ) LENGTH(2)
                     311   387
     270  DSPL2      ADDRESS. HEX LOCATION(000001FC) IN CSECT(E68E0   ) LENGTH(4)
                     290
     276  DSPL3      ADDRESS. HEX LOCATION(00000218) IN CSECT(E68E0   ) LENGTH(2)
                     277
     287  DSPL5      ADDRESS. HEX LOCATION(00000248) IN CSECT(E68E0   ) LENGTH(2)
                     288
      82  ER         ABSOLUTE. HEX VALUE(00000021)
                     698   758   818   829   906   917
      39  EXIT       ABSOLUTE. HEX VALUE(00000006)
                     805
      36  E68E0      CSECT. START(00000000) LENGTH(2590) ESDID(0)
                      36
     568  FMADR      ADDRESS. HEX LOCATION(00000570) IN CSECT(E68E0   ) LENGTH(2)
                     407   412   415   433   438   441
     567  FMBCT      ADDRESS. HEX LOCATION(0000056E) IN CSECT(E68E0   ) LENGTH(2)
                     408   434
     561  FMCTL      ADDRESS. HEX LOCATION(00000562) IN CSECT(E68E0   ) LENGTH(2)
                     406   411   432   437
     560  FMDCB      ADDRESS. HEX LOCATION(00000562) IN CSECT(E68E0   ) LENGTH(1)
                     607
      90  GI         ABSOLUTE. HEX VALUE(00000029)
                     788   837
     124  H0000      ADDRESS. HEX LOCATION(0000005C) IN CSECT(E68E0   ) LENGTH(2)
                     134
     125  H0001      ADDRESS. HEX LOCATION(0000005E) IN CSECT(E68E0   ) LENGTH(2)
                     173   365   500
      40  IDLE       ABSOLUTE. HEX VALUE(00000002)
                     159   691   947
      84  IN         ABSOLUTE. HEX VALUE(00000023)
                     157   665   681   694   789
      65  IND        ABSOLUTE. HEX VALUE(0000000E)
                     675   831   889   904   908   914
     853  INTBL      ADDRESS. HEX LOCATION(000006F0) IN CSECT(E68E0   ) LENGTH(2)
                     884
     749  INTER      ADDRESS. HEX LOCATION(0000064A) IN CSECT(E68E0   ) LENGTH(2)
                     855
     758  INTET      ADDRESS. HEX LOCATION(00000662) IN CSECT(E68E0   ) LENGTH(2)
                     753
     783  INTOK      ADDRESS. HEX LOCATION(00000666) IN CSECT(E68E0   ) LENGTH(2)
                     854
     805  INTRX      ADDRESS. HEX LOCATION(0000069C) IN CSECT(E68E0   ) LENGTH(2)
                     803
     789  INTR1      ADDRESS. HEX LOCATION(00000674) IN CSECT(E68E0   ) LENGTH(2)
                     757   759   787
     794  INTR2      ADDRESS. HEX LOCATION(00000682) IN CSECT(E68E0   ) LENGTH(2)
                     791
     802  INTR3      ADDRESS. HEX LOCATION(00000696) IN CSECT(E68E0   ) LENGTH(2)
                     798
     844  IOBLK      ADDRESS. HEX LOCATION(000006E4) IN CSECT(E68E0   ) LENGTH(2)
                     145   149   164   218   220   683   891
     846  IODCB      ADDRESS. HEX LOCATION(000006E8) IN CSECT(E68E0   ) LENGTH(2)
                     147   163   165   594   596   602   604   607   661
                     672   890
     845  IOERR      ADDRESS. HEX LOCATION(000006E6) IN CSECT(E68E0   ) LENGTH(2)
                     133   143   148   162
     847  IOMOD      ADDRESS. HEX LOCATION(000006EA) IN CSECT(E68E0   ) LENGTH(2)
                     144   605   657   662
     849  IORSP      ADDRESS. HEX LOCATION(000006EE) IN CSECT(E68E0   ) LENGTH(2)
                     222   224
     216  ITST4      ADDRESS. HEX LOCATION(00000146) IN CSECT(E68E0   ) LENGTH(6)
                     230
     227  ITST5      ADDRESS. HEX LOCATION(00000174) IN CSECT(E68E0   ) LENGTH(4)
                     223
     253  ITST7      ADDRESS. HEX LOCATION(000001DE) IN CSECT(E68E0   ) LENGTH(4)
                     250
     247  ITST8      ADDRESS. HEX LOCATION(000001C6) IN CSECT(E68E0   ) LENGTH(4)
                     244
     241  ITST9      ADDRESS. HEX LOCATION(000001AE) IN CSECT(E68E0   ) LENGTH(4)
                     238
      86  LE         ABSOLUTE. HEX VALUE(00000025)
                     801   816
      87  LI         ABSOLUTE. HEX VALUE(00000026)
                     699
      96  LSTIO      ADDRESS. HEX LOCATION(00000018) IN CSECT(E68E0   ) LENGTH(2)
                     667   668   670   894   895   897
      81  MI         ABSOLUTE. HEX VALUE(00000020)
                     804   814
     519  MSADR      ADDRESS. HEX LOCATION(00000530) IN CSECT(E68E0   ) LENGTH(2)
                     601
     518  MSBCT      ADDRESS. HEX LOCATION(0000052E) IN CSECT(E68E0   ) LENGTH(2)
                     600
     512  MSCTL      ADDRESS. HEX LOCATION(00000522) IN CSECT(E68E0   ) LENGTH(2)
                     310   312
     511  MSDCB      ADDRESS. HEX LOCATION(00000522) IN CSECT(E68E0   ) LENGTH(1)
                     602
     513  MSFMS      ADDRESS. HEX LOCATION(00000524) IN CSECT(E68E0   ) LENGTH(2)
                     307   345   469   488   981
     328  MSGCS      ADDRESS. HEX LOCATION(000002C0) IN CSECT(E68E0   ) LENGTH(2)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                     309   328
     330  MSGND      ADDRESS. HEX LOCATION(000002EB) IN CSECT(E68E0   ) LENGTH(1)
                     313   328
     389  MSGPE      ADDRESS. HEX LOCATION(0000037A) IN CSECT(E68E0   ) LENGTH(2)
                     382   385   389
     391  MSGPN      ADDRESS. HEX LOCATION(00000380) IN CSECT(E68E0   ) LENGTH(1)
                     389
     514  MSSKP      ADDRESS. HEX LOCATION(00000526) IN CSECT(E68E0   ) LENGTH(2)
                     599
    1016  MXCT       ABSOLUTE. HEX VALUE(00000108)
                     470   489   974
      60  OPTN1      ADDRESS. HEX LOCATION(0000000E) IN CSECT(E68E0   ) LENGTH(2)
                     137   751   785   941
      69  OPTN3      ADDRESS. HEX LOCATION(00000012) IN CSECT(E68E0   ) LENGTH(2)
                     835   888   935   940
     548  OVDCB      ADDRESS. HEX LOCATION(00000552) IN CSECT(E68E0   ) LENGTH(1)
                     596
     116  PCTR       ADDRESS. HEX LOCATION(00000042) IN CSECT(E68E0   ) LENGTH(2)
                     134   938
      91  PE         ABSOLUTE. HEX VALUE(0000002A)
                     820
      41  PREP       ABSOLUTE. HEX VALUE(0000000C)
                     166   898
      48  PRNTRTN    ABSOLUTE. HEX VALUE(0000181E)
                     936
      45  RESET      ABSOLUTE. HEX VALUE(00000008)
                     146   219
     904  RESUM      ADDRESS. HEX LOCATION(0000073E) IN CSECT(E68E0   ) LENGTH(2)
                     902
      42  RICB       ABSOLUTE. HEX VALUE(00000013)
                     169
      46  RID        ABSOLUTE. HEX VALUE(00000009)
                     221
     365  RIPL3      ADDRESS. HEX LOCATION(00000338) IN CSECT(E68E0   ) LENGTH(6)
                     368
     210  RT01       ADDRESS. HEX LOCATION(0000012C) IN CSECT(E68E0   ) LENGTH(4)
                     191
     264  RT02       ADDRESS. HEX LOCATION(000001E2) IN CSECT(E68E0   ) LENGTH(4)
                     192
     304  RT03       ADDRESS. HEX LOCATION(00000256) IN CSECT(E68E0   ) LENGTH(4)
                     193
     340  RT04       ADDRESS. HEX LOCATION(000002EC) IN CSECT(E68E0   ) LENGTH(4)
                     194
     359  RT05       ADDRESS. HEX LOCATION(0000031C) IN CSECT(E68E0   ) LENGTH(4)
                     195
     379  RT06       ADDRESS. HEX LOCATION(0000034E) IN CSECT(E68E0   ) LENGTH(4)
                     196
     403  RT07       ADDRESS. HEX LOCATION(00000380) IN CSECT(E68E0   ) LENGTH(4)
                     197
     466  RT08       ADDRESS. HEX LOCATION(0000049C) IN CSECT(E68E0   ) LENGTH(4)
                     198
     485  RT09       ADDRESS. HEX LOCATION(000004CA) IN CSECT(E68E0   ) LENGTH(4)
                     199
     498  RT091      ADDRESS. HEX LOCATION(00000506) IN CSECT(E68E0   ) LENGTH(4)
                     501
     916  SAVEA      ADDRESS. HEX LOCATION(00000766) IN CSECT(E68E0   ) LENGTH(2)
                     909   913
     988  SETCH      ADDRESS. HEX LOCATION(00000806) IN CSECT(E68E0   ) LENGTH(10)
                     412   415   417   419   422   424   427   429   438
                     441   443   445   448   450   453   455   568
     963  SETUP      ADDRESS. HEX LOCATION(000007B0) IN CSECT(E68E0   ) LENGTH(4)
                     266   306   342   361   381   405   468   487
     967  SETU1      ADDRESS. HEX LOCATION(000007C0) IN CSECT(E68E0   ) LENGTH(2)
                     965
     346  SPAC3      ADDRESS. HEX LOCATION(00000306) IN CSECT(E68E0   ) LENGTH(6)
                     349
      43  START      ABSOLUTE. HEX VALUE(0000000A)
                     155   690
    1011  STRES      ADDRESS. HEX LOCATION(00000892) IN CSECT(E68E0   ) LENGTH(52)
                     471
      44  TERM       ABSOLUTE. HEX VALUE(00000007)
                     170
      64  TM         ABSOLUTE. HEX VALUE(00000003)
                     138   692   948
     126  TYPE23     ADDRESS. HEX LOCATION(00000060) IN CSECT(E68E0   ) LENGTH(2)
                     684   942
     422  VARI6      ADDRESS. HEX LOCATION(000003E2) IN CSECT(E68E0   ) LENGTH(6)
                     418
     427  VARI7      ADDRESS. HEX LOCATION(000003FA) IN CSECT(E68E0   ) LENGTH(6)
                     423
     432  VARI8      ADDRESS. HEX LOCATION(00000412) IN CSECT(E68E0   ) LENGTH(6)
                     428
     448  VAR16      ADDRESS. HEX LOCATION(00000468) IN CSECT(E68E0   ) LENGTH(6)
                     444
     453  VAR17      ADDRESS. HEX LOCATION(00000480) IN CSECT(E68E0   ) LENGTH(6)
                     449
     458  VAR18      ADDRESS. HEX LOCATION(00000498) IN CSECT(E68E0   ) LENGTH(4)
                     454
     531  WRADR      ADDRESS. HEX LOCATION(00000540) IN CSECT(E68E0   ) LENGTH(2)
                     363   365   382   496   497   500   977
     530  WRBCT      ADDRESS. HEX LOCATION(0000053E) IN CSECT(E68E0   ) LENGTH(2)
                     152   213   383   979
    1018  WRBUF      ADDRESS. HEX LOCATION(00000916) IN CSECT(E68E0   ) LENGTH(135)
                     234   235   236   239   241   242   245   247   248
                     251   272   283   363   472   491   494   496   531
                     580   970   973   977
     524  WRCTL      ADDRESS. HEX LOCATION(00000532) IN CSECT(E68E0   ) LENGTH(2)
                     150   212   268   910   912   978
     523  WRDCB      ADDRESS. HEX LOCATION(00000532) IN CSECT(E68E0   ) LENGTH(1)
                     147   517   594
     525  WRFMS      ADDRESS. HEX LOCATION(00000534) IN CSECT(E68E0   ) LENGTH(2)
                     151   269   980
     526  WRSKP      ADDRESS. HEX LOCATION(00000536) IN CSECT(E68E0   ) LENGTH(2)
                     153   214   278   280   346   348   367   499   502
                     982
      85  XE         ABSOLUTE. HEX VALUE(00000024)
                     384   786   822
      83  XI         ABSOLUTE. HEX VALUE(00000022)
                     154   689   802
     657  XIO        ADDRESS. HEX LOCATION(000005BE) IN CSECT(E68E0   ) LENGTH(4)
                     595   597   603   608
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
   814    XIOCK      ADDRESS. HEX LOCATION(0000069E) IN CSECT(E68E0   ) LENGTH(2)
                     666   682   695
   820    XIOCM      ADDRESS. HEX LOCATION(000006AA) IN CSECT(E68E0   ) LENGTH(2)
                     817
   661    XIOCS      ADDRESS. HEX LOCATION(000005C8) IN CSECT(E68E0   ) LENGTH(6)
                     315   322   833
   834    XIOCU      ADDRESS. HEX LOCATION(000006D0) IN CSECT(E68E0   ) LENGTH(4)
                     815   819   838
   829    XIOCV      ADDRESS. HEX LOCATION(000006C2) IN CSECT(E68E0   ) LENGTH(2)
                     825
   835    XIOCX      ADDRESS. HEX LOCATION(000006D4) IN CSECT(E68E0   ) LENGTH(4)
                     830
   604    XIODG      ADDRESS. HEX LOCATION(000005A8) IN CSECT(E68E0   ) LENGTH(6)
                     233
   723    XIOER      ADDRESS. HEX LOCATION(0000063E) IN CSECT(E68E0   ) LENGTH(2)
                     133   845
   607    XIOFM      ADDRESS. HEX LOCATION(000005B6) IN CSECT(E68E0   ) LENGTH(6)
                     410   414   436   440
   837    XIOGI      ADDRESS. HEX LOCATION(000006DC) IN CSECT(E68E0   ) LENGTH(2)
                     823
   596    XIOVF      ADDRESS. HEX LOCATION(0000058A) IN CSECT(E68E0   ) LENGTH(6)
                     265   305   341   360   380   404   467   486
   594    XIOWR      ADDRESS. HEX LOCATION(00000582) IN CSECT(E68E0   ) LENGTH(6)
                     227   279   289   347   366   475   498   911
   667    XIO1       ADDRESS. HEX LOCATION(000005DC) IN CSECT(E68E0   ) LENGTH(4)
                     606   658
   681    XIO2       ADDRESS. HEX LOCATION(00000608) IN CSECT(E68E0   ) LENGTH(2)
                     664   676
   688    XIO5       ADDRESS. HEX LOCATION(0000061E) IN CSECT(E68E0   ) LENGTH(2)
                     685
   689    XIO6       ADDRESS. HEX LOCATION(00000620) IN CSECT(E68E0   ) LENGTH(2)
                     687
   691    XIO8       ADDRESS. HEX LOCATION(00000624) IN CSECT(E68E0   ) LENGTH(2)
                     697
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
                             3 ************************************************************************
                             4 *                                                                      *
                             5 *                    ***       PREREQUISITES        ***               *
                             6 *                                                                      *
                             7 *                                NONE                                  *
                             8 *                                                                      *
                             9 ************************************************************************
                            10 *                                                                      *
                            11 *                    ***       MODIFICATIONS        ***               *
                            12 *                                                                      *
                            13 *                     IMPROVEMENTS MADE TO RESPONSE TIME               *
                            14 *                                                                      *
                            15 ************************************************************************
                            16 *                                                                      *
                            17 *                    ***     REA'S INCORPORATED     ***               *
                            18 *                                                                      *
                            19 *                                NONE                                  *
                            20 *                                                                      *
                            21 ************************************************************************
                            22 *                                                                      *
                            23 *                    ***    SPECIAL INSTRUCTIONS    ***               *
                            24 *                                                                      *
                            25 *                                NONE                                  *
                            26 *                                                                      *
                            27 ************************************************************************
                            28 *                                                                      *
                            29 *                    ***       E. C. HISTORY        ***               *
                            30 *                                                                      *
                            31 *          DATE 01OCT76  DATE 02DEC76  DATE 06MAY77  DATE 15SEP77      *
                            32 *          E.C. 578468   E.C. 578469   E.C. 578756   E.C. 754882       *
                            33 *                                                                      *
                            34 ************************************************************************
 000000                     36 E78E0 START X'0000'
                            37 *             SUPERVISOR EQUATES
 000014                     38 CICB   EQU   20                    CONNECT INTERRUPT CONTROL BLOCK
 000006                     39 EXIT   EQU   6                     EXIT INTERRUPT LEVEL
 00001A                     40 HTOE   EQU   26                    CHANGE FROM HEX TO EBCDIC
 000001                     41 OUTIN  EQU   1                     OUTPUT FOLLOWED BY INPUT
 000002                     42 IDLE   EQU   2                     SHARE PROGRAM TIME WITH OTHER PGMS
 00000C                     43 PREP   EQU   12                    PREPARE DEVICE
 000013                     44 RICB   EQU   19                    RELEASE INTERRUPT CONTROL BLOCK
 00000A                     45 START  EQU   10                    START CYCLE STEAL COMMAND
 000007                     46 TERM   EQU   7                     TERMINATE THIS PROGRAM
 000008                     47 RESET  EQU   8                     RESET DEVICE
 000009                     48 RID    EQU   9                     READ DEVICE ID
 000000                     49 REG    EQUR  0                     WORK REGISTER
 00181E                     50 PRNTRTN EQU  X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
 000232                     51 CPUTYPE EQU  X'0232'               ADDRESS OF PROCESSOR TYPE
                            52 *
                            53 *             PROGRAM HEADING AND CONTROL WORDS
                            54 *
 000000  F7F8F0F0          55 $PID   DC    C'7800'               PROGRAM IDENTIFICATION
 000004  0000              56        DC    XL2'0000'             CURRENT LEVEL OF PROGRAM
 000006  00A4              57        DC    A($PENT)              -> TO ATART OF PROG
 000008  004C              58        DC    A($DVAD)              -> TO DEVICE TABLE
 00000A  0000              59 $RTNE  DC    A(*-*)                ROUTINE NUMBER BEING RUN
 00000C  0000              60 $CKPT  DC    A(*-*)                LAST CHECK POINT PASSED
 00000E  0000              62 OPTN1  DC    X'0000'               PROGRAM OPTION CONTROL WORD 1
                            63 *
                            64 * BIT FUNCTION
                            65 *
 000003                     66 TM     EQU   3                     TERMINATE PROGRAM
 00000C                     67 WRIT   EQU   12                    CAN PROG WRITE ON DISK
 00000D                     68 QUES   EQU   13                    HAS QUES BEEN ASKED TO WRITE
 00000E                     69 IND    EQU   14                    INDICATOR
 00000F                     70 DIR    EQU   15                    SEEK DIRECTION INDICATOR
                            71 *
 000010  0000              72 OPTN2  DC    X'0000'               PROGRAM OPTION CONTROL WORD 2
 000012  0000              73 OPTN3  DC    X'0000'               PROGRAM OPTION CONTROL WORD 3
                            74 *
                            75 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                            76 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                            77 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                            78 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                            79 *
                            80 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                            81 *  5  WRONG INTR LEVEL      LE       13  N.U.
                            82 *  6  LOAS INTERRUPT        LI       14  N.U.
                            83 *  7  CS STATUS IN PROGR    CS       15  N.U.
                            84 *                                BIT    HEX
 000020                     85 MI     EQU   32        0        8     MYSTERY INTERRUPT HAPPENED
 000021                     86 ER     EQU   33        1        4     ERROR RECEIVED ON INTERRUPT
 000022                     87 XI     EQU   34        2        2     EXPECTED INTERRUPT CONTROL BIT
 000023                     88 IN     EQU   35        3        1     INTERRUPT RECEIVED CONTROL BIT
 000024                     89 XE     EQU   36        4        8     EXPECTED ERROR RESPONSE
 000025                     90 LE     EQU   37        5        4     INTERRUPT ON WRONG LEVEL ERROR
 000026                     91 LI     EQU   38        6        2     LOST INTERRUPT
 000027                     92 CS     EQU   39        7        1     CYCLE STATUS IN PROGRESS
 000028                     93 CE     EQU   40        8        8     CYCLE STEAL STATUS INERRRUPT ERROR
 000029                     94 GI     EQU   41        9        4     GOOD INTERRUPT RECEIVED (EXPECTED ER)
 00002A                     95 PE     EQU   42        10       2     PROBABLE ERROR EXPECTED
 00002B                     96 NI     EQU   43        11       1     NO INTR. EXPECTED UNPREPED DEV.
 000014  0000              98 $IOIN  DC    A(*-*)                I/O AND INTR CONDITION CODES
 000016  0000              99 $ISB   DC    A(*-*)                R7, INTR STATUS BYTE & DEV ADRS
 000018  0000             100 LSTIO  DC    A(*-*)                ADRS OF LAST I/O + 4 BYTES
 00001A  000000000000      101 SCTID  DC    3A(*-*)               DEVICE DEPENDENT DATA
 000020  0000             102 DEV4   DC    A(*-*)                DEV4 DATA FIELD IN ERROR PRINTOUT
 000022  0000             103 DCBUF  DC    A(*-*)                LAST DCB TABLE, CONTROL WORD
 000024  0000             104 DCB2   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000026  0000             105 DCB3   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000028  0000             106 DCB4   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002A  0000             107 DCB5   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002C  0000             108 DCB6   DC    A(*-*)                LAST DCB TABLE, CHAIN ADRS
 00002E  0000             109 DCB7   DC    A(*-*)                LAST DCB TABLE, BYTE COUNT
 000030  0000             110 DCB8   DC    A(*-*)                LAST DCB TABLE, BUFFER ADDRESS
 000032                    111 CSBUF  EQU   *                     CYCLE STEAL DATA BUFFER
 000032  0000             112 CSTL1  DC    A(*-*)                CYCLE STEAL BUFFER, RESIDUAL ADRS
 000034  0000             113 CSTL2  DC    A(*-*)                CYCLE STEAL WD 2, DEVICE DEPEND
 000036  0000             114 CSTL3  DC    A(*-*)                CYCLE STEAL WD 3, DEVICE DEPEND
 000038  0000             115 CSTL4  DC    A(*-*)                CYCLE STEAL WD 4, DEVICE DEPEND
 00003A  0000             116 CSTL5  DC    A(*-*)                CYCLE STEAL WD 5, DEVICE DEPEND
 00003C  0000             117 CSTL6  DC    A(*-*)                CYCLE STEAL WD 6, DEVICE DEPEND
 00003E  0000             118 CSTL7  DC    A(*-*)                CYCLE STEAL WD 7, DEVICE DEPEND
 000040  0000             119 CSTL8  DC    A(*-*)                CYCLE STEAL WD 8, DEVICE DEPEND
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
 000042  00000000          120 PCTR  DC    2A(*-*)               PASS COUNTER
 000046  00000000          121 ECTR  DC    2A(*-*)               ERROR COUNTER
 00004A  0005              122 ERNUM DC    X'0005'               DEVICE ALLOWED THIS MANY ERRORS
 00004C  0078              123 $DVAD DC    X'0078'               DEVICE ADDRESS BEING TESTED
 00004E  0000              124       DC    XL2'00'
 000050  0000              125 $DVID DC    XL2'00'
 000052  00000000          126       DC    XL4'00'
 000056  0011              127 $INTL DC    X'0011'               INTERRUPT LEVEL REQUESTED
 000058  0005              128 $MXSL DC    A(05)                 MAXIMUM SELECTABLE ROUTINES
 00005A  0000              129 H0000 DC    X'0000'               CONSTANT
 00005C  0001              130 H0001 DC    X'0001'               HEX WORD CONSTANT
 00005E  2300              131 TYPE23 DC   X'2300'               CONSTANT TO CHECK PROCESSOR AGAINST
 000060  0001              132 $HTOE DC    A(1)                  CONTROL BLOCK FOR HEX TO EBC
 000062  004C              133       DC    A($DVAD)
 000064  009D              134       DC    A(MSG01)
 000066  0080              135       DC    X'0080'
 000068  0072              136 $OUTIN DC   A(MSG)                 CONTROL BLOCK FOR SVC OUTIN
 00006A  00A2              137       DC    A(INARA)
 00006C  0001              138       DC    A(1)
 00006E  0000              139       DC    A(0)
 000070  78E1              140       DC    X'78E1'
 000072  C3C1D540E3C8C540F 141 MSG   DC    C'CAN THE 4962 C.E. TRACK BE WRITTEN ON DA = '
 00009D  E7E740            142 MSG01 DC    C'XX '
 0000A0  0000              143       DC    A(0)
 0000A2  0000              144 INARA DC    A(*-*)                SVC OUTIN INPUT AREA
                           146 ************************************************************************
                           147 *                                                                      *
                           148 *             PROGRAM CONTROL FUNCTIONS                                *
                           149 *                                                                      *
                           150 ************************************************************************
 0000A4  4424 000E         151 $PENT MVA   OPTN1,R4              LOAD ADDRESS OF BIT FLAGS
 0000A8  4020 0056 0011    152       MVWI  X'0011',$INTL         INIT INTERRUPT LEVEL
 0000AC  4C4D              153       TBTS  (R4,QUES)             HAS QUES BEEN ASKED
 0000B0  120D              154       JON   $PEN1                 BRANCH IF YES
 0000B2  4724 0060         155       MVA   $HTOE,R7              LOAD CONTROL BLOCK ADDRESS
 0000B6  601A              156       SVC   HTOE                  ISSUE SVC
 0000B8  4724 0068         157       MVA   $OUTIN,R7             LOAD CONTROL BLOCK ADDRESS
 0000BC  4324 009D         158       MVA   MSG01,R3              LOAD R3 WITH ADDRESS OF DEV ADD
 0000C0  6001              159       SVC   OUTIN                 ISSUE SVC
 0000C2  C620 00A2         160       MVB   INARA,R6              LOAD RESPONCE
 0000C6  F6E8              161       CBI   C'Y',R6               TEST RES. FOR YES
 0000C8  1801              162       JNE   $PEN1                 BRANCH IF NO
 0000CA  4C4C              163       TBTS  (R4,WRIT)             TURN ON WRITE BIT
 0000CC  4020 0900 085E    164 $PEN1 MVA   XIOER,IOERR           REINIT ERROR POINTER
 0000D2  A82A 005A 0042    165       AD    H0000,PCTR            ADVANCE PASS COUNTER BY 1
 0000D8  CE25 000A         166       MVWZ  $RTNE,R6              CLEAR OLD ROUTINE NUMBER
 0000DC  4424 000E         167 $PUPD MVA   OPTN1,R4              R4 MUST BE SET TO 'OPTN1'
 0000E0  4C03              168 $PUP2 TBT   (R4,TM)               IS TERMINATE PGM REQUESTED
 0000E2  1018              169       JZ    $PUP8                 * NO, CONTINUE CHECKING
                           170 *
                           171 *             TERMINATE CONTROL BIT FOUND ON
                           172 *
 0000E4  4020 0900 00F0    173 $TERM MVA   $RETI,IOERR           INIT ERROR ADDRESS
 0000EA  4724 08FE         174       MVA   IOBLK,R7              LOAD CONTROL BLOCK ADDRESS
 0000EE  6008              175       SVC   RESET                 ISSUE SVC
 0000F0  4020 0900 0108    176 $RETI MVA   $TER1,IOERR           INIT ERROR ADDRESS
 0000F6  8828 0056 0902    177       MVW   $INTL,IODCB           LOAD INTERRUPT LEVEL ACTIVE
 0000FC  402D 0902 0001    178       RBTWI X'0001',IODCB         RESET PREPAR 'I' BIT
 000102  4724 08FE         179       MVA   IOBLK,R7              LOAD CONTROL BLOCK ADDRESS
 000106  600C              180       SVC   PREP                  ISSUE SVC
 000108  C720 004C         181 $TER1 MVB   $DVAD,R7              LOAD DEVICE ADDRESS
 00010C  7FE4 FF00         182       RBTWI X'FF00',R7            ZERO HIGH ORDER BYTE
 000110  6013              183       SVC   RICB                  ISSUE SVC
 000112  6007              184       SVC   TERM                  ISSUE SVC
                           186 *
 000114  A828 005C 000A    187 $PUP8 AW    H0001,$RTNE           ADVANCE ROUTINE NUMBER
 00011A  882B 0058 000A    188       CW    $MXSL,$RTNE           CHECK FOR LAST AUTOMATIC ROUTINE
 000120  10C1              189       JE    $PENT                 * BCH AND START WITH RTN 1
                           190 *
                           191 *             GET RTN NUMBER AND BCH TO THAT RTN
                           192 *
 000122  6E08 000A         193 $PSEL MVW   $RTNE,R6              MOVE RTN NUMBER IN REG
 000126  CD25 000C         194       MVWZ  $CKPT,R5              ZERO CHECKPOINT VALUE
 00012A  CD25 0020         195       MVWZ  DEV4,R5               ZERO DEV4 INFO FIELD
 00012E  3609              196       SLL   1,R6                  DOUBLE R6 TABLE POINTER
 000130  68D2 0134         197       B     (R6,$RTAD)*           BCH VIA RTN TABLE
                           198 *
                           199 *             TABLE OF ROUTINE ADDRESSES
                           200 *
 000134  00A4              201 $RTAD DC    A($PENT)              NO RTN SELECTED
 000136  013E              202       DC    A(RT01)               ROUTINE ADDRESS
 000138  01A4              203       DC    A(RT02)                 ''      ''
 00013A  02FC              204       DC    A(RT03)                 ''      ''
 00013C  03DA              205       DC    A(RT04)                 ''      ''
                           207 ************************************************************************
                           208 ************************************************************************
                           209 *                                                                      *
                           210 *     LOGICAL SECTOR NUMBER TO PHYSICAL SECTOR NUMBER CONVERSION       *
                           211 *                                                                      *
                           212 * LOGICAL--> 00, 1E, 01, 1F, 02, 20, 03, 21, 04, 22, 05, 23, 06, 24,  *
                           213 * PHYSICAL-> 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B, 0C, 0D,  *
                           214 *                                                                      *
                           215 * LOGICAL--> 07, 25, 08, 26, 09, 27, 0A, 28, 0B, 29, 0C, 2A, 0D, 2B,  *
                           216 * PHYSICAL-> 0E, 0F, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 1A, 1B,  *
                           217 *                                                                      *
                           218 * LOGICAL--> 0E, 2C, 0F, 2D, 10, 2E, 11, 2F, 12, 30, 13, 31, 14, 32,  *
                           219 * PHYSICAL-> 1C, 1D, 1E, 1F, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29,  *
                           220 *                                                                      *
                           221 * LOGICAL--> 15, 33, 16, 34, 17, 35, 18, 36, 19, 37, 1A, 38, 1B, 39,  *
                           222 * PHYSICAL-> 2A, 2B, 2C, 2D, 2E, 2F, 30, 31, 32, 33, 34, 35, 36, 37,  *
                           223 *                                                                      *
                           224 * LOGICAL--> 1C, 3A, 1D, 3B                                           *
                           225 * PHYSICAL-> 38, 39, 3A, 3B                                           *
                           226 *                                                                      *
                           227 ************************************************************************
                           228 ************************************************************************
                           230 ************************************************************************
                           231 *     CHANNEL INTERFACE TEST                                           *
                           232 *                                                                      *
                           233 *     TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS      *
                           234 *     THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO   *
                           235 *     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS  *
                           236 *     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS       *
                           237 *     EXCEPT LEVEL THREE.                                              *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                    COPYRIGHT IBM CORP 1976
                           238 ***************************************************************************
00013E  6E03 0912          239 RT01  BAL   $CONR,R6                 ISSUE A CONNECT I/O BLOCK
000142  4020 0014 07FF     240       MVWI  X'07FF',$IOIN             INIT CONDITIONS TO GOOD
000148  4020 06C8 0005     241       MVWI  5,SKDCB                   SET UP CONTROL WORD FOR TESTING
00014E  4020 06CA 0000     242       MVWI  0,SKDCB+2                 SEEK NO DIFFERENCE (NO-OP)
000154  4020 0056 FFF1     243       MVWI  X'FFF1',$INTL             SET UP INTERRUPT LEVEL FOR PREP
00015A  4724 08FE          244       MVA   IOBLK,R7                  LOAD CONTROL BLOCK ADDRESS
00015E  6008               245       SVC   RESET                     ISSUE SVC
000160  4724 08FE          246       MVA   IOBLK,R7                  LOAD CONTROL BLOCK ADDRESS
000164  6009               247       SVC   RID                       ISSUE SVC
000166  882B 0050 0908     248       CW    $DVID,IORSP               VERIFY DEVICE ID
00016C  1008               249       JE    ITST1                     BRANCH IF EQUAL
00016E  8828 0908 0040     250       MVW   IORSP,CSTL8               LOAD LAST WORD OF CS WITH RECEIVED
000174  8828 0050 0020     251       MVW   $DVID,DEV4                LOAD DEV4 WITH EXPECTED
00017A  6802 098C          252       B     $PRNT                     BRANCH TO PRINT ERROR
00017E  4029 0056 0010     253 ITST1 AWI   X'10',$INTL               ADV INTR LEVEL
000184  6E03 091C          254       BAL   $CONC,R6                  CONNECT DEV CNTL BLOCK AND PREP DEV
000188  6E03 078E          255 ITST3 BAL   $SEEK,R6                  EXEC NO-OP TO GET AN INTR
00018C  4029 000C 0001     256       AWI   1,$CKPT                   BUMP CHECKPOINT VALUE
000192  402F 0056 0021     257 ITST5 CWI   X'21',$INTL               HAS INTR LEVEL COME DOWN TO 2
000198  18F2               258       JNE   ITST1                     * NO, BCH AND CONTINUE TEST
00019A  4020 0056 0011     259       MVWI  X'0011',$INTL             LOAD INDICATOR WITH CORRECT INTL
0001A0  6802 00DC          260       B     $PUPD                     BRANCH TO CONTINUE
                           262 ***************************************************************************
                           263 *     SEEK AND CHAINING TEST                                              *
                           264 *                                                                         *
                           265 *     VERIFY THE FOLLOWING:                                               *
                           266 *     1. SEEK AND VERIFY SECTOR ID FOR ALL TRACKS.                        *
                           267 *                                                                         *
                           268 *     PERFORM THE FOLLOWING:                                              *
                           269 *     1. SEEK RECALIBRATE AND VERIFY TRACK EQUALS ZERO.                   *
                           270 *     2. SEEK TO ALL CYLINDERS ALTERNATELY (302,1,301,2,300,3,ETC).       *
                           271 *        AND IF THE FLAG FOR THAT SECTOR IS ZERO READ AND VERIFY IT.      *
                           272 *     3. READ SECTOR ID AND VERIFY THAT SEEK WAS PERFORMED CORRECTLY.     *
                           273 ***************************************************************************
0001A4  6E03 091C          274 RT02  BAL   $CONC,R6                  PREPARE DEVICE ON CORRECT LEVEL
0001A8  6E03 07A2          275 RT210 BAL   $RECL,R6                  RECALIBRATE
0001AC  4029 0U0C 0001     276       AWI   1,$CKPT                   BUMP CHECKPOINT
0001B2  4C8E               277       TBTR  (R4,IND)                  SET INDICATOR BIT
0001B4  4020 06C8 0005     278       MVWI  X'0005',SKDCB             SEEK CONTROL WORD- NO CHAINING
0001BA  4020 06CA 0000     279       MVWI  0,SKDCB+2                 DIRRECTION, DIFFERENCE
0001C0  4020 06D0 0000     280       MVWI  0,SKDCB+8                 HEAD 0
0001C6  4420 06D2 06B8     281       MVA   RSDCB,SKDCB+10            RD SECT ID CHANING ADDR
0001CC  4020 06BC 3B00     282       MVWI  X'3B00',RSDCB+4           PHYSICAL SECTOR 0,LOG#0
0001D2  6E03 078E          283       BAL   $SEEK,R6                  SEEK NOOP,SELECT HEAD 0
0001D6  4029 000C 0001     284       AWI   1,$CKPT                   BUMP CHECKPOINT
0001DC  6E03 07AA          285       BAL   $RDID,R6                  READ SECTOR ID
0001E0  802B 0488 001B     286       CB    ZERO,SCTID+1              CK IF FLAG IS ZERO
0001E6  6801 098C          287       BNE   $PRNT                     BCH IF FLAG NOT ZERO (TRK 0 DEFECT)
0001EA  402F 001C 0000     288       CWI   0,SCTID+2                 CK FOR TRACK ZERO
0001F0  6801 098C          289       BNE   $PRNT                     RECAL FAILURE - TRACK NOT ZERO
0001F4  4020 0484 012E     290       MVWI  302,DIFF                  MAX DIFFERENCE
0001FA  4020 0486 0000     291       MVWI  0,XXX                     INIT 'XXX'=TRACK NUM IN REVER DIR
000200  4C8F               292       TBTR  (R4,DIR)                  CLEAR INDICATOR
000202  4020 06C8 8005     293       MVWI  X'8005',SKDCB             SEEK CONTROL WORD- CHANING
000208  4029 000C 0001     294       AWI   1,$CKPT                   BUMP CHECKPOINT
00020E  4CCF               295 LOOP1 TBTV  (R4,DIR)                  TEST AND INVERT DIRECTION BIT
000210  120B               296       JN    SKRV                      BCH NEG - BCH IF REV BIT ON
000212  6A08 0486          297       MVW   XXX,R2                    MOVE CONTENTS OF 'XXX' IN R2
000216  6A0E 0484          298       AW    DIFF,R2                   SEEK DIFFERENCE PLUS 'XXX'
00021A  4020 06D0 0000     299       MVWI  0,SKDCB+8                 SELECT HEAD ZERO
000220  A828 048A 0486     300       AW    ONE,XXX                   ONE PLUS 'XXX'
000226  5016               301       J     GO1                       BRANCH
000228  6A08 0486          302 SKRV  MVW   XXX,R2                    LOAD REG TWO WITH TRACK NUM DIFF
00022C  8828 0484 06CA     303       MVW   DIFF,SKDCB+2              LOAD DIFFERENCE IN DCB
000232  402C 06CA 0800     304       OWI   X'0800',SKDCB+2           TURN ON REVERSE BIT
000238  402F 0050 00CA     305       CWI   X'00CA',$DVID             IS THIS A LARGE FILE
00023E  1806               306       JNE   SKRV1                     BRANCH NO
000240  4CCE               307       TBTV  (R4,IND)                  TEST AND INVERT BIT
000242  1004               308       JOFF  SKRV1                     BRANCH IF OFF
000244  4020 06D0 0200     309       MVWI  X'0200',SKDCB+8           SELECT HEAD TWO
00024A  500A               310       J     RT205                     BRANCH
00024C  4020 06D0 0100     311 SKRV1 MVWI  X'0100',SKDCB+8           SELECT HEAD ONE
000252  5006               312       J     RT205                     BRANCH
000254  8828 0484 06CA     313 GO1   MVW   DIFF,SKDCB+2              SETUP SEEK DIFFERENCE
00025A  402D 06CA 0800     314       RBTWI X'0800',SKDCB+2           TURN ON FOR DIRECTION BIT
000260  4020 048C 001E     315 RT205 MVWI  30,LGSEC                  SETUP LOG SECT EQUAL 1E
000266  6E03 074C          316       BAL   CONVT,R6                  CONVERT TO PHYSICAL - 1
00026A  8028 048F 06BC     317       MVB   PHYSC+1,RSDCB+4           LOAD PHY SECT IN RD SEC DCB
000270  6E03 078E          318 RT209 BAL   $SEEK,R6                  SEEK & READ SECTOR ID
000274  802B 0488 001B     319       CB    ZERO,SCTID+1              CK IF FLAG BYTE IS ZERO
00027A  1027               320       JE    RT204                     BRANCH IF YES
00027C  802B 048B 001B     321 RT207 CB    ONE+1,SCTID+1             CK FOR GOOD ALTER SECTOR (CYL 1)
000282  1810               322       JNE   RT203                     BCH IF GOOD ALT. SECT NOT FOUND
000284  CA24 048A          323 RT206 CW    ONE,R2                    CHECK FOR CYLINDER ONE
000288  182C               324       JNE   RT208                     BRANCH IF YES
00028A  4029 000C 0001     325       AWI   1,$CKPT                   BUMP CHECKPOINT
000290  4029 000C 0001     326 RTY24 AWI   1,$CKPT                   BUMP CHECKPOINT
000296  4029 000C 0001     327 RTY23 AWI   1,$CKPT                   BUMP CHECKPOINT
00029C  6A0D 0020          328       MVW   R2,DEV4                   LOAD DEV4 WITH EXPECTED CYL
0002A0  6802 098C          329       B     $PRNT                     PRANCH TO PRINT ERROR
0002A4  402F 048C 003A     330 RT203 CWI   58,LGSEC                  CK FOR PHYSICAL SECTOR #59
0002AA  1801               331       JNE   RT211                     ALL TRACKS DEFECTIVE (SIDE 0)
0002AC  50F1               332       J     RTY24                     BRANCH
0002AE  4029 048C 0001     333 RT211 AWI   1,LGSEC                   UPDATE LOG SECT#
0002B4  6E03 074C          334       BAL   CONVT,R6                  CONVERT TO PHYSICAL SECT# - 1
0002B8  8028 048F 06BC     335       MVB   PHYSC+1,RSDCB+4           LOAD DCB
0002BE  6E03 07AA          336       BAL   $RDID,R6                  READ SECTOR ID
0002C2  802B 0488 001B     337       CB    ZERO,SCTID+1              CK FOR FLAG BYTE EQUAL ZERO
0002C8  18ED               338       JNE   RT203                     FLAG IS NON-ZERO
0002CA  CA24 001C          339 RT204 CW    SCTID+2,R2                COMPARE CYL # TO CALCULATED #
0002CE  6801 0296          340       BNE   RTY23                     SECTOR ID DOES NOT MATCH,SEEK ERROR
0002D2  8028 001B 070D     341       MVB   SCTID+1,RDVA1             MOVE SECTOR FLAG FIELD
0002D8  9028 001C 070E     342       MVD   SCTID+2,RDVA2             MOVE CYL AND HEAD DATA
0002DE  6E03 07DA          343       BAL   $RDVA,R6                  GO READ AND VARIFY ONE SECTOR
0002E2  A829 048A 0484     344 RT208 SW    ONE,DIFF                  SEEK DIFFERENCE - ONE
0002E8  402F 0484 0000     345       CWI   0,DIFF                    CHECK FOR END OF TEST
0002EE  1002               346       JE    FINS                      BRANCH IF END - TEST COMPLETE
0002F0  6802 020E          347       B     LOOP1                     BRANCH
0002F4  CE25 06D0          348 FINS  MVWZ  SKDCB+8,R6                ZERO HEAD SELECT
0002F8  6802 00DC          349       B     $PUPD                     BRANCH TO CONTINUE
                           351 ***************************************************************************
                           352 *     OVERALL EXERCISOR TEST                                              *
                           353 *                                                                         *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                    COPYRIGHT IBM CORP 1976
                           354 *     VERIFY THE FOLLOWING:                                             *
                           355 *     1. SEEK RECALIBRATE,SEEK,READ SECTOR ID,WRITE SECTOR ID,WRITE/    *
                           356 *     VERIFY AND READ.                                                  *
                           357 *                                                                       *
                           358 *     PERFORM-THE FOLLOWING:                                            *
                           359 *     1. PREPARE TO INTERRUPT LEVEL 'X'.                                *
                           360 *     2. SEEK RECALIBRATE AND VERIFY TRACK EQUALS ZERO.                 *
                           361 *     3. SEEK TO CYLINDER 320 (CE TRACK).                               *
                           362 *     4. READ SECTOR ID AND DETERMINE HOW ID WAS WRITTEN (NORMAL OR     *
                           363 *        SKEWED). BOTH CE TRACKS WILL BE TESTED (HEAD 0 AND 1).         *
                           364 *     5. WRITE AND VERIFY A 'TEST SECTOR ID' WRITING IN SAME MODE AS    *
                           365 *        ORGINAL ID (NORMAL OR SKEWED).                                 *
                           366 *     6. RESTORE ORGINAL SECTOR ID'S.                                   *
                           367 *     7. FIND  TWO GOOD SECTORS (FLAG 00) STARTING AT LOGICAL SECTOR 0  *
                           368 *        (HEAD 0).                                                      *
                           369 *     8. REPEAT 7 AND 8 FOR HEAD 1.                                     *
                           370 ***************************************************************************
0002FC  4C0C               371 RT03  TBT   (R4,WRIT)                 TEST FOR WRITE BIT
0002FE  6800 03D6          372       BOFF  FINIS                     BRANCH IF NO WRITE
000302  6E03 091C          373       BAL   $CONC,R6                  PREPARE DEVICE ON CORRECT LEVEL
000306  6E03 07A2          374 RT327 BAL   $RECL,R6                  RECALIBRATE
00030A  CE25 0494          375       MVWZ  HDNUM,R6                  ZERO HEAD SELECT
00030E  4020 0484 012E     376       MVWI  302,DIFF                  LOAD 302 IN DIFFERENCE WORD
000314  4C8E               377       TBTR  (R4,IND)                  CLEAR IND
000316  4020 000C 0001     378 GO    MVWI  1,$CKPT                   BUMP CHECKPOINT
00031C  4020 06C8 0005     379       MVWI  X'0005',SKDCB             SEEK CONTROL WD - NO CHAINING
000322  8828 0484 06CA     380       MVW   DIFF,SKDCB+2              SETUP SEEK DIFFERENCE,D=0=FORWARD
000328  8828 0494 06D0     381       MVW   HDNUM,SKDCB+8             SETUP HEAD IN DCB
00032E  6E03 078E          382       BAL   $SEEK,R6                  SEEK
000332  4020 048C 0000     383       MVWI  0,LGSEC                   SETUP LOG SECT # ZERO
000338  4020 000C 0002     384       MVWI  2,$CKPT                   BUMP CHECKPOINT
00033E  6E03 074C          385 RT313 BAL   CONVT,R6                  CONVERT SEC# FROM LOG TO PHYSICAL
000342  8028 048F 06BC     386       MVB   PHYSC+1,RSDCB+4           PLACE PHY SEC IN RD SEC ID DCB
000348  6E03 07AA          387       BAL   $RDID,R6                  READ SECTOR ID
00034C  802B 0488 001B     388       CB    ZERO,SCTID+1              CHECK FLAG BYTE FOR ZERO.
000352  1801               389       JNE   RT311                     FLAG NOT ZERO
000354  500B               390       J     RT312                     BRANCH
000356  402F 048C 003B     391 RT311 CWI   59,LGSEC                  CHECK FOR SECTOR 60
00035C  1801               392       JNE   RT331                     BAD CE TRACK
00035E  5004               393       J     RT315                     BRANCH TO PRINT ERROR
000360  4029 048C 0001     394 RT331 AWI   1,LGSEC                   ADD ONE TO LOG SEC #
000366  50EB               395       J     RT313                     BRANCH
000368                     396 RT314 EQU   *
000368  6802 098C          397 RT315 B     $PRNT                     BRANCH TO PRINT ERROR
00036C  6A08 0484          398 RT312 MVW   DIFF,R2                   GET CYL# FOR PRINT OUT
000370  402F 001C 012E     399       CWI   302,SCTID+2               CK FOR CYLINDER # 302
000376  18F8               400       JNE   RT314                     BRANCH IF NOT CYL 302
000378  4020 000C 0003     401       MVWI  3,$CKPT                   BUMP CHECKPOINT
00037E  6E03 074C          402       BAL   CONVT,R6                  CONVERT FROM LOG TO PHY
000382  4624 0596          403       MVA   WTBUF,R6
000386  CE24 06B6          404       CW    WRADD,R6
00038A  1004               405       JE    RT316
00038C  4020 06B6 0596     406       MVA   WTBUF,WRADD
000392  5003               407       J     RT317
000394  4020 06B6 0598     408 RT316 MVA   WTBU1,WRADD
00039A  8828 048C 06B0     409 RT317 MVW   LGSEC,WRDCB+8
0003A0  8028 0494 06B0     410       MVB   HDNUM,WRDCB+8
0003A6  8828 06B0 0700     411       MVW   WRDCB+9,RTDCB+8
0003AC  6E03 07D2          412       BAL   $WTRD,R6
0003B0  6E03 072A          413       BAL   CMPRT,R6
0003B4  CE25 0484          414       MVWZ  DIFF,R6
0003B8  4029 0494 0100     415       AWI   X'0100',HDNUM
0003BE  402F 0494 0100     416       CWI   X'0100',HDNUM
0003C4  10A8               417       JE    GO
0003C6  402F 0494 0300     418       CWI   X'0300',HDNUM
0003CC  1004               419       JE    FINIS
0003CE  402F 0050 00CA     420       CWI   X'00CA',$DVID
0003D4  10A0               421       JE    GO
0003D6  6802 00DC          422 FINIS B     $PUPD
                           424 ***************************************************************************
                           425 *     THIS ROUTINE WILL FORCE ERRORS THAT THE ATTACHMENT WILL REJECT,    *
                           426 *     AND THE PROPER RESPONSE WILL BE CHECKED.                          *
                           427 *                                                                       *
                           428 *     THE FOLLOWING ERRORS ARE FORCED:                                  *
                           429 *                                                                       *
                           430 *     0.    INVALID COMMAND                                             *
                           431 *     1.    INVALID SECTOR NUMBER (RD OP)                               *
                           432 *     2.    INVALID SECTOR NUMBER (RD SECTOR ID)                        *
                           433 *     3.    ODD BYTE COUNT                                              *
                           434 *     4.    INVALID BYTE COUNT (READ SECTOR ID)                         *
                           435 *     5.    ODD DATA ADDRESS                                            *
                           436 ***************************************************************************
0003DA  6E03 091C          437 RT04  BAL   $CONC,R6                  PREPARE DEVICE ON CORRECT LEVEL
0003DE  4020 06E8 2006     438       MVWI  X'2006',RDDCB             INVALID READ COMMAND
0003E4  4020 0956 07C4     439       MVA   $RD,ERCAL+2               USE SPECIAL XIO ROUTINE
0003EA  6A03 094C          440       BAL   ERTST,R2                  BRANCH TO ISSUE ERROR
0003EE  0001               441       DC    A(1)                      DISP OF ERROR IN DCB
0003F0  4020 06E8 2009     442       MVWI  X'2009',RDDCB             READ CONTROL WORD
0003F6  4020 06F0 004C     443       MVWI  X'004C',RDDCB+8           SETUP INVALID SECTOR #
0003FC  4020 06F4 0002     444       MVWI  X'0002',RDDCB+12          SETUP VALID BYTE COUNT
000402  4020 0956 07C4     445       MVA   $RD,ERCAL+2               USE SPECIAL XIO ROUTINE
000408  6A03 094C          446       BAL   ERTST,R2                  BRANCH TO ISSUE ERROR
00040C  0009               447       DC    A(9)                      DISP OF ERROR IN DCB
00040E  4020 06BC 3C00     448       MVWI  X'3C00',RSDCB+4           SETUP INVALID SEC NUM
000414  4020 0956 07AA     449       MVA   $RDID,ERCAL+2             USE SPECIAL XIO ROUTINE
00041A  6A03 094C          450       BAL   ERTST,R2                  BRANCH TO ISSUE ERROR
00041E  0005               451       DC    A(5)                      DISP OF ERROR IN DCB
000420  4020 06E8 2009     452       MVWI  X'2009',RDDCB             READ CONTROL WORD
000426  4020 06F0 003B     453       MVWI  X'003B',RDDCB+8           RESTORE VALID SECTOR #
00042C  4020 06F4 0003     454       MVWI  X'0003',RDDCB+12          SETUP INVALID BYTE COUNT
000432  4020 0956 07C4     455       MVA   $RD,ERCAL+2               USE SPECIAL XIO ROUTINE
000438  6A03 094C          456       BAL   ERTST,R2                  BRANCH TO ISSUE ERROR
00043C  000D               457       DC    A(13)                     DISP OF ERROR IN DCB
00043E  4020 06BC 0000     458       MVWI  X'0000',RSDCB+4           VALIDATE SECTOR #
000444  4020 06C4 0008     459       MVWI  X'0008',RSDCB+12          SETUP INVALID BYTE COUNT
00044A  4020 0956 07AA     460       MVA   $RDID,ERCAL+2             USE SPECIAL XIO ROUTINE
000450  6A03 094C          461       BAL   ERTST,R2                  BRANCH TO ISSUE ERROR
000454  000D               462       DC    A(13)                     DISP OF ERROR IN DCB
000456  4020 06C4 0006     463       MVWI  X'0006',RSDCB+12          RESTORE VALID BYTE COUNT
00045C  4020 06E8 2009     464       MVWI  X'2009',RDDCB             READ CONTROL WORD-
000462  4020 06F4 0002     465       MVWI  X'0002',RDDCB+12          RESTORE VALID BYTE COUNT
000468  4020 06F6 0009     466       MVWI  X'0009',RDDCB+14          SETUP INVALID DATA ADDRESS
00046E  4020 0956 07C4     467       MVA   $RD,ERCAL+2               USE SPECIAL XIO ROUTINE
000474  6A03 094C          468       BAL   ERTST,R2                  BRANCH TO ISSUE ERROR
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

000478  000F                469        DC    A(15)                 DISP OF ERROR IN DCB
00047A  4020 06F6 0496      470        MVA   RDBUF,RDDCB+14        RESTORE VALID DATA ADDRESS
000480  6802 00DC           471        B     $PUPD                 BRANCH TO CONTINUE
                            472 ********************************************************************
                            473 *    CONSTANTS AND DEFINED STORAGE  LOCATIONS                      *
                            474 ********************************************************************
000484  0000                475 DIFF   DC    A(*-*)                SEEK DIFFERENCE
000486  0000                476 XXX    DC    A(*-*)                WORK WORD INT TO ZERO
000488  0000                477 ZERO   DC    X'0000'               CONSTANT ZERO
00048A  0001                478 ONE    DC    X'0001'               CONSTANT ONE
00048C  0000                479 LGSEC  DC    X'0000'               LOGICAL SECTOR #
00048E  0000                480 PHYSC  DC    X'0000'               CONVERTED PHYSICAL SEC #
000490  1D00                481 CB29   DC    X'1D00'               CONSTANT BYTE 29
000492  3B00                482 FIVE9  DC    X'3B00'               CONSTANT BYTE 59
000494  0000                483 HDNUM  DC    X'0000'               HEAD SELECT
000496  0000000000000000    484 RDBUF  DC    256XL1'00'            READ BUFFER
000596                      485 WTBUF  EQU   *                     WRITE BUFFER
000598                      486 WTBU1  EQU   WTBUF+2
000596  0001020304050607    487        DC    X'0001020304050607080910A0B0C0D0E'
0005A5  1011121314151617    488        DC    X'101112131415161718191A1B1C1D1E'
0005B4  2021222324252627    489        DC    X'202122232425262728292A2B2C2D2E'
0005C3  3031323334353637    490        DC    X'303132333435363738393A3B3C3D3E'
0005D2  4041424344454647    491        DC    X'404142434445464748494A4B4C4D4E'
0005E1  5051525354555657    492        DC    X'50515253545556575859 5A5B5C5D5E'
0005F0  6061626364656667    493        DC    X'60616263646566676869 6A6B6C6D6E'
0005FF  7071727374757677    494        DC    X'70717273747576777879 7A7B7C7D7E'
00060E  8081828384858687    495        DC    X'80818283848586878889 8A8B8C8D8E'
00061D  9091929394959697    496        DC    X'90919293949596979899 9A9B9C9D9E'
00062C  A0A1A2A3A4A5A6A7    497        DC    X'A0A1A2A3A4A5A6A7A8A9 AAABACADAE'
00063B  B0B1B2B3B4B5B6B7    498        DC    X'B0B1B2B3B4B5B6B7B8B9 BABBBCBDBE'
00064A  C0C1C2C3C4C5C6C7    499        DC    X'C0C1C2C3C4C5C6C7C8C9 CACBCCCDCE'
000659  D0D1D2D3D4D5D6D7    500        DC    X'D0D1D2D3D4D5D6D7D8D9 DADBDCDDDE'
000668  E0E1E2E3E4E5E6E7    501        DC    X'E0E1E2E3E4E5E6E7E8E9 EAEBECEDEE'
000677  0F1F2F3F4F5F6F7F    502        DC    X'0F1F2F3F4F5F6F7F8F9FAFCFBFDFEF'
000686  F0F1F2F3F4F5F6F7F    503        DC    X'F0F1F2F3F4F5F6F7F8F9FAFBFCFDFE'
000695  FF0001              504        DC    X'FF0001'
                            505 ********************************************************************
                            506 ********************************************************************
                            507 *
                            508 *    DCB TABLES
                            509 *
                            510 ********************************************************************
                            511 *
                            512 ***** RECALIBRATE DCB  ********
                            513 *
000698  0007                514 CLDCB  DC    X'0007'               RECALIBRATE DCB
00069A  0000000000000000    515        DC    7A(*-*)
                            516 *
                            517 ***** WRITE SECTOR ID  **
                            518 *
0006A8  8001                519 WRDCB  DC    X'8001'               WRITE SECTOR ID CONTROL WORD
0006AA  0000                520        DC    X'0000'               NOT USED
0006AC  0000                521        DC    A(*-*)                0-7 = PHYSICAL SECTOR # MINUS ONE
0006AE  012E                522        DC    A(302)                NOT USED
0006B0  0000                523        DC    A(*-*)                NOT USED
0006B2  06F8                524        DC    A(RTDCB)              CHAIN ADDRESS
0006B4  0100                525        DC    A(256)                BYTE COUNT
0006B6  0596                526 WRADD  DC    A(WTBUF)              ADDR OF SECTOR ID DATA
                            527 *
                            528 ***** READ SECTOR ID DCB  *******
                            529 *
0006B8  200A                530 RSDCB  DC    X'200A'               READ SECTOR ID
0006BA  0000                531        DC    X'0000'               NOT USED
0006BC  0000                532        DC    X'0000'               0-7 = PHYSICAL SECTOR # MINUS ONE
0006BE  0000                533        DC    X'0000'               NOT USED
0006C0  0000                534        DC    X'0000'               NOT USED
0006C2  0000                535        DC    X'0000'               CHAIN ADDRESS
0006C4  0006                536        DC    X'0006'               BYTE COUNT FOR READ SECTOR ID
0006C6  001A                537        DC    A(SCTID)              SECTOR ID DATA ADDRESS
                            538 *
                            539 ***** SEEK DCB  ********
                            540 *
0006C8  0005                541 SKDCB  DC    X'0005'               SEEK DCB
0006CA  1000                542        DC    X'1000'               BIT 0-3=0;BIT4=DIRECTION;5-15=DIFFER
0006CC  0000                543        DC    F'0'
0006CE  0000                544        DC    F'0'
0006D0  0000                545        DC    X'0000'               0-7 = HEAD;8-15 NOT USED
0006D2  0000                546        DC    A(*-*)                CHAIN ADDRESS
0006D4  0000                547        DC    F'0'                  NOT USED
0006D6  0000                548        DC    F'0'                  NOT USED
                            549 *
                            550 ***** CYCLE STEAL STATUS DCB  ********
                            551 *
0006D8  2000                552 CSDCB  DC    X'2000'               CONTROL WORD
0006DA  0000                553        DC    F'0'                  NOT USED
0006DC  0000                554        DC    F'0'                  NOT USED
0006DE  0000                555        DC    F'0'                  NOT USED
0006E0  0000                556        DC    F'0'                  NOT USED
0006E2  0000                557        DC    F'0'                  NOT USED
0006E4  0008                558        DC    X'0008'               4 WORDS OF STATS
0006E6  0032                559        DC    A(CSBUF)              ADDRESS OF CYCLE STEAL STATUS DATA
                            560 *
                            561 ***** READ DCB   *******
                            562 *
0006E8  2009                563 RDDCB  DC    X'2009'               READ DCB CONTROL WORD
0006EA  0000                564        DC    F'0'                  NOT USED
0006EC  0000                565        DC    X'0000'               0-7=0 8-15 = FLAG BYTE
0006EE  0000                566        DC    X'0000'               SEARCH ARGUMENT CYLINDER
0006F0  0101                567        DC    X'0101'               SEARCH ARGUMENT H-R
0006F2  0000                568        DC    A(*-*)                CHAIN ADDRESS
0006F4  0002                569        DC    X'0002'               BYTE COUNT
0006F6  0496                570        DC    A(RDBUF)              READ DATA ADDRESS
                            571 *
                            572 ****  WRITE SECTOR ID SKEWED   ****
                            573 *
0006F8  2009                574 RTDCB  DC    X'2009'               CONTROL WORD
0006FA  0000                575        DC    X'0000'               NOT USED
0006FC  0000                576        DC    A(*-*)                0-7 = PHYSICAL SECTOR # MINUS ONE
0006FE  012E                577        DC    A(302)                NOT USED
000700  0000                578        DC    A(*-*)                NOT USED
000702  0000                579        DC    A(*-*)                CHAIN ADDRESS
000704  0100                580        DC    A(256)                BYTE COUNT
000706  0496                581        DC    A(RDBUF)              ADDR OF SECTOR ID DATA
                            582 *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

                            583 ****  READ SECTOR AND VERIFY   ****
                            584 *
000708  200C                585 RDVAR  DC    X'200C'               CONTROL WORDD
00070A  0000                586        DC    X'0000'               NOT USED
00070C  00                  587        DC    X'00'                 NOT USED
00070D  00                  588 RDVA1  DC    X'00'                 FLAG FIELD
00070E  0000                589 RDVA2  DC    X'0000'               CYL NUMBER
000710  0000                590        DC    X'0000'               HEAD AND RECORD NUM
000712  0000                591        DC    X'0000'               CHAIN ADDRESS
000714  0100                592        DC    X'0100'               READ AND VERIFY ONE COMPLETE SECTOR
000716  0496                593        DC    A(RDBUF)              READ INTO DUMMY BUFFER AREA
                            594 ********************************************************************
                            595 *                                                                  *
                            596 *    ALL CS STATUS ERROR WILL BE TRAPPED HERE AND PRINTED          *
                            597 *                                                                  *
                            598 ********************************************************************
000718  6D08 0034           599 CSRTN  MVW   CSTL2,R5               LOAD R5 WITH CS STATUS
00071C  1002                600        JZ    CCRTP                 BRANCH IF ZERO
00071E  6802 098C           601        B     $PRNT                 BRANCH TO PRINT IF ERROR
000722  0C21                602 CCRTP  TBT   (R4,ER)               IS ERROR BIT ON
000724  6A00 098C           603        BON   $PRNT                 BRANCH TO PRINT IF YES
000728  5600                604        BXS   (R6)                  RETURN
                            605 ********************************************************************
                            606 *                                                                  *
                            607 *  SUBROUTINE                                                      *
                            608 *                                                                  *
                            609 *     PURPOSE                                                      *
                            610 *                                                                  *
                            611 *          COMPARE READ SECTOR ID DATA TO WRITE SECTOR ID DATA     *
                            612 *          NORMAL AND TEST DATA.                                   *
                            613 *                                                                  *
                            614 *     CALLING SEQUENCE                                             *
                            615 *                                                                  *
                            616 *          BAL  CMPRW,R6          (NORMAL)                         *
                            617 *          BAL  CMPRT,R6          (TEST)                           *
                            618 *                                                                  *
                            619 *     RETURN                                                       *
                            620 *                                                                  *
                            621 *          BXS (R6)       -   NORMAL                               *
                            622 *                                                                  *
                            623 ********************************************************************
00072A  4724 0100           624 CMPRT  MVWI  256,R7                BYTE COUNT
00072E  4324 0496           625        MVA   RDBUF,R3              ADDR OF RD SECT DATA
000732  6D08 06B6           626        MVW   WRADD,R5              ADDR OF WR SECT DATA
000736  2BA6                627 CPR1   CFNEN (R3),(R5)             COMPARE DATA
000738  6800 074A           628        BE    WIDOK                 BCH IF WRITE DATA OK
00073C  4C61                629        TBTS  (R4,ER)               SET ERROR INDICATION
00073E  8308 0020           630        MVB   (R3),DEV4             ERROR BYTE IN READ DATA
000742  8508 0021           631        MVB   (R5),DEV4+1           ERROR BYTE IN WRITE DATA
000746  6802 098C           632        B     $PRNT                 BRANCH TO PRINT ERROR
00074A  5600                633 WIDOK  BXS   (R6)                  RETURN TO CALLER
                            634 ********************************************************************
                            635 *                                                                  *
                            636 *  SUBROUTINE                                                      *
                            637 *                                                                  *
                            638 *     PURPOSE                                                      *
                            639 *          CONVERT LOGICAL SECTOR NUMBER TO A PHYSICAL SECTOR NUM. *
                            640 *                                                                  *
                            641 *          SETUP LOGICAL SECTOR # IN LOCATION 'LGSEC'              *
                            642 *          PHYSICAL SECTOR # WILL BE LOADED IN LOCATION 'PHYSC'    *
                            643 *                                                                  *
                            644 *     CALLING SEQUENCE                                             *
                            645 *                                                                  *
                            646 *          BAL  CONVT,R6                                           *
                            647 *                                                                  *
                            648 *     RETURN                                                       *
                            649 *                                                                  *
                            650 *          B    (RT304+2)                                          *
                            651 *                                                                  *
                            652 ********************************************************************
00074C  6E0D 078C           653 CONVT  MVW   R6,RT304+2             SETUP PETURN ADDR
000750  802B 0488 048D       654        CB    ZERO,LGSEC+1          CK FOR LOG # ZERO
000756  100D                655        JE    RT303                 BCH IF LOG # IS ZERO
000758  802B 048D 0490       656        CB    LGSEC+1,CB29          COMP LOG TO 29
00075E  1C0E                657        JGE   RTT01                 BCH IF LGSEC EQ OR LESS THAN CB29
000760  4024 0002           658        MVWI  2,R0                  SETUP MULTIPLIER
000764  E821 048D           659        MB    LGSEC+1,R0            LOG SECTOR # TIMES 2
000768  7802 003C           660        SWI   60,R0                 LOG SEC TIMES 2 MINUS 60
00076C  C028 048F           661        MVB   R0,PHYSC+1            PHYSICAL SECTOR NUMBER
000770  500C                662        J     RT304                 RETURN TO CALLER
000772  8028 0492 048F       663 RT303  MVB   FIVE9,PHYSC+1         PHYSICAL SECTOR # 59
000778  5008                664        J     RT304                 RETURN TO CALLER
00077A  4024 0002           665 RTT01  MVWI  2,R0                  LOAD MULTIPLIER
00077E  E821 048D           666        MB    LGSEC+1,R0            LOG SECTOR # TIMES 2
000782  7802 0001           667        SWI   1,R0                  SUBTRACT ONE
000786  C028 048F           668        MVB   R0,PHYSC+1            LOAD PHYSICAL SECTOR #
00078A  6802 0000           669 RT304  B     *-*                   RETURN TO CALLER
                            670 ********************************************************************
                            671 *    EXECUTE INPUT & OUTPUT COMMANDS                               *
                            672 *    TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.              *
                            673 *    EACH OF THESE ENTRIES SET R7 WITH THE ADRS OF ITS PARAMETER   *
                            674 *    LIST AND ANY SPECIAL SWITCHES BEFORE BRANCHING TO THE         *
                            675 *    SUPVR CALL.                                                   *
                            676 *                                                                  *
                            677 *    THIS SUBROUTINE WILL CHECK FOR THE FOLLOWING:                 *
                            678 *    1. LOST INTERRUPTS BY TIMING OUT A COUNTING LOOP              *
                            679 *    2. ERROR INTERRUPTS RECEIVED FROM SUPVR                       *
                            680 *    3. LOOP ON ERROR. THE CALL MUST HAVE A 'DC' STATEMENT AFTER   *
                            681 *       THE CALL WITH THE ADDRESS OF THE RETRY STATEMENT           *
                            682 *    4. CYCLE STEAL IN PROGRESS WITH AN ERROR                      *
                            683 *    5. SOMETHING ELSE                                             *
                            684 *                                                                  *
                            685 *    THIS ROUTINE HAS THE FOLLOWING ENTRIES:                       *
                            686 * 1  BAL   $WTRD,R6              WRITE READ DATA                  *
                            687 * 2  BAL   $DIAG,R6              DIAGNOSTIC                       *
                            688 * 3  BAL   $SEEK,R6              SEEK                             *
                            689 * 4  BAL   $RECL,R6              RECALIBRATE                      *
                            690 * 5  BAL   $RDID,R6              READ SECTOR ID                   *
                            691 * 6  BAL   $RD,R6                READ                             *
                            692 *                                                                  *
                            693 ********************************************************************
00078E  4020 0902 06C8      694 $SEEK  MVA   SKDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
000794  0BFF                695        MVBI  X'FF',R3              SET BUFFER TO F'S
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                          COPYRIGHT IBM CORP 1976

000796  4524 001A           704         MVA   SCTID,R5                   SETUP READ SECTOR ID BUFFER ADRS
00079A  4724 0006           705         MVWI  6,R7                       SETUP BUFFER LENGTH
00079E  2BAC                706         FFN   R5,(R5)                    INIT READ SECTOR ID BUFFER
0007A0  5020                707         J     XIO                        BRANCH
0007A2  4020 0902 0698      708 $RECL   MVA   CLDCB,IODCB                SET UP BLOCK FOR SVC CALL
0007A8  501C                709         J     XIO                        BRANCH
0007AA  4020 0902 06B8      710 $RDID   MVA   RSDCB,IODCB                SET UP BLOCK FOR SVC CALL
0007B0  0BFF                711         MVBI  X'FF',R3                   SET BUFFER TO F'S
0007B2  4524 001A           712         MVA   SCTID,R5                   SETUP READ SECTOR ID BUFFER ADRS
0007B6  4724 0006           713         MVWI  6,R7                       SETUP BUFFER LENGTH
0007BA  2BAC                714         FFN   R5,(R5)                    INIT READ SECTOR ID BUFFER
0007BC  4020 06C6 001A      715         MVA   SCTID,RSDCB+14             DATA ADDR
0007C2  500F                716         J     XIO                        BRANCH
0007C4  4020 09J2 06E8      717 $RD     MVA   RDDCB,IODCB                SET UP BLOCK FOR SVC CALL
0007CA  4020 0496 FFFF      718         MVWI  X'FFFF',RDBUF              SETRD BUFFER TO ALL F'S
0007D0  5008                719         J     XIO                        BRANCH
0007D2  4020 0902 06A8      720 $WTRD   MVA   WRDCB,IODCB                SET UP CONTROL BLOCK FOR SVC CALL
0007D8  5004                721         J     XIO                        BRANCH
0007DA  4020 0902 0708      722 $RDVA   MVA   RDVAR,IODCB                SET UP CONTROL BLOCK FOR SVC CALL
0007E0  5000                723         J     XIO                        BRANCH
                            725 ***************************************************************
                            726 *                                                             *
                            727 * SOUBROUTINE                                                 *
                            728 *                                                             *
                            729 *     EXECUTE INPUT AND OUTPUT COMMANDS                       *
                            730 *                                                             *
                            731 * PURPOSE                                                     *
                            732 *                                                             *
                            733 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.        *
                            734 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:        *
                            735 *                                                             *
                            736 *        1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED *
                            737 *           THE I/O COMMAND.                                  *
                            738 *        2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS *
                            739 *           ISSUED BY THIS SUBROUTINE.                        *
                            740 *        3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE *
                            741 *           START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE. *
                            742 *        4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT *
                            743 *           SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND, *
                            744 *           MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.        *
                            745 *        5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE *
                            746 *           EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'. *
                            747 *        6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING *
                            748 *           STARTS TO DETERMINE A LOST INTERRUPT.             *
                            749 *        7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF *
                            750 *           WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL. *
                            751 *        8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.       *
                            752 *        9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN. *
                            753 *       10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN. *
                            754 *       11. CHECK IS A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS *
                            755 *           ISSUED BY THIS SUBROUTINE.                        *
                            756 *       12. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A *
                            757 *           CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON, *
                            758 *           COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED. *
                            759 *                                                             *
                            760 * CALLING SEQUENCE                                           *
                            761 *                                                             *
                            762 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                 *
                            763 *                                                             *
                            764 * --> B     XIO                      XEQ ANY CYCLE STEAL COMMAND, MOD=0 *
                            765 * --> BAL   XIOCS,R6                 XEQ START CYCLE STEAL STATUS, MOD=F *
                            766 *                                                             *
                            767 * RETURN CONTROL                                             *
                            768 *                                                             *
                            769 *     BXS   (R6)                     RETURN TO USER NO ERROR  *
                            770 ***************************************************************
0007E2  CB25 0904           772 XIO     MVWZ  IOMOD,R3                 SET MOF OF 0 FOR CYCLE STEAL OP
0007E6  500C                773         J     XIO1                     BRANCH
0007E8  4CA8                774         TBTR  (R4,CE)                  RESET CS STATUS INTER ERROR INDICAT.
0007EA  4C67                775         TBTS  (R4,CS)                  SET 'CYCLE STEAL STATUS' IN PROGRESS
0007EC  4020 0902 06D8      776 XIOCS   MVA   CSDCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0007F2  4020 0904 000F      777         MVWI  X'000F',IOMOD            SET CYCLE STEAL MODIFIER
0007F8  4C27                778         TBT   (R4,CS)                  IS CS IN PROGRESS, ERROR CONDITION
0007FA  1216                779         JON   XIO2                     * YES, BYPASS SAVING I/O ADRS
0007FC  4CA3                780         TBTR  (R4,IN)                  HAS INTERRUPT OCCURED
0007FE  125F                781         JON   XIOCK                    BRANCH YES
000800  6E0D 0018           782 XIO1    MVW   R6,LSTIO                 SAVE IAR
000804  402E 0018 0004      783         SWI   4,LSTIO                  DECREMENT TO LOCATE INSTRUCTION
00080A  4324 0000           784         MVA   $PID,R3                  LOAD PROG START ADDRESS
00080E  CB2F 0018           785         SW    R3,LSTIO                 SUB TO OBTAIN LISTING ADDRESS
000812  4324 0022           786         MVA   DCBUF,R3                 SET UP TO ADRS TO MOVE DCB TABLE
000816  6D08 0902           787         MVW   IODCB,R5                 * AND THE FROM ADRS, ALONG WITH
00081A  0F10                788         MVBI  16,R7                    * THE NUMBER OF MOVES
00081C  2D64                789         MVFN  (R5),(R3)                MOVE DCB TABLE
00081E  0BFF                790         MVBI  255,R3                   CLEAR CYCLE STATUS BUFFER
000820  4524 0032           791         MVA   CSBUF,R5                 *  TO ALL ONES  *
000824  0F10                792         MVBI  16,R7                    *
000826  2BAC                793         FFN   R3,(R5)                  *
000828  4CA3                794 XIO2    TBTR  (R4,IN)                  CLEAR INTERRUPT RECEIVED CNTL BIT
00082A  1249                795         JON   XIOCK                    BRANCH IF ON
00082C  4724 08FE           796         MVA   IOBLK,R7                 SET UP CONTROL BLOCK FOR SUPVR
000830  802B 0232 005E      797         CB    CPUTYPE,TYPE23           CHECK FOR PROCESSOR 23
000836  1803                798         JNE   XIO5                     BRANCH NOT EQUAL
000838  4520 C000           799         MVWI  X'C000',R5               LOAD LOOP COUNT
00083C  5001                800         J     XIO6                     BRANCH
00083E  75AA                801 XIO5    SW    R5,R5                    LOAD LOOP COUNT
000840  4C62                802 XIO6    TBTS  (R4,XI)                  SET EXPECTED INTR CONTROL BIT
000842  600A                803         SVC   START                    CALL SUPVR FOR I/O COMMAND
000844  6002                804 XIO8    SVC   IDLE                     ALLOW OTHER PROG TIME
000846  4C03                805         TBT   (R4,TM)                  IS TERMINATE BIT ON
000848  6A00 00E4           806         BON   $TERM                    BRANCH IF ON
00084C  4CA3                807         TBTR  (R4,IN)                  HAS INTERRUPT BEEN RECEIVED
00084E  1237                808         JON   XIOCK                    * YES, CHECK IF ALL WAS SATISFACTORY
000850  7DA1 0001           809         AWI   1,R5                     ADVANCE TIME OUT COUNT
000854  18F7                810         JNZ   XIO8                     BCH IF TIME OUT NOT REACHED
000856  4C61                811         TBTS  (R4,ER)                  SET ON ERROR CONTROL BIT
000858  4C66                812         TBTS  (R4,LI)                  SET ON LOST INTERRUPT CONTROL BIT
00085A  6802 098C           813         B     $PRNT                    BRANCH TO PRINT ERROR
                            815 ***************************************************************
                            816 *                                                             *
                            817 * SUBROUTINE                                                  *
                            818 *                                                             *
                            819 *     I/O EXECUTE ERROR HANDLING ROUTINE                      *
                            820 *                                                             *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                          COPYRIGHT IBM CORP 1976

                            821 * PURPOSE                                                     *
                            822 *                                                             *
                            823 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE *
                            824 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE *
                            825 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                     *
                            826 *                                                             *
                            827 * CALLING SEQUENCE                                           *
                            828 *                                                             *
                            829 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND  *
                            830 *                                                             *
                            831 * RETURN CONTROL                                             *
                            832 *                                                             *
                            833 *     B     $PRNT                    DUMP STATUS BEFORE TERMINATION *
                            834 *                                                             *
                            835 ***************************************************************
00085E  706E                836 XIOER   CPLSR R3                       SAVE CONDITION CODE ON I/O ERROR
000860  336A                837         SRL   13,R3                    POSITION CC CODE TO BITS 13-15
000862  C328 0014           838         MVB   R3,$IOIN                 * PUT IN LOG OUT AREA
000866  6802 098C           839         B     $PRNT                    BRANCH TO PRINT ERROR
                            841 ***************************************************************
                            842 *                                                             *
                            843 * SOUBROUTINE                                                 *
                            844 *                                                             *
                            845 *     ERROR INTERRUPT                RUNS ON INTERRUPT LEVEL '$INTL' *
                            846 *                                                             *
                            847 * PURPOSE                                                     *
                            848 *                                                             *
                            849 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR *
                            850 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE *
                            851 *     EXPECTED CODE.                                          *
                            852 *                                                             *
                            853 * CALLING SEQUENCE                                           *
                            854 *                                                             *
                            855 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT *
                            856 *                                                             *
                            857 * RETURN CONTROL                                             *
                            858 *                                                             *
                            859 *     SVC   EXIT                     RETURN TO USER VIA SUPVR *
                            860 *                                                             *
                            861 ***************************************************************
00086A  706E                862 INTER   CPLSR R3                       SAVE INDICATORS
00086C  336A                863         SRL   13,R3                    POSITION INDICATORS IN R3
00086E  4424 000E           864         MVA   OPTN1,R4                 SET UP BASE ADRS
000872  4C27                865         TBT   (R4,CS)                  IS CS IN PROGRESS
000874  1006                866         JOFF  INTRT                    * NO
000876  4C68                867         TBTS  (R4,CE)                  TURN ON CYCLE STEAL INTER ERROR
000878  6F0D 0040           868         MVW   R7,CSTL8                 SAVE CS ERR ISB VALUE, BITS 0-7
00087C  C328 0041           869         MVB   R3,CSTL8+1               * AND THE COND CODE
000880  5009                870         J     INTR1                    BRANCH
000882  4C61                871 INTET   TBTS  (R4,ER)                  SET ERROR ON I/O COMMAND CNTL BIT
000884  5007                872         J     INTR1                    BRANCH
                            874 ***************************************************************
                            875 *                                                             *
                            876 * SOUBROUTINE                                                 *
                            877 *                                                             *
                            878 *     OKAY  INTERRUPT                RUNS ON INTERRUPT LEVEL '$INTL' *
                            879 *                                                             *
                            880 * PURPOSE                                                     *
                            881 *                                                             *
                            882 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST            *
                            883 *                                                             *
                            884 * CALLING SEQUENCE                                           *
                            885 *                                                             *
                            886 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED  *
                            887 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE *
                            888 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE      *
                            889 *     COMMON SECTION IS HANDLED HERE.                         *
                            890 *                                                             *
                            891 * RETURN CONTROL                                             *
                            892 *                                                             *
                            893 *     SVC   EXIT                     RETURN TO USER VIA SUPVR *
                            894 *                                                             *
                            895 ***************************************************************
000886  706E                896 INTOK   CPLSR R3                       SAVE INDICATORS
000888  336A                897         SRL   13,R3                    POSITION INDICATORS IN R3
00088A  4424 000E           898         MVA   OPTN1,R4                 SET UP BASE ADRS
00088E  4C24                899         TBT   (R4,XE)                  TEST EXPECTED ERROR BIT
000890  1001                900         JOFF  INTR1                    BRANCH IF OFF
000892  4C69                901         TBTS  (R4,GI)                  SET GOOD INTERRUPT BIT
000894  4C63                902 INTR1   TBTS  (R4,IN)                  SET   INTERRUPT RECEIVED
000896  4C27                903         TBT   (R4,CS)                  IS 'CS IN PROGRESS' ON
000898  1204                904         JON   INTR2                    * YES, BCH AROUND UPDATE
00089A  C328 0015           905         MVB   R3,$IOIN+1               SAVE INTERRUPTING CC CODE
00089E  6F0D 0016           906         MVW   R7,$ISB                  SAVE INTR STATUS AND DEV ADRS
0008A2  78B9                907 INTR2   CPCL  R5                       COPY INTERRUPT LEVEL TO CHECK
0008A4  3521                908         SLL   4,R5                     POSITION INTR LEVEL AND PUT
0008A6  0501                909         ABI   1,R5                     * IN 'I' BIT
0008A8  CD24 0056           910         CW    $INTL,R5                 IS THIS THE CORRECT INTR LEVEL
0008AC  1004                911         JE    INTR3                    * YES, GO EXIT THIS LEVEL
0008AE  3521                912         SLL   4,R5                     POSITION RECEIVED LEVEL
0008B0  6D0D 0020           913         MVW   R5,DEV4                  STORE INTO DEV4
0008B4  4C65                914         TBTS  (R4,LE)                  SET INTR LEVEL ERROR CONTROL BIT
0008B6  4CA2                915 INTR3   TBTR  (R4,XI)                  WAS INTERRUPT EXPECTED
0008B8  1201                916         JON   INTRX                    * YES, EXIT OFF THIS INTR LEVEL
0008BA  4C60                917         TBTS  (R4,MI)                  * NO, SET MYSTERY INTR CONTROL BIT
0008BC  6006                918 INTRX   SVC   EXIT                     EXIT THIS LEVEL VIA SUPVR TO PGM
                            920 ***************************************************************
                            921 *
                            922 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                            923 *     HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN
                            924 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
                            925 *
                            926 ***************************************************************
0008BE  4C20                927 XIOCK   TBT   (R4,MI)                  TEST MYSTERY INTERRUPT BIT
0008C0  1214                928         JON   XIOCU                    BRANCH IF ON
0008C2  4C25                929         TBT   (R4,LE)                  WAS AN INTR LEVEL ERROR FOUND
0008C4  1002                930         JOFF  XIOCM                    * NO, CONTINUE CHECKING
0008C6  4C61                931         TBTS  (R4,ER)                  SET ERROR CONTROL BIT ON FOR RETRY
0008C8  5010                932         J     XIOCU                    POSITION LEVEL TO BITS 12-15
0008CA  4CAA                933 XIOCM   TBTR  (R4,PE)                  TEST PROBABLE ERROR BIT
0008CC  6AC0 0000           934         BON   (R6)                     BRANCH IF ON
0008D0  4C24                935         TBT   (R4,XE)                  WAS AN ERROR EXPECTED
0008D2  1211                936         JN    XIOGI                    * YES, EXIT THIS ROUTINE
0008D4  4C27                937         TBT   (R4,CS)                  WAS AUTO CS IN PROGRESS
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 LOCTR  OBJECT TEXT        STHT SOURCE STATEHENT                    COPYRIGHT IBM CORP 1976
0008D6  1005                938         JOFF  XIOCV                * NO, CONTINUE CHECKING
0008D8  4C28                939         TBT   (R4,CE)              IS CS IN AN ERR CONDITION
0008DA  6800 0718           940         BOFF  CSRTN                * NO, BCH
0008DE  6802 098C           941         B     $PRNT                GO LOG ERROR
0008E2  4C21                942 XIOCV   TBT   (R4,ER)              WAS ERROR INTR CONTROL BIT ON
0008E4  1004                943         JOFF  XIOCX                * NO, EXIT THIS ROUTINE
0008E6  6802 07E8           944 XIOCO   B     XIOCS-4              * AVAILABLE, GO AND GET IT
0008EA  6802 098C           945 XIOCU   B     $PRNT                PRINT ERROR
0008EE  CB25 0012           946 XIOCX   MVWZ  OPTN3,R3             CLEAR OUT OPTION 3 CNTL BITS
0008F2  68C2 0000           947         B     (R6)                 RETURN TO USER VIA REG 6
0008F6  4C29                948 XIOGI   TBT   (R4,GI)              DID A GOOD INTERRUPT OCCUR
0008F8  12F8                949         JON   XIOCU                YES - BRANCH TO PRINT ERROR
0008FA  68C2 0000           950         B     (R6)                 RETURN VIA R6
                            952 *
                            953 *             I/O   PARAMETER LIST
                            954 *
0008FE  004C                955 IOBLK   DC    A($DVAD)             ADRS OF DEVICE ADRS
000900  085E                956 IOERR   DC    A(XIOER)             ERROR ROUTINE ADRS
000902  0000                957 IODCB   DC    A(*-*)               DCB ADRS OR LEVEL & INTR
000904  0000                958 IOMOD   DC    A(*-*)               MODIFIER
000906  0000                959         DC    A(*-*)               ADRS OF LAST SVC CALL
000908  0000                960 IORSP   DC    A(*-*)               SECOND WORD OF LAST IDCB
                            961 *
                            962 *             INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                            963 *
00090A  004C                964 INTBL   DC    A($DVAD)             ADRS OF DEVICE ADRS
00090C  0886                965         DC    A(INTOK)             INTERRUPT OK RETURN ADRS
00090E  086A                966         DC    A(INTER)             INTERRUPT ERROR ADRS
000910  0003                967 INTCC   DC    X'0003'              INTERRUPT CODE EXPECTED
                            969 ********************************************************************
                            970 *                                                                  *
                            971 * SUBROUTINE                                                       *
                            972 *                                                                  *
                            973 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE             *
                            974 *                                                                  *
                            975 * PURPOSE                                                          *
                            976 *                                                                  *
                            977 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND    *
                            978 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE*
                            979 *     TO INTERRUPT.                                                *
                            980 *                                                                  *
                            981 * CALLING SEQUENCE                                                 *
                            982 *                                                                  *
                            983 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                   *
                            984 *                                                                  *
                            985 * --> BAL   $CONC,R6               CLEAR DEV DEP STG AND CONNECT I/O BLK
                            986 * --> BAL   $CONR,R6               BCH TO CONNECT                 *
                            987 * --> BAL   $CONP,R6               PREPARE DEVICE ONLY            *
                            988 *                                                                  *
                            989 * RETURN CONTROL                                                   *
                            990 *                                                                  *
                            991 *     BXS   (R6)                   RETURN TO USER VIA REG 6       *
                            992 *                                                                  *
                            993 ********************************************************************
000912                      994 $CONR EQU   *
000912  4724 090A           995         MVA   INTBL,R7             SET R7 TO CONTROL BLOCK AND
000916  6014                996         SVC   CICB                 * CONNECT IT TO THIS DEVICE
000918  68C2 0000           997         B     (R6)                 RETURN
00091C                      998 $CONC EQU   *
00091C  CB25 0012           999         MVWZ  OPTN3,R3             CLEAR OLD CONTROLS FOR NEW ROUTINE
000920  8828 0056 0902     1000 $CONP  MVW   $INTL,IODCB          PUT IN LEVEL & INTR PARAMETER
000926  4724 08FE          1001         MVA   IOBLK,R7             SET R7 TO CONTROL BLOCK TO PREPARE
00092A  4020 0014 07FF     1002         MVWI  X'07FF',$IOIN        INITIALIZE CONDITION CODE STORAGE
000930  CB25 0016          1003         MVWZ  $ISB,R3              * AND CLEAR OLD ISB VALUE
000934  6E0D 0018          1004         MVW   R6,LSTIO             SET UP ADDRESS THAT STARTED LAST I/O
000938  402E 0018 0004     1005         SWI   4,LSTIO              DECREMENT TO POINT AT INSTRUCTION
00093E  4324 0000          1006         MVA   $PID,R3              LOAD ADDRESS OF START OF PROG
000942  CB2F 0018          1007         SW    R3,LSTIO             SUB TO OBTAIN LISTING ADDRESS
000946  600C                1008         SVC   PREP                 * AND CALL ON SUPVR
000948  68C2 0000          1009         B     (R6)                 RETURN
                           1011 ********************************************************************
                           1012 *                                                                  *
                           1013 * SUBROUTINE                                                       *
                           1014 *                                                                  *
                           1015 *     SPECIAL ERROR CHECKING OF THE DCB                            *
                           1016 *                                                                  *
                           1017 * PURPOSE                                                          *
                           1018 *                                                                  *
                           1019 *     TO SET THE CONTROL BITS BEFORE ISSUEING THE I/O COMMAND,     *
                           1020 *     TESTING TO VERIFY THAT THE ERROR DID OCCUR, AND VERIFYING    *
                           1021 *     THAT THE RESIDUAL ADDRESS IS WHAT IT SHOULD BE.              *
                           1022 *                                                                  *
                           1023 * CALLING SEQUENCE                                                 *
                           1024 *                                                                  *
                           1025 * --> BAL   ERTST,R2               USE COMMON EPROR TEST SUBRTN   *
                           1026 *     DC    A(1)                   DISPLACEMENT FOR RESIDUAL ADRS *
                           1027 *                                                                  *
                           1028 * RETURN CONTROL                                                   *
                           1029 *                                                                  *
                           1030 *     BXS   (R2,2)                 RETURN TO USER VIA REG 2       *
                           1031 *                                                                  *
                           1032 ********************************************************************
00094C  4C64               1033 ERTST  TBTS  (R4,XE)               SET EXPECTED ERROR FOR EACH FAULT
00094E  4029 000C 0001     1034         AWI   1,$CKPT              INCREMENT CHECKPOINT
000954  6E03 0000          1035 ERCAL  BAL   *-*,R6                GO XEQ I/O COMMAND
000958  4C21               1036         TBT   (R4,ER)              DID ERROR CONTROL BIT GET SET
00095A  1202               1037         JON   ERTSV                * YES,GO CKECK RESIDUAL ADDRESS
00095C                     1038 CSADE  EQU   *
00095C  6802 098C          1039         B     $PRNT                BRANCH TO PRINT ERROR
                           1040 *
000960  AA08 0908          1041 ERTSV  AW    (R2),IORSP           DEVELOP DCB ERFOR ADDRESS
000964  8828 0908 098A     1042         MVW   IORSP,ERTSZ          SAVE DCB ADRS FROM SUPER BLOCK
00096A  CE25 0012          1043         MVWZ  OPTN3,R6             ZERO OPTION WORD THREE
00096E  4C6A               1044         TBTS  (R4,PE)              SET PROBABLE ERROR
000970  6E03 07E8          1045         BAL   XIOCS-4,R6           REQUEST START CYCLE STEAL STAUTS
000974  882B 0032 098A     1046         CW    CSTL1,ERTSZ          TEST FOR CORRECT RESIDUAL ADDRS
00097A  1004               1047         JE    ERTSX                RESIDUAL ADDRESS OK
00097C  8828 098A 0020     1048         MVW   ERTSZ,DEV4           'WAS' RESIDUAL ADDRESS
000982  50EC               1049         J     CSADE                BRANCH
000984  4CA7               1050 ERTSX  TBTR  (R4,CS)               RESET CS IN PROGRESS CNTL BIT
000986  4CA1               1051         TBTR  (R4,ER)              RESET ERROR RECEIVED CONTROL BIT
000988  5201               1052         BXS   (R2,2)               OK, RETURN TO CALLER
                           1053 *
00098A  0000               1054 ERTSZ  DC    A(*-*)               EXPECTED RESIDUAL ADDRESS SAVE AREA
```



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 LOCTR  OBJECT TEXT        STHT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           1056 ********************************************************************
                           1057 *                                                                  *
                           1058 *                COMMON PRINT ERROR INTERFACE ROUTINE              *
                           1059 * ----> R6       LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE *
                           1060 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                           1061 * ----> R4       LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE *
                           1062 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                           1063 * ----> R3       LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE    *
                           1064 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                           1065 * ----> PRNTRTN  THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST ) *
                           1066 *                POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                           1067 *                WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN  *
                           1068 *                                                                  *
                           1069 ********************************************************************
000980  4624 0012          1070 $PRNT  MVA   OPTN3,R6              LOAD ADDRESS OF OPTION WORD THREE
000990  6D08 181E          1071         MVW   PRNTRTN,R5           LOAD ADDRESS OF COHMON PRNT ROUTINE
000994  4424 0000          1072         MVA   $PID,R4              LOAD ADDRESS OF START OF PROG
000998  4324 0042          1073         MVA   PCTR,R3              LOAD ADDRESS OF PASS COUNTER
00099C  6FA3 0000          1074         BAL   (R5),R7              BRANCH TO COMMON PRINT ROUTINE
0009A0  CE25 0012          1075         MVWZ  OPTN3,R6             ZERO OUT ALL FLAGS
0009A4  4424 000E          1076         MVA   OPTN1,R4             LOAD BASE ADDRESS FOR INDICATORS
0009A8  802B 0232 005E     1077         CB    CPUTYPE,TYPE23       IS THIS A TYPE 23 PROCESSOR
0009AE  1803               1078         JNE   $PRN2                BRANCH IF NO
0009B0  4524 E000          1079         MVWI  X'E000',R5           INIT LOOP COUNTER
0009B4  5002               1080         J     $PRN1                BRANCH
0009B6  4524 8000          1081 $PRN2  MVWI  X'8000',R5           INIT LOOP COUNTER
0009BA  6002               1082 $PRN1  SVC   IDLE                  DELAY
0009BC  4C03               1083         TBT   (R4,TM)              SHOULD PROG TERMINATE
0009BE  6A00 00E4          1084         BON   $TERM                BRANCH YES
0009C2  7DA1 0001          1085         AWI   1,R5                 INCREMENT LOOP COUNTER
0009C6  18F9               1086         JNZ   $PRN1                BRANCH NOT ZERO
0009C8  6802 00A4          1087         B     $PENT                BRANCH TO RESTART FROM BEGINING
0000A4                     1088         END   $PENT
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CROSS-REFERENCE LISTING

```
DECLARED  NAME      ATTRIBUTES AND REFERENCES
       0  .R0.      ABSOLUTE. HEX VALUE(00000000)
                    665   666   667   668   672   673   674   675
       0  .R2.      ABSOLUTE. HEX VALUE(00000002)
                    297   298   302   323   328   339   398   440   446
                    450   456   461   468  1041  1052
       0  .R3.      ABSOLUTE. HEX VALUE(00000003)
                    158   631   633   636   703   706   711   714   772
                    784   785   786   789   790   793   836   837   838
                    862   863   869   896   897   905   946   999  1003
                   1006  1007  1073
       0  .R4.      ABSOLUTE. HEX VALUE(00000004)
                    151   153   163   167   168   277   292   295   307
                    371   377   606   635   774   775   778   780   794
                    802   805   807   811   812   864   865   867   871
                    898   899   901   902   903   914   915   917   927
                    929   931   933   935   937   939   942   948  1033
                   1036  1044  1050  1051  1072  1076  1083
       0  .R5.      ABSOLUTE. HEX VALUE(00000005)
                    194   195   603   632   633   637   704   706   712
                    714   787   789   791   793   799   801   801   809
                    907   908   909   910   912   913  1071  1074  1079
                   1081  1085
       0  .R6.      ABSOLUTE. HEX VALUE(00000006)
                    160   161   166   193   196   197   239   254   255
                    274   275   283   285   316   318   334   336   343
                    348   373   374   375   382   385   387   402   403
                    404   412   413   414   437   608   639   660   782
                    934   947   950   997  1004  1009  1035  1043  1045
                   1070  1075
       0  .R7.      ABSOLUTE. HEX VALUE(00000007)
                    155   157   174   179   181   182   244   246   630
                    705   713   788   792   796   868   906   995  1001
                   1074
      60  $CKPT     ADDRESS. HEX LOCATION(0000000C) IN CSECT(E78E0   ) LENGTH(2)
                    194   256   276   284   294   325   326   327   378
                    384   401  1034
     998  $CONC     ADDRESS. HEX LOCATION(0000091C) IN CSECT(E78E0   ) LENGTH(1)
                    254   274   373   437
     994  $CONR     ADDRESS. HEX LOCATION(00000912) IN CSECT(E78E0   ) LENGTH(1)
                    239
     123  $DVAD     ADDRESS. HEX LOCATION(0000004C) IN CSECT(E78E0   ) LENGTH(2)
                     58   133   181   955   964
     125  $DVID     ADDRESS. HEX LOCATION(00000050) IN CSECT(E78E0   ) LENGTH(2)
                    248   251   305   420
     132  $HTOE     ADDRESS. HEX LOCATION(00000060) IN CSECT(E78E0   ) LENGTH(2)
                    155
     127  $INTL     ADDRESS. HEX LOCATION(00000056) IN CSECT(E78E0   ) LENGTH(2)
                    152   177   243   253   257   259   910  1000
      98  $IOIN     ADDRESS. HEX LOCATION(00000014) IN CSECT(E78E0   ) LENGTH(2)
                    240   838   905  1002
      99  $ISB      ADDRESS. HEX LOCATION(00000016) IN CSECT(E78E0   ) LENGTH(2)
                    906  1003
     128  $MXSL     ADDRESS. HEX LOCATION(00000058) IN CSECT(E78E0   ) LENGTH(2)
                    188
     136  $OUTIN    ADDRESS. HEX LOCATION(00000068) IN CSECT(E78E0   ) LENGTH(2)
                    157
     151  $PENT     ADDRESS. HEX LOCATION(000000A4) IN CSECT(E78E0   ) LENGTH(4)
                     57   189   201  1087  1088
     164  $PEN1     ADDRESS. HEX LOCATION(000000CC) IN CSECT(E78E0   ) LENGTH(6)
                    154   162
      55  $PID      ADDRESS. HEX LOCATION(00000000) IN CSECT(E78E0   ) LENGTH(4)
                    784  1006  1072
    1070  $PRNT     ADDRESS. HEX LOCATION(0000098C) IN CSECT(E78E0   ) LENGTH(4)
                    252   287   289   329   397   605   607   638   813
                    839   941   945  1039
    1082  $PRN1     ADDRESS. HEX LOCATION(000009BA) IN CSECT(E78E0   ) LENGTH(2)
                   1080  1086
    1081  $PRN2     ADDRESS. HEX LOCATION(000009B6) IN CSECT(E78E0   ) LENGTH(4)
                   1078
     167  $PUPD     ADDRESS. HEX LOCATION(000000DC) IN CSECT(E78E0   ) LENGTH(4)
                    260   349   422   471
     187  $PUP8     ADDRESS. HEX LOCATION(00000114) IN CSECT(E78E0   ) LENGTH(6)
                    169
     717  $RD       ADDRESS. HEX LOCATION(000007C4) IN CSECT(E78E0   ) LENGTH(6)
                    439   445   455   467
     710  $RDID     ADDRESS. HEX LOCATION(000007AA) IN CSECT(E78E0   ) LENGTH(6)
                    285   336   387   449   460
     722  $RDVA     ADDRESS. HEX LOCATION(000007DA) IN CSECT(E78E0   ) LENGTH(6)
                    343
     708  $RECL     ADDRESS. HEX LOCATION(000007A2) IN CSECT(E78E0   ) LENGTH(6)
                    275   374
     176  $RETI     ADDRESS. HEX LOCATION(000000F0) IN CSECT(E78E0   ) LENGTH(6)
                    173
     201  $RTAD     ADDRESS. HEX LOCATION(00000134) IN CSECT(E78E0   ) LENGTH(2)
                    197
      59  $RTNE     ADDRESS. HEX LOCATION(0000000A) IN CSECT(E78E0   ) LENGTH(2)
                    166   187   188   193
     702  $SEEK     ADDRESS. HEX LOCATION(0000078E) IN CSECT(E78E0   ) LENGTH(6)
                    255   283   318   382
     173  $TERM     ADDRESS. HEX LOCATION(000000E4) IN CSECT(E78E0   ) LENGTH(6)
                    806  1084
     181  $TER1     ADDRESS. HEX LOCATION(00000108) IN CSECT(E78E0   ) LENGTH(4)
                    176
     720  $WTRD     ADDRESS. HEX LOCATION(000007D2) IN CSECT(E78E0   ) LENGTH(6)
                    412
     482  CB29      ADDRESS. HEX LOCATION(00000490) IN CSECT(E78E0   ) LENGTH(2)
                    663
     606  CCRTP     ADDRESS. HEX LOCATION(00000722) IN CSECT(E78E0   ) LENGTH(2)
                    604
      93  CE        ABSOLUTE. HEX VALUE(00000028)
                    774   867   939
      38  CICB      ABSOLUTE. HEX VALUE(00000014)
                    996
     516  CLDCB     ADDRESS. HEX LOCATION(00000698) IN CSECT(E78E0   ) LENGTH(2)
                    708
     630  CMPRT     ADDRESS. HEX LOCATION(0000072A) IN CSECT(E78E0   ) LENGTH(4)
                    413
     660  CONVT     ADDRESS. HEX LOCATION(0000074C) IN CSECT(E78E0   ) LENGTH(4)
                    316   334   385   402
      51  CPUTYPE   ABSOLUTE. HEX VALUE(00000232)
                    797  1077
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
      92  CS        ABSOLUTE. HEX VALUE(00000027)
                    775   778   865   903   937  1050
    1038  CSADE     ADDRESS. HEX LOCATION(0000095C) IN CSECT(E78E0   ) LENGTH(1)
                   1049
     111  CSBUF     ADDRESS. HEX LOCATION(00000032) IN CSECT(E78E0   ) LENGTH(1)
                    562   791
     555  CSDCB     ADDRESS. HEX LOCATION(000006D8) IN CSECT(E78E0   ) LENGTH(2)
                    776
     603  CSRTN     ADDRESS. HEX LOCATION(00000718) IN CSECT(E78E0   ) LENGTH(4)
                    940
     112  CSTL1     ADDRESS. HEX LOCATION(00000032) IN CSECT(E78E0   ) LENGTH(2)
                   1046
     113  CSTL2     ADDRESS. HEX LOCATION(00000034) IN CSECT(E78E0   ) LENGTH(2)
                    603
     119  CSTL8     ADDRESS. HEX LOCATION(00000040) IN CSECT(E78E0   ) LENGTH(2)
                    250   868   869
     103  DCBUF     ADDRESS. HEX LOCATION(00000022) IN CSECT(E78E0   ) LENGTH(2)
                    786
     102  DEV4      ADDRESS. HEX LOCATION(00000020) IN CSECT(E78E0   ) LENGTH(2)
                    195   251   328   636   637   913  1048
     476  DIFF      ADDRESS. HEX LOCATION(00000484) IN CSECT(E78E0   ) LENGTH(2)
                    290   298   303   313   344   345   376   380   398
                    414
      70  DIR       ABSOLUTE. HEX VALUE(0000000F)
                    292   295
      86  ER        ABSOLUTE. HEX VALUE(00000021)
                    606   635   811   871   931   942  1036  1051
    1035  ERCAL     ADDRESS. HEX LOCATION(00000954) IN CSECT(E78E0   ) LENGTH(4)
                    439   445   449   455   460   467
    1033  ERTST     ADDRESS. HEX LOCATION(0000094C) IN CSECT(E78E0   ) LENGTH(2)
                    440   446   450   456   461   468
    1041  ERTSV     ADDRESS. HEX LOCATION(00000960) IN CSECT(E78E0   ) LENGTH(4)
                   1037
    1050  ERTSX     ADDRESS. HEX LOCATION(00000984) IN CSECT(E78E0   ) LENGTH(2)
                   1047
    1054  ERTSZ     ADDRESS. HEX LOCATION(0000098A) IN CSECT(E78E0   ) LENGTH(2)
                   1042  1046  1048
      39  EXIT      ABSOLUTE. HEX VALUE(00000006)
                    918
      36  E78E0     CSECT. START(00000000) LENGTH(2508) ESDID(0)
                     36
     422  FINIS     ADDRESS. HEX LOCATION(000003D6) IN CSECT(E78E0   ) LENGTH(4)
                    372   419
     348  FINS      ADDRESS. HEX LOCATION(000002F4) IN CSECT(E78E0   ) LENGTH(4)
                    346
     483  FIVE9     ADDRESS. HEX LOCATION(00000492) IN CSECT(E78E0   ) LENGTH(2)
                    670
      94  GI        ABSOLUTE. HEX VALUE(00000029)
                    901   948
     378  GO        ADDRESS. HEX LOCATION(00000316) IN CSECT(E78E0   ) LENGTH(6)
                    417   421
     313  GO1       ADDRESS. HEX LOCATION(00000254) IN CSECT(E78E0   ) LENGTH(6)
                    301
     484  HDNUH     ADDRESS. HEX LOCATION(00000494) IN CSECT(E78E0   ) LENGTH(2)
                    375   381   410   415   416   418
      40  HTOE      ABSOLUTE. HEX VALUE(0000001A)
                    156
     129  H0000     ADDRESS. HEX LOCATION(0000005A) IN CSECT(E78E0   ) LENGTH(2)
                    165
     130  H0001     ADDRESS. HEX LOCATION(0000005C) IN CSECT(E78E0   ) LENGTH(2)
                    187
      42  IDLE      ABSOLUTE. HEX VALUE(00000002)
                    804  1082
      88  IN        ABSOLUTE. HEX VALUE(00000023)
                    780   794   807   902
     144  INARA     ADDRESS. HEX LOCATION(000000A2) IN CSECT(E78E0   ) LENGTH(2)
                    137   160
      69  IND       ABSOLUTE. HEX VALUE(0000000E)
                    277   307   377
     964  INTBL     ADDRESS. HEX LOCATION(0000090A) IN CSECT(E78E0   ) LENGTH(2)
                    995
     862  INTER     ADDRESS. HEX LOCATION(0000086A) IN CSECT(E78E0   ) LENGTH(2)
                    966
     871  INTET     ADDRESS. HEX LOCATION(00000882) IN CSECT(E78E0   ) LENGTH(2)
                    866
     896  INTOK     ADDRESS. HEX LOCATION(00000886) IN CSECT(E78E0   ) LENGTH(2)
                    965
     918  INTRX     ADDRESS. HEX LOCATION(000008BC) IN CSECT(E78E0   ) LENGTH(2)
                    916
     902  INTR1     ADDRESS. HEX LOCATION(00000894) IN CSECT(E78E0   ) LENGTH(2)
                    870   872   900
     907  INTR2     ADDRESS. HEX LOCATION(000008A2) IN CSECT(E78E0   ) LENGTH(2)
                    904
     915  INTR3     ADDRESS. HEX LOCATION(000008B6) IN CSECT(E78E0   ) LENGTH(2)
                    911
     955  IOBLK     ADDRESS. HEX LOCATION(000008FE) IN CSECT(E78E0   ) LENGTH(2)
                    174   179   244   246   796  1001
     957  IODCB     ADDRESS. HEX LOCATION(00000902) IN CSECT(E78E0   ) LENGTH(2)
                    177   178   702   708   710   717   720   722   776
                    787  1000
     956  IOERR     ADDRESS. HEX LOCATION(00000900) IN CSECT(E78E0   ) LENGTH(2)
                    164   173   176
     958  IOMOD     ADDRESS. HEX LOCATION(00000904) IN CSECT(E78E0   ) LENGTH(2)
                    772   777
     960  IORSP     ADDRESS. HEX LOCATION(00000908) IN CSECT(E78E0   ) LENGTH(2)
                    248   250  1041  1042
     253  ITST1     ADDRESS. HEX LOCATION(0000017E) IN CSECT(E78E0   ) LENGTH(6)
                    249   258
      90  LE        ABSOLUTE. HEX VALUE(00000025)
                    914   929
     480  LGSEC     ADDRESS. HEX LOCATION(0000048C) IN CSECT(E78E0   ) LENGTH(2)
                    315   330   333   383   391   394   409   661   663
                    666   673
      91  LI        ABSOLUTE. HEX VALUE(00000026)
                    812
     295  LOOP1     ADDRESS. HEX LOCATION(0000020E) IN CSECT(E78E0   ) LENGTH(2)
                    347
     100  LSTIO     ADDRESS. HEX LOCATION(00000018) IN CSECT(E78E0   ) LENGTH(2)
                    782   783   785  1004  1005  1007
      85  MI        ABSOLUTE. HEX VALUE(00000020)
                    917   927
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
141	MSG	ADDRESS. HEX LOCATION(00000072) IN CSECT(E78E0) LENGTH(43) 136
142	MSG01	ADDRESS. HEX LOCATION(0000009D) IN CSECT(E78E0) LENGTH(3) 134 158
479	ONE	ADDRESS. HEX LOCATION(0000048A) IN CSECT(E78E0) LENGTH(2) 300 321 323 344
62	OPTN1	ADDRESS. HEX LOCATION(0000000E) IN CSECT(E78E0) LENGTH(2) 151 167 864 898 1076
73	OPTN3	ADDRESS. HEX LOCATION(00000012) IN CSECT(E78E0) LENGTH(2) 946 999 1043 1070 1075
41	OUTIN	ABSOLUTE. HEX VALUE(00000001) 159
120	PCTR	ADDRESS. HEX LOCATION(00000042) IN CSECT(E78E0) LENGTH(2) 165 1073
95	PE	ABSOLUTE. HEX VALUE(0000002A) 933 1044
481	PHYSC	ADDRESS. HEX LOCATION(0000048E) IN CSECT(E78E0) LENGTH(2) 317 335 386 668 670 675
43	PREP	ABSOLUTE. HEX VALUE(0000000C) 180 1008
50	PRNTRTN	ABSOLUTE. HEX VALUE(0000181E) 1071
68	QUES	ABSOLUTE. HEX VALUE(0000000D) 153
485	RDBUF	ADDRESS. HEX LOCATION(00000496) IN CSECT(E78E0) LENGTH(1) 470 573 584 596 631 718
566	RDDCB	ADDRESS. HEX LOCATION(000006E8) IN CSECT(E78E0) LENGTH(2) 438 442 443 444 452 453 454 464 465 466 470 717
588	RDVAR	ADDRESS. HEX LOCATION(00000708) IN CSECT(E78E0) LENGTH(2) 722
591	RDVA1	ADDRESS. HEX LOCATION(0000070D) IN CSECT(E78E0) LENGTH(1) 341
592	RDVA2	ADDRESS. HEX LOCATION(0000070E) IN CSECT(E78E0) LENGTH(2) 342
47	RESET	ABSOLUTE. HEX VALUE(00000008) 175 245
44	RICB	ABSOLUTE. HEX VALUE(00000013) 183
48	RID	ABSOLUTE. HEX VALUE(00000009) 247
532	RSDCB	ADDRESS. HEX LOCATION(000006B8) IN CSECT(E78E0) LENGTH(2) 281 282 317 335 386 448 458 459 463 710 715
577	RTDCB	ADDRESS. HEX LOCATION(000006F8) IN CSECT(E78E0) LENGTH(2) 411 526
672	RTT01	ADDRESS. HEX LOCATION(0000077A) IN CSECT(E78E0) LENGTH(4) 664
327	RTY23	ADDRESS. HEX LOCATION(00000296) IN CSECT(E78E0) LENGTH(6) 340
326	RTY24	ADDRESS. HEX LOCATION(00000290) IN CSECT(E78E0) LENGTH(6) 332
239	RT01	ADDRESS. HEX LOCATION(0000013E) IN CSECT(E78E0) LENGTH(4) 202
274	RT02	ADDRESS. HEX LOCATION(000001A4) IN CSECT(E78E0) LENGTH(4) 203
371	RT03	ADDRESS. HEX LOCATION(000002FC) IN CSECT(E78E0) LENGTH(2) 204
437	RT04	ADDRESS. HEX LOCATION(000003DA) IN CSECT(E78E0) LENGTH(4) 205
330	RT203	ADDRESS. HEX LOCATION(000002A4) IN CSECT(E78E0) LENGTH(6) 322 338
339	RT204	ADDRESS. HEX LOCATION(000002CA) IN CSECT(E78E0) LENGTH(4) 320
315	RT205	ADDRESS. HEX LOCATION(00000260) IN CSECT(E78E0) LENGTH(6) 310 312
344	RT208	ADDRESS. HEX LOCATION(000002E2) IN CSECT(E78E0) LENGTH(6) 324
333	RT211	ADDRESS. HEX LOCATION(000002AE) IN CSECT(E78E0) LENGTH(6) 331
670	RT303	ADDRESS. HEX LOCATION(00000772) IN CSECT(E78E0) LENGTH(6) 662
676	RT304	ADDRESS. HEX LOCATION(0000078A) IN CSECT(E78E0) LENGTH(4) 660 669 671
391	RT311	ADDRESS. HEX LOCATION(00000356) IN CSECT(E78E0) LENGTH(6) 389
398	RT312	ADDRESS. HEX LOCATION(0000036C) IN CSECT(E78E0) LENGTH(4) 390
385	RT313	ADDRESS. HEX LOCATION(0000033E) IN CSECT(E78E0) LENGTH(4) 395
396	RT314	ADDRESS. HEX LOCATION(00000368) IN CSECT(E78E0) LENGTH(1) 400
397	RT315	ADDRESS. HEX LOCATION(00000368) IN CSECT(E78E0) LENGTH(4) 393
408	RT316	ADDRESS. HEX LOCATION(00000394) IN CSECT(E78E0) LENGTH(6) 405
409	RT317	ADDRESS. HEX LOCATION(0000039A) IN CSECT(E78E0) LENGTH(6) 407
394	RT331	ADDRESS. HEX LOCATION(00000360) IN CSECT(E78E0) LENGTH(6) 392
101	SCTID	ADDRESS. HEX LOCATION(0000001A) IN CSECT(E78E0) LENGTH(2) 286 288 319 321 337 339 341 342 388 399 539 704 712 715
543	SKDCB	ADDRESS. HEX LOCATION(000006C8) IN CSECT(E78E0) LENGTH(2) 241 242 278 279 280 281 293 299 303 304 309 311 313 314 348 379 380 381 702
302	SKRV	ADDRESS. HEX LOCATION(00000228) IN CSECT(E78E0) LENGTH(4) 296
311	SKRV1	ADDRESS. HEX LOCATION(0000024C) IN CSECT(E78E0) LENGTH(6) 306 308
45	START	ABSOLUTE. HEX VALUE(0000000A) 803
46	TERM	ABSOLUTE. HEX VALUE(00000007) 184
66	TM	ABSOLUTE. HEX VALUE(00000003) 168 805 1083
131	TYPE23	ADDRESS. HEX LOCATION(0000005E) IN CSECT(E78E0) LENGTH(2) 797 1077
639	WIDOK	ADDRESS. HEX LOCATION(0000074A) IN CSECT(E78E0) LENGTH(2) 634

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
528	WRADD	ADDRESS. HEX LOCATION(000006B6) IN CSECT(E78E0) LENGTH(2) 404 406 408 632
521	WRDCB	ADDRESS. HEX LOCATION(000006A8) IN CSECT(E78E0) LENGTH(2) 409 410 411 720
67	WRIT	ABSOLUTE. HEX VALUE(0000000C) 163 371
486	WTBUF	ADDRESS. HEX LOCATION(00000596) IN CSECT(E78E0) LENGTH(1) 403 406 487 528
487	WTBU1	ADDRESS. HEX LOCATION(00000598) IN CSECT(E78E0) LENGTH(1) 408
89	XE	ABSOLUTE. HEX VALUE(00000024) 899 935 1033
87	XI	ABSOLUTE. HEX VALUE(00000022) 802 915
772	XIO	ADDRESS. HEX LOCATION(000007E2) IN CSECT(E78E0) LENGTH(4) 707 709 716 719 721 723
927	XIOCK	ADDRESS. HEX LOCATION(000008BE) IN CSECT(E78E0) LENGTH(2) 781 795 808
933	XIOCM	ADDRESS. HEX LOCATION(000008CA) IN CSECT(E78E0) LENGTH(2) 930
776	XIOCS	ADDRESS. HEX LOCATION(000007EC) IN CSECT(E78E0) LENGTH(6) 944 1045
945	XIOCU	ADDRESS. HEX LOCATION(000008EA) IN CSECT(E78E0) LENGTH(4) 928 932 949
942	XIOCV	ADDRESS. HEX LOCATION(000008E2) IN CSECT(E78E0) LENGTH(2) 938
946	XIOCX	ADDRESS. HEX LOCATION(000008EE) IN CSECT(E78E0) LENGTH(4) 943
836	XIOER	ADDRESS. HEX LOCATION(0000085E) IN CSECT(E78E0) LENGTH(2) 164 956
948	XIOGI	ADDRESS. HEX LOCATION(000008F6) IN CSECT(E78E0) LENGTH(2) 936
782	XIO1	ADDRESS. HEX LOCATION(00000800) IN CSECT(E78E0) LENGTH(4) 773
794	XIO2	ADDRESS. HEX LOCATION(00000828) IN CSECT(E78E0) LENGTH(2) 779
801	XIO5	ADDRESS. HEX LOCATION(0000083E) IN CSECT(E78E0) LENGTH(2) 798
802	XIO6	ADDRESS. HEX LOCATION(00000840) IN CSECT(E78E0) LENGTH(2) 800
804	XIO8	ADDRESS. HEX LOCATION(00000844) IN CSECT(E78E0) LENGTH(2) 810
477	XXX	ADDRESS. HEX LOCATION(00000486) IN CSECT(E78E0) LENGTH(2) 291 297 300 302
478	ZERO	ADDRESS. HEX LOCATION(00000488) IN CSECT(E78E0) LENGTH(2) 286 319 337 388 661

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                             3 ************************************************************************
                             4 *                                                                      *
                             5 *                    ***       PREREQUISITES        ***               *
                             6 *                                                                      *
                             7 *                                 NONE                                 *
                             8 *                                                                      *
                             9 ************************************************************************
                            10 *                                                                      *
                            11 *                    ***       MODIFICATIONS        ***               *
                            12 *                                                                      *
                            13 *                      CHANGES MADE FOR DEVICE ADDRESS                 *
                            14 *                      OF CARD ENDING IN EIGHT                         *
                            15 *                                                                      *
                            16 ************************************************************************
                            17 *                                                                      *
                            18 *                    ***     REA'S INCORPORATED     ***               *
                            19 *                                                                      *
                            20 *                                 NONE                                 *
                            21 *                                                                      *
                            22 ************************************************************************
                            23 *                                                                      *
                            24 *                    ***    SPECIAL INSTRUCTIONS    ***               *
                            25 *                                                                      *
                            26 *                                 NONE                                 *
                            27 *                                                                      *
                            28 ************************************************************************
                            29 *                                                                      *
                            30 *                    ***       E. C. HISTORY        ***               *
                            31 *                                                                      *
                            32 *          DATE 06MAY77  DATE 15SEP77  DATE 09DEC77  DATE              *
                            33 *          E.C. 578756   E.C. 754882   E.C. 755104   E.C.               *
                            34 *                                                                      *
                            35 ************************************************************************
 000000                     37 EA3E0 START X'0000'
                            38 *        SUPERVISOR EQUATES
 000014                     39 CICB   EQU   20                  CONNECT INTERRUPT CONTROL BLOCK
 000006                     40 EXIT   EQU   6                   EXIT INTERRUPT LEVEL
 000001                     41 OUTIN  EQU   1                   OUT MESSAGE WITH EXPECTED RESPONCE
 00001A                     42 HTOE   EQU   26                  CHANGE HEX DATA TO EBCDIC DATA
 000002                     43 IDLE   EQU   2                   SHARE PROGRAM TIME WITH OTHER PGMS
 00000C                     44 PREP   EQU   12                  PREPARE DEVICE
 000012                     45 CTRL   EQU   18                  CONTROL IDCB = 6X WHERE X IS MOD.
 000013                     46 RICB   EQU   19                  RELEASE INTERRUPT CONTROL BLOCK
 00000A                     47 START  EQU   10                  START CYCLE STEAL COMMAND
 000007                     48 TERM   EQU   7                   TERMINATE THIS PROGRAM
 000008                     49 RESET  EQU   8                   RESET DEVICE
 000009                     50 RID    EQU   9                   READ DEVICE ID
 000000                     51 REG    EQUR  0                   WORK REGISTER
 00181E                     52 PRNTRTN EQU  X'181E'            COMMON PRINT ROUTINE ADDRESS LOCATION
 000232                     53 CPUTYPE EQU  X'0232'            ADDRESS OF PROCESSOR TYPE
                            54 *
                            55 *              PROGRAM HEADING AND CONTROL WORDS
                            56 *
 000000  C1F3F0F0            57 $PID   DC    C'A300'           PROGRAM IDENTIFICATION
 000004  0000                58         DC    XL2'0000'         CURRENT LEVEL OF PROGRAM
 000006  0062                59         DC    A($PENT)          -> TO START EXEC ADDRESS
 000008  004C                60         DC    A($DVAD)          -> TO DEVICE TABLE
 00000A  0000                61 $RTNE  DC    A(*-*)            ROUTINE NUMBER BEING RUN
 00000C  0000                62 $CKPT  DC    A(*-*)            LAST CHECK POINT PASSED
 00000E  0000                63 OPTN1  DC    X'0000'           PROGRAM OPTION CONTROL WORD 1
                            64 *
                            65 * BIT FUNCTION
                            66 *
 000003                     67 TM     EQU   3                   TERMINATE PROGRAM
 00000C                     68 WRIT   EQU   12                  ON = EITHER WRAPPED OR TTY
 00000D                     69 QUES   EQU   13                  QUESTION HAS BEEN ASKED
 00000E                     70 IND    EQU   14                  INDICATOR FOR TTY WRAP CABLE
 00000F                     71 DIR    EQU   15                  SEEK DIRECTION INDICATOR
                            72 *
 000010  0000               73 OPTN2  DC    X'0000'           PROGRAM OPTION CONTROL WORD 2
 000012  0000               74 OPTN3  DC    X'0000'           PROGRAM OPTION CONTROL WORD 3
                            75 *
                            76 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                            77 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                            78 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                            79 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                            80 *
                            81 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                            82 *  5  WRONG INTR LEVEL      LE       13  N.U.
                            83 *  6  LOAS INTERRUPT        LI       14  N.U.
                            84 *  7  CS STATUS IN PROGR    CS       15  N.U.
                            85 *                     BIT    HEX
 000020                     86 MI     EQU   32      0       8   MYSTERY INTERRUPT HAPPENED
 000021                     87 ER     EQU   33      1       4   ERROR RECEIVED ON INTERRUPT
 000022                     88 XI     EQU   34      2       2   EXPECTED INTERRUPT CONTROL BIT
 000023                     89 IN     EQU   35      3       1   INTERRUPT RECEIVED CONTROL BIT
 000024                     90 XE     EQU   36      4       8   EXPECTED ERROR RESPONSE
 000025                     91 LE     EQU   37      5       4   INTERRUPT ON WRONG LEVEL ERROR
 000026                     92 LI     EQU   38      6       2   LOST INTERRUPT
 000027                     93 CS     EQU   39      7       1   CYCLE STATUS IN PROGRESS
 000028                     94 CE     EQU   40      8       8   CYCLE STEAL STATUS INERRRUPT ERROR
 000029                     95 GI     EQU   41      9       4   GOOD INTERRUPT RECEIVED (EXPECTED ER)
 00002A                     96 PE     EQU   42      10      2   PROBABLE ERROR EXPECTED
 00002B                     97 NI     EQU   43      11      1   NO INTR. EXPECTED UNPREPED DEV.
 000014  0000               98 $IOIN  DC    A(*-*)            I/O AND INTR CODES
 000016  0000               99 $ISB   DC    A(*-*)            R7, INTR STATUS BYTE & DEV ADRS
 000018  0000              100 LSTIO  DC    A(*-*)            ADRS OF LAST I/O + 4 BYTES
 00001A  00000000          101 $DATA  DC    2A(*-*)           DEVICE DEPENDENT DATA
 00001E  0000              102 DEV3   DC    A(*-*)            DEVICE DEPENDENT DATA DEV3
 000020  0000              103 DEV4   DC    A(*-*)            DEVICE DEPENDENT DATA DEV4
 000022  0000              104 DCBUF  DC    A(*-*)            LAST DCB TABLE, CONTROL WORD
 000024  0000              105 DCB2   DC    A(*-*)            LAST DCB TABLE, DEV DEP WORD
 000026  0000              106 DCB3   DC    A(*-*)            LAST DCB TABLE, DEV DEP WORD
 000028  0000              107 DCB4   DC    A(*-*)            LAST DCB TABLE, DEV DEP WORD
 00002A  0000              108 DCB5   DC    A(*-*)            LAST DCB TABLE, DEV DEP WORD
 00002C  0000              109 DCB6   DC    A(*-*)            LAST DCB TABLE, CHAIN ADRS
 00002E  0000              110 DCB7   DC    A(*-*)            LAST DCB TABLE, BYTE COUNT
 000030  0000              111 DCB8   DC    A(*-*)            LAST DCB TABLE, BUFFER ADDRESS
 000032                    112 CSBUF  EQU   *                 CYCLE STEAL DATA BUFFER
 000032  0000              113 CSTL1  DC    A(*-*)            CYCLE STEAL BUFFER, RESIDUAL ADRS
 000034  0000              114 CSTL2  DC    A(*-*)            CYCLE STEAL WD 2, DEVICE DEPEND
 000036  0000              115 CSTL3  DC    A(*-*)            CYCLE STEAL WD 3, DEVICE DEPEND
 000038  0000              116 CSTL4  DC    A(*-*)            CYCLE STEAL WD 4, DEVICE DEPEND
 00003A  0000              117 CSTL5  DC    A(*-*)            CYCLE STEAL WD 5, DEVICE DEPEND
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
 00003C  0000              118 CSTL6  DC    A(*-*)            CYCLE STEAL WD 6, DEVICE DEPEND
 00003E  0000              119 CSTL7  DC    A(*-*)            CYCLE STEAL WD 7, DEVICE DEPEND
 000040  0000              120 CSTL8  DC    A(*-*)            CYCLE STEAL WD 8, DEVICE DEPEND
 000042  00000000          121 PCTR   DC    2A(*-*)           PASS COUNTER
 000046  00000000          122 ECTR   DC    2A(*-*)           ERROR COUNTER
 00004A  0005              123 ERNUM  DC    X'0005'           NUM OF ERRORS ALLOWED BEFORE TERM
 00004C  00A3              124 $DVAD  DC    X'00A3'           DEVICE ADDRESS BEING TESTED
 00004E  0000000000000000  125         DC    XL8'00'
 000056  0011              126 $INTL  DC    X'0011'           INTERRUPT LEVEL REQUESTED
 000058  0000              127 $DVID  DC    X'0000'           DEVICE IDENTIFICATION
 00005A  0005              128 $MXSL  DC    A(05)             MAXIMUM SELECTABLE ROUTINES
 00005C  0000              129 H0000  DC    X'0000'           CONSTANT
 00005E  0001              130 H0001  DC    X'0001'           HEX WORD CONSTANT
 000060  2300              131 TYPE23 DC    X'2300'           CONSTANT TO CHECK PROCESSOR AGAINST
                           132 ************************************************************************
                           133 *        PROGRAM CONTROL FUNCTIONS                                     *
                           134 ************************************************************************
 000062  4020 0470 03F6    135 $PENT  MVA   XIOER,IOERR       INIT ERROR RETURN ADDRESS
 000068  4020 0056 0011    136         MVWI  X'0011',$INTL    INIT THE INTERRUPT LEVEL
 00006E  8028 004C 033B    137         MVB   $DVAD,ARMDA      MOVE DEV ADDRESS TO ALL LOCATIONS
 000074  8028 004C 033F    138         MVB   $DVAD,REDA       *  ------------------------------
 00007A  8028 004C 0343    139         MVB   $DVAD,M1DA       *  ------------------------------
 000080  8028 004C 0347    140         MVB   $DVAD,W1DA       *  ------------------------------
 000086  8028 004C 034B    141         MVB   $DVAD,RPDA       *  ------------------------------
 00008C  8028 004C 034F    142         MVB   $DVAD,ARDA2      *  ------------------------------
 000092  8028 004C 0353    143         MVB   $DVAD,M2DA       *  ------------------------------
 000098  8028 004C 0357    144         MVB   $DVAD,RSDA       *  ------------------------------
 00009E  8028 004C 035B    145         MVB   $DVAD,WDA        *  ------------------------------
 0000A4  8028 004C 035F    146         MVB   $DVAD,M3DA       *  ------------------------------
 0000AA  0BFF              147         MVBI  255,R3           LOAD MASK FIELD INTO R3
 0000AC  4524 0022         148         MVA   DCBUF,R5         LOAD ADDRESS OF TO FIELD
 0000B0  0F20              149         MVBI  32,R7            LOAD LENGTH TO MOVE
 0000B2  2BAC              150         FFN   R3,(R5)          INIT DCBUFFER AREA
 0000B4  CF25 002C         151         MVWZ  DCB6,R7          ZERO CHAIN ADDRESS
 0000B8  CF25 000A         152         MVWZ  RETNE,R6         CLEAR OLD ROUTINE NUMBER
 0000BC  A82A 005C 0042    153         AD    H0000,PCTR       ADVANCE PASS COUNTER BY 1
 0000C2  4424 000E         154 $PUPD  MVA   OPTN1,R4         R4 MUST BE SET TO 'OPTN1'
 0000C6  4C03              155 $PUP2  TBT   (R4,TM)          IS TERMINATE PGM REQUESTED
 0000C8  1020              156         JZ    $PUP8            * NO, CONTINUE CHECKING
                           157 *
                           158 *        TERMINATE CONTROL BIT FOUND ON
                           159 *
 0000CA  4020 0470 00E6    160 $TERM  MVA   $RET1,IOERR       INIT ERROR RETURN ADDRESS
 0000D0  680C 034E         161         IO    ARM02            RELEASE FROM DIAG MODE
 0000D4  4724 046E         162         MVA   IOBLK,R7         LOAD ADDRESS OF CONTROL BLOCK
 0000D8  4020 0474 0002    163         MVWI  X'0002',IOMOD
 0000DE  6012              164         SVC   CTRL             ISSUE RESET
 0000E0  4020 0474 0000    165         MVWI  X'0000',IOMOD
 0000E6  4020 0470 00FE    166 $RET1  MVA   $TER1,IOERR       INIT ERROR RETURN ADDRESS
 0000EC  8828 0056 0472    167         MVW   $INTL,IODCB      LOAD INTERRUPT LEVEL
 0000F2  4724 046E         168         MVA   IOBLK,R7         LOAD ADDRESS OF CONTROL BLOCK
 0000F6  402D 0472 0001    169         RBTWI X'0001',IODCB    TURN OFF 'I' BIT
 0000FC  600C              170         SVC   PREP             ISSUE SVC
 0000FE  C720 004C         171 $TER1  MVB   $DVAD,R7         LOAD DEV ADDRESS
 000102  7FF4 FF00         172         RBTWI X'FF00',R7       ZERO HIGH ORDER BYTE
 000106  6013              173         SVC   RICB             ISSUE SVC
 000108  6007              174         SVC   TERM             ISSUE SVC
 00010A  A82B 005E 000A    175 $PUP8  AW    H0001,$RTNE      ADVANCE ROUTINE NUMBER
 000110  882B 005A 000A    176         CW    $MXSL,$RTNE      CHECK FOR LAST AUTOMATIC ROUTINE
 000116  6800 0062         177         BE    $PENT            * BCH AND START WITH RTN 1
                           178 *
                           179 *        GET RTN NUMBER AND BCH TO THAT RTN
                           180 *
 00011A  6E08 000A         181 $PSEL  MVW   $RTNE,R6          MOVE RTN NUMBER IN REG
 000110  CD25 000C         182         MVWZ  $CKPT,R5         ZERO CHECKPOINT
 000122  CD25 001A         183         MVWZ  $DATA,R5         ZERO DEV DEPENDENT DATA DEV1
 000126  CD25 001C         184         MVWZ  $DATA+2,R5                              DEV2
 00012A  CD25 001E         185         MVWZ  DEV3,R5                                 DEV3
 00012E  CD25 0020         186         MVWZ  DEV3+2,R5                               DEV4
 000132  3609              187         SLL   1,R6             DOUBLE R6 FOR BRANCH TABLE
 000134  68D2 0138         188         B     (R6,$RTAD)*      BCH VIA RTN TABLE
                           189 *
                           190 *        TABLE OF ROUTINE ADDRESSES
                           191 *
 000138  0062              192 $RTAD  DC    A($PENT)          NO RTN SELECTED
 00013A  0142              193         DC    A(RT01)           ROUTINE ADDRESS
 00013C  0186              194         DC    A(RT02)             ''      ''
 00013E  01FE              195         DC    A(RT03)             ''      ''
 000140  0242              196         DC    A(RT04)             ''      ''
                           197 ************************************************************************
                           198 *        CHANNEL INTERFACE TEST                                        *
                           199 *                                                                      *
                           200 *     TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS      *
                           201 *     THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO  *
                           202 *     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS  *
                           203 *     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS       *
                           204 *     EXCEPT LEVEL THREE.                                              *
                           205 ************************************************************************
 000142  6E03 0482         206 RT01   BAL   $CONR,R6          CLEAR AND CONNECT I/O BLK
 000146  6A08 0056         207         MVW   $INTL,R2         SAVE SELECTED INTERRUPT
 00014A  4020 0056 FFF1    208         MVWI  X'FFF1',$INTL    SET UP INTERRUPT LEVEL FOR PREP
 000150  4724 046E         209 ITST4  MVA   IOBLK,R7         LOAD CONTROL BLOCK ADDRESS
 000154  4020 0474 0002    210         MVWI  X'0002',IOMOD
 00015A  6012              211         SVC   CTRL             ISSUE RESET
 00015C  4020 0474 0000    212         MVWI  X'0000',IOMOD
 000162  4029 0056 0010    213         AWI   X'10',$INTL      ADV INTR LEVEL, STARTING AT 0
 000168  6E03 048C         214         BAL   $CONC,R6         GO PREPARE ON NEW LEVEL
 00016C  6E03 0362         215         BAL   XIOA1,R6         ARM PI
 000170  4029 000C 0001    216         AWI   1,$CKPT          BUMP CHECKPOINT
 000176  402F 0056 0021    217         CWI   X'21',$INTL      HAS INTR LEVEL COME DOWN TO 2
 00017C  18B9              218         JNE   ITST4            * NO, BCH AND CONTINUE TEST
 00017E  6A0D 0056         219         MVW   $2,$INTL         RESTORE SELECTED INTR LEVEL
 000182  6802 00C2         220         B     $PUPD            BRANCH TO CONTINUE
                           221 ************************************************************************
                           222 *                                                                      *
                           223 *     PURPOSE: TO INSURE THE OEMIA ATTACHMENT WILL WRAP ALL DATA       *
                           224 *              PATTERNES FROM X'FFFF' THRU X'0000'.                    *
                           225 *                                                                      *
                           226 ************************************************************************
 000186  6E03 048C         227 RT02   BAL   $CONC,R6          PREPARE DEVICE ON CORRECT LEVEL
 00018A  4029 000C 0001    228         AWI   1,$CKPT          BUMP CHECKPOINT
 000190  4724 046E         229         MVA   IOBLK,R7         LOAD ADDRESS OF CONTROL BLOCK
 000194  4020 0474 0002    230         MVWI  X'0002',IOMOD
 00019A  6012              231         SVC   CTRL             ISSUE RESET
```

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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
00019C 4020 0474 0000     239         MVWI  X'0000',IOMOD
0001A2 4C6B               240         TBTS  (R4,NI)              SET NO INTERRUPT PENDING BIT
0001A4 6E03 036E          241         BAL   XIOM1,R6             SET DIAG MODE ONE
0001A8 4C6B               242         TBTS  (R4,NI)              SET NO INTERRUPT PENDING BIT
0001AA 4029 000C 0001     243         AWI   1,$CKPT              BUMP CHECKPOINT
0001B0 6E03 0368          244         BAL   XIORE,R6             BRANCH TO READ DIAG REGISTER
0001B4 6908 0050          245         MVW   $DVAD+4,R1           LOAD CONFIG DATA
0001B8 7923 8000          246         OWI   X'8000',R1           TURN ON HIGH ORDER BIT
0001BC C924 0024          247         CW    DCB2,R1              COMPARE TO RECEIVED
0001C0 1004               248         JE    RT021                BRANCH IF EQUAL
0001C2 690D 0020          249         MVW   R1,DEV4              MOVE EXPECTED DATA INTO DEV3
0001C6 6802 04C0          250         B     $PRNT                BRANCH TO PRINT ERROR
0001CA 712A               251 RT021   SW    R1,R1                ZERO R1
0001CC 4029 000C 0001     252         AWI   1,$CKPT              BUMP CHECKPOINT
0001D2 7921 0001          253 RT022   AWI   X'0001',R1           BUMP R1
0001D6 690D 0348          254         MVW   R1,WRD01             LOAD INTO WRITE FIELD
0001DA 4C6B               255         TBTS  (R4,NI)              SET NO INTERRUPT PENDING BIT
0001DC 6E03 0374          256         BAL   XIOW1,R6             BRANCH TO WRITE DATA
0001E0 4C6B               257         TBTS  (R4,NI)              SET NO INTERRUPT PENDING BIT
0001E2 6E03 037A          258         BAL   XIORF,R6             BRANCH TO READ REGISTER
0001E6 C924 0024          259         CW    DCB2,R1              CHECK RECEIVED DATA
0001EA 1004               260         JE    RT023                BRANCH IF EQUAL
0001EC 690D 0020          261         MVW   R1,DEV4              LOAD EXPECTED DATA
0001F0 6802 04C0          262         B     $PRNT                BRANCH TO PRINT ERROR
0001F4 7127               263 RT023   TR    R1,R1                CHECK REG ONE
0001F6 6801 01D2          264         BNZ   RT022                BRANCH IF NOT ZERO
0001FA 6802 00C2          265         B     $PUPD                BRANCH TO CONTINUE
                          267 ********************************************************************
                          268 *     PURPOSE: TO INSURE THE OEMIA ATTACHMENT WILL RESPOND WITH A    *
                          269 *              VALID STATUS AFTER A DIAG MODE ONE COMMAND.           *
                          270 ********************************************************************
0001FE 6E03 048C          271 RT03    BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
000202 4029 000C 0001     272         AWI   1,$CKPT              BUMP CHECKPOINT
000208 4724 046E          273         MVA   IOBLK,R7             LOAD ADDRESS OF CONTROL BLOCK
00020C 4020 0474 0002     274         MVWI  X'0002',IOMOD
000212 6012               275         SVC   CTRL                 ISSUE RESET
000214 4020 0474 0000     276         MVWI  X'0000',IOMOD
00021A 4C6B               277         TBTS  (R4,NI)              SET NO INTERRUPT PENDING BIT
00021C 6E03 0380          278         BAL   XIOA2,R6             SET DIAG MODE ONE
000220 4C6B               279         TBTS  (R4,NI)              SET NO INTERRUPT PENDING BIT
000222 4029 000C 0001     280         AWI   1,$CKPT              BUMP CHECKPOINT
000228 6E03 0368          281         BAL   XIORE,R6             BRANCH TO READ DIAG REGISTER
00022C 882B 0024 0050     282         CW    DCB2,$DVAD+4         COMPARE TO RECEIVED
000232 1005               283         JE    RT031                BRANCH IF EQUAL
000234 8828 0050 0020     284         MVW   $DVAD+4,DEV4         MOVE EXPECTED DATA INTO DEV3
00023A 6802 04C0          285         B     $PRNT                BRANCH TO PRINT ERROR
00023E 6802 00C2          286 RT031   B     $PUPD                BRANCH TO CONTINUE
                          287 ********************************************************************
                          288 *     DIAG MODE 2 AND 3 STATUS CHECK                               *
                          289 *                                                                  *
                          290 *     THE ATTACHMENT WILL BE ISSUED A DIAG MODE TWO THEN A DIAG MODE *
                          291 *     THREE COMMAND AFTER EACH THE STATUS IS CHECKED FOR VALIDITY.   *
                          292 ********************************************************************
000242 6E03 048C          293 RT04    BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
000246 4724 046E          294         MVA   IOBLK,R7             LOAD CONTROL BLOCK ADDRESS
00024A 4020 0474 0002     295         MVWI  X'0002',IOMOD
000250 6012               296         SVC   CTRL                 ISSUE RESET
000252 4020 0474 0000     297         MVWI  X'0000',IOMOD
000258 4029 000C 0001     298         AWI   1,$CKPT              BUMP CHECK POINT
00025E 4C6B               299         TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
000260 6E03 0386          300         BAL   XIOM2,R6             BRANCH TO ISSUE IO
000264 4C6B               301         TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
000266 6E03 0368          302         BAL   XIORE,R6             BRANCH TO ISSUE IO
00026A 6908 0050          303         MVW   $DVAD+4,R1           LOAD CONFIG DATA
00026E 7923 8000          304         OWI   X'8000',R1           TURN ON HIGH ORDER BIT
000272 C924 0024          305         CW    DCB2,R1              COMPARE TO RECEIVED
000276 1004               306         JE    RT041                BRANCH IF EQUAL
000278 690D 0020          307         MVW   R1,DEV4              MOVE EXPECTED DATA INTO DEV3
00027C 6802 04C0          308         B     $PRNT                BRANCH TO PRINT ERROR
000280 4C6B               309 RT041   TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
000282 4029 000C 0001     310         AWI   1,$CKPT              BUMP CHECKPOINT
000288 6E03 038C          311         BAL   XIORS,R6             BRANCH TO ISSUE IO
00028C 4C6B               312         TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
00028E 6E03 037A          313         BAL   XIORF,R6             BRANCH TO ISSUE IO
000292 4124 06F0          314         MVWI  X'06F0',R1           PUT IN THE MASK
000296 C924 0024          315         CW    DCB2,R1              COMPARE TO RECEIVED
00029A 1004               316         JE    RT042                BRANCH IF EQUAL
00029C 690D 0020          317         MVW   R1,DEV4              MOVE EXPECTED DATA INTO DEV3
0002A0 6802 04C0          318         B     $PRNT                BRANCH TO PRINT ERROR
0002A4 4C6B               319 RT042   TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
0002A6 4029 000C 0001     320         AWI   1,$CKPT              BUMP CHECKPOINT
0002AC 6E03 0392          321         BAL   XIOW0,R6             BRANCH TO ISSUE IO
0002B0 4C6B               322         TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
0002B2 6E03 037A          323         BAL   XIORF,R6             BRANCH TO ISSUE IO
0002B6 4124 0500          324         MVWI  X'0500',R1           PUT IN THE CORRECT MASK
0002BA C924 0024          325         CW    DCB2,R1              COMPARE TO RECEIVED
0002BE 1004               326         JE    RT043                BRANCH IF EQUAL
0002C0 690D 0020          327         MVW   R1,DEV4              MOVE EXPECTED DATA INTO DEV3
0002C4 6802 04C0          328         B     $PRNT                BRANCH TO PRINT ERROR
0002C8 4C6B               329 RT043   TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
0002CA 4029 000C 0001     330         AWI   1,$CKPT              BUMP CHECK POINT
0002D0 6E03 0398          331         BAL   XIOM3,R6             BRANCH TO ISSUE IO
0002D4 4C6B               332         TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
0002D6 6E03 0368          333         BAL   XIORE,R6             BRANCH TO ISSUE IO
0002DA 6908 0050          334         MVW   $DVAD+4,R1           LOAD CONFIG DATA
0002DE 7923 8000          335         OWI   X'8000',R1           TURN ON HIGH ORDER BIT
0002E2 C924 0024          336         CW    DCB2,R1              COMPARE TO RECEIVED
0002E6 1004               337         JE    RT044                BRANCH IF EQUAL
0002E8 690D 0020          338         MVW   R1,DEV4              MOVE EXPECTED DATA INTO DEV3
0002EC 6802 04C0          339         B     $PRNT                BRANCH TO PRINT ERROR
0002F0 4C6B               340 RT044   TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
0002F2 4029 000C 0001     341         AWI   1,$CKPT              BUMP CHECKPOINT
0002F8 6E03 038C          342         BAL   XIORS,R6             BRANCH TO ISSUE IO
0002FC 4C6B               343         TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
0002FE 6E03 037A          344         BAL   XIORF,R6             BRANCH TO ISSUE IO
000302 4124 06F0          345         MVWI  X'06F0',R1           PUT IN CORRECT MASK
000306 C924 0024          346         CW    DCB2,R1              COMPARE TO RECEIVED
00030A 1004               347         JE    RT045                BRANCH IF EQUAL
00030C 690D 0020          348         MVW   R1,DEV4              MOVE EXPECTED DATA INTO DEV3
000310 6802 04C0          349         B     $PRNT                BRANCH TO PRINT ERROR
000314 4C6B               350 RT045   TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
000316 4029 000C 0001     351         AWI   1,$CKPT              BUMP CHECKPOINT
00031C 6E03 0392          352         BAL   XIOW0,R6             BRANCH TO ISSUE IO
000320 4C6B               353         TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000322 6E03 037A          354         BAL   XIORF,R6             BRANCH TO ISSUE IO
000326 712A               355         SW    R1,R1                ZERO REG ONE
000328 C924 0024          356         CW    DCB2,R1              COMPARE TO RECEIVED
00032C 1004               357         JE    RT046                BRANCH IF EQUAL
00032E 690D 0020          358         MVW   R1,DEV4              MOVE EXPECTED DATA INTO DEV3
000332 6802 04C0          359         B     $PRNT                BRANCH TO PRINT ERROR
000336 6802 00C2          360 RT046   B     $PUPD                BRANCH TO CONTINUE
                          361 *
                          362 *          SET DIAG MODE CONTROL BLOCK
                          363 *
00033A                    364 ARM01   EQU   *                    USE FOR DCB REFERENCE ONLY
00033A 61                 365 ARMCT   DC    X'61'                CONTROL WORD
00033B 00                 366 ARMDA   DC    X'00'
00033C 0000               367         DC    X'0000'
                          368 *
                          369 *          DIAG READ MOD. = E CONTROL BLOCK
                          370 *
00033E                    371 REDCB   EQU   *                    USE FOR DCB REFERENCE ONLY
00033E 2E                 372 RECTL   DC    X'2E'                CONTROL WORD
00033F 00                 373 REDA    DC    X'00'
000340 0000               374         DC    X'0000'
                          375 *
                          376 *          SET MODE ONE CONTROL BLOCK
                          377 *
000342                    378 M1DCB   EQU   *                    USE FOR DCB REFERENCE ONLY
000342 61                 379 M1CTL   DC    X'61'                CONTROL WORD
000343 00                 380 M1DA    DC    X'00'
000344 0001               381         DC    X'0001'
                          382 *
                          383 *          WRITE CONTROL BLOCK
                          384 *
000346                    385 W1DCB   EQU   *                    USE FOR DCB REFERENCE ONLY
000346 48                 386 W1CTL   DC    X'48'                CONTROL WORD
000347 00                 387 W1DA    DC    X'00'
000348 0000               388 WRD01   DC    X'0000'
                          389 *
                          390 *          DIAG READ MOD. = F CONTROL BLOCK
                          391 *
00034A                    392 RFDCB   EQU   *                    USE FOR DCB REFERENCE ONLY
00034A 2F                 393 RFCTL   DC    X'2F'                CONTROL WORD
00034B 00                 394 RFDA    DC    X'00'
00034C 0000               395         DC    X'0000'
                          396 *
                          397 *          RESET DIAG MODE CONTROL BLOCK
                          398 *
00034E                    399 ARM02   EQU   *                    USE FOR DCB REFERENCE ONLY
00034E 62                 400 ARCT2   DC    X'62'                CONTROL WORD
00034F 00                 401 ARDA2   DC    X'00'
000350 0000               402         DC    X'0000'
                          403 *
                          404 *          SET MODE TWO CONTROL BLOCK
                          405 *
000352                    406 M2DCB   EQU   *                    USE FOR DCB REFERENCE ONLY
000352 61                 407 M2CTL   DC    X'61'                CONTROL WORD
000353 00                 408 M2DA    DC    X'00'
000354 0002               409         DC    X'0002'
                          410 *
                          411 *           RESET CONTROL BLOCK
                          412 *
000356                    413 RSDCB   EQU   *                    USE FOR DCB REFERENCE ONLY
000356 6F                 414 RSCTL   DC    X'6F'                CONTROL WORD
000357 00                 415 RSDA    DC    X'00'
000358 FFFF               416         DC    X'FFFF'
                          417 *
                          418 *          WRITE 0 CONTROL BLOCK
                          419 *
00035A                    420 W0DCB   EQU   *                    USE FOR DCB FREERENCE ONLY
00035A 50                 421 W0CTL   DC    X'50'                CONTROL WORD
00035B 00                 422 W0DA    DC    X'00'
00035C 0000               423         DC    X'0000'
                          424 *
                          425 *          SET MODE THREE CONTROL BLOCK
                          426 *
00035E                    427 M3DCB   EQU   *                    USE FOR DCB REFERENCE ONLY
00035E 61                 428 M3CTL   DC    X'61'                CONTROL WORD
00035F 00                 429 M3DA    DC    X'00'
000360 0003               430         DC    X'0003'
                          431 ********************************************************************
                          432 *     ISSUE ALL I/O COMMANDS FROM A COMMON SUBROUTINE               *
                          433 *     TO DISPLAY INSTRUCTIONS AND OPERATING PROCEDURES TO THE OPERATOR*
                          434 *     AND SET UP ANY REQUIREMENTS FOR OTHER I/O COMMANDS            *
                          435 *                                                                   *
                          436 * --> BAL   XIOA1,R6               XEQ SET DIAG MODE             *
                          437 * --> BAL   XIORE,R6               XEQ READ MOD. = E             *
                          438 * --> BAL   XIOM1,R6               XEQ SET MODE ONE              *
                          439 * --> BAL   XIOW1,R6               XEQ WRITE ONE                 *
                          440 * --> BAL   XIORF,R6               XEQ READ MOD. = F             *
                          441 * --> BAL   XIOA2,R6               XEQ RESET DIAG MODE           *
                          442 * --> BAL   XIOM2,R6               XEQ SET MODE TWO              *
                          443 * --> BAL   XIORS,R6               XEQ RESET                     *
                          444 * --> BAL   XIOW0,R6               XEQ WRITE ZERO                *
                          445 * --> BAL   XIOM3,R6               XEQ SET MODE THREE            *
                          446 *                                                                 *
                          447 ********************************************************************
000362 4524 033A          448 XIOA1   MVA   ARM01,R5             SET UP CONTROL BLOCK FOR SVC CALL
000366 501B               449         J     XIO                  BRANCH
000368 4524 033E          450 XIORE   MVA   REDCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
00036C 5018               451         J     XIO                  BRANCH
00036E 4524 0342          452 XIOM1   MVA   M1DCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
000372 5015               453         J     XIO                  BRANCH
000374 4524 0346          454 XIOW1   MVA   W1DCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
000378 5012               455         J     XIO                  BRANCH
00037A 4524 034A          456 XIORF   MVA   RFDCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
00037E 500F               457         J     XIO                  BRANCH
000380 4524 034E          458 XIOA2   MVA   ARM02,R5             SET UP CONTROL BLOCK FOR SVC CALL
000384 500C               459         J     XIO                  BRANCH
000386 4524 0352          460 XIOM2   MVA   M2DCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
00038A 5009               461         J     XIO                  BRANCH
00038C 4524 0356          462 XIORS   MVA   RSDCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
000390 5006               463         J     XIO                  BRANCH
000392 4524 035A          464 XIOW0   MVA   W0DCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
000396 5003               465         J     XIO                  BRANCH
000398 4524 035E          466 XIOM3   MVA   M3DCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
00039C 5000               467         J     XIO                  BRANCH
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           473 ********************************************************************
                           474 *                                                                  *
                           475 * SOUBROUTINE                                                     *
                           476 *                                                                  *
                           477 *     EXECUTE INPUT AND OUTPUT COMMANDS                            *
                           478 *                                                                  *
                           479 * PURPOSE                                                         *
                           480 *                                                                  *
                           481 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.             *
                           482 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:             *
                           483 *                                                                  *
                           484 *     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED *
                           485 *        THE I/O COMMAND.                                          *
                           486 *     2. SAVES THE DCB BLOCK USED                                  *
                           487 *     3. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT *
                           488 *        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND, *
                           489 *        MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.                *
                           490 *     4. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE *
                           491 *        EXPECTED INTERRUPT CONTROL BIT, AND ISSUE THE NECESSARY IO. *
                           492 *     5. AFTER ISSUING THE I/O COMMAND, TIMING                     *
                           493 *        STARTS TO DETERMINE A LOST INTERRUPT.                     *
                           494 *     6. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF *
                           495 *        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.    *
                           496 *     7. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.               *
                           497 *     8. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.   *
                           498 *     9. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.     *
                           499 *                                                                  *
                           500 * CALLING SEQUENCE                                                *
                           501 *                                                                  *
                           502 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                      *
                           503 *                                                                  *
                           504 * --> B     XIO                    XEQ ANY CYCLE STEAL COMMAND, MOD=0 *
                           505 *                                                                  *
                           506 * RETURN CONTROL                                                  *
                           507 *                                                                  *
                           508 *     BXS   (R6)                   RETURN TO USER NO ERROR        *
                           509 ********************************************************************
 00039E  4CA3              511 XIO   TBTR  (R4,IN)                CLEAR INTERRUPT RECEIVED CNTL BIT
 0003A0  1250              512       JON   XIOCK                  BRANCH IF ON
 0003A2  6E0D 0018         513       MVW   R6,LSTIO               SAVE IAR FOR RETRY IF REQUESTED
 0003A6  402E 0018 0004    514       SWI   4,LSTIO                POINT AT CORRECT INSTRUCTION
 0003AC  4324 0000         515       MVA   $PID,R3                LOAD ADDRESS OF START OF PROG
 0003B0  CB2F 0018         516       SW    R3,LSTIO               SUB TO OBTAIN LISTING ADDRESS
 0003B4  4324 0022         517       MVA   DCBUF,R3               SET UP TO ADRS TO MOVE DCB TABLE
 0003B8  0F04              518       MVBI  4,R7                   * THE NUMBER OF MOVES
 0003BA  2D64              519       MVFN  (R5),(R3)              MOVE 1 STATUS WORD AND ADJUST
 0003BC  802B 0232 0060    520       CB    CPUTYPE,TYPE23         CHECK FOR PROCESSOR 23
 0003C2  1603              521       JNE   XIO5                   BRANCH NOT EQUAL
 0003C4  4524 C000         522       MVWI  X'C000',R5             LOAD LOOP COUNT
 0003CA  5001              523       J     XIO6                   BRANCH
 0003CA  75AA              524 XIO5  SW    R5,R5                  LOAD LOOP COUNT
 0003CC  4C62              525 XIO6  TBTS  (R4,XI)                SET EXPECTED INTR CONTROL BIT
 0003CE  680C 0022         526       IO    DCBUF                  ISSUE IO
 0003D2  6F05 03F6         527       BNCC  7,XIOER                ERROR IF NOT CC=7
 0003D6  6002              528 XIO8  SVC   IDLE                   ALLOW OTHER PROG TIME
 0003D8  4C03              529       TBT   (R4,TM)                IS TERMINATE BIT ON
 0003DA  6A00 00CA         530       BON   $TERM                  BRANCH IF ON
 0003DE  4CA3              531       TBTR  (R4,IN)                HAS INTERRUPT BEEN RECEIVED
 0003E0  1230              532       JON   XIOCK                  * YES, CHECK IF ALL WAS SATISFACTORY
 0003E2  4CAB              533       TBTR  (R4,NI)                IS THERE GOING TO BE A INTERRUPT
 0003E4  6AC0 0000         534       BON   (R6)                   BRANCH NO
 0003E8  7DA1 0001         535       AWI   1,R5                   ADVANCE TIME OUT COUNT
 0003EC  18F4              536       JNZ   XIO8                   BCH IF TIME OUT NOT REACHED
 0003EE  4C61              537       TBTS  (R4,ER)                SET ON ERROR CONTROL BIT
 0003F0  4C66              538       TBTS  (R4,LI)                SET ON LOST INTERRUPT CONTROL BIT
 0003F2  6802 04C0         539       B     $PRNT                  BRANCH TO PRINT ERROR
                           541 ********************************************************************
                           542 *                                                                  *
                           543 * SUBROUTINE                                                      *
                           544 *                                                                  *
                           545 *     I/O EXECUTE ERROR HANDLING ROUTINE                           *
                           546 *                                                                  *
                           547 * PURPOSE                                                         *
                           548 *                                                                  *
                           549 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE  *
                           550 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE *
                           551 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                          *
                           552 *                                                                  *
                           553 * CALLING SEQUENCE                                                *
                           554 *                                                                  *
                           555 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND       *
                           556 *                                                                  *
                           557 * RETURN CONTROL                                                  *
                           558 *                                                                  *
                           559 *     B     $PRNT                  DUMP STATUS BEFORE TERMINATION *
                           560 *                                                                  *
                           561 ********************************************************************
 0003F6  706E              562 XIOER CPLSR R3                     SAVE CONDITION CODE ON I/O ERROR
 0003F8  336A              563       SRL   13,R3                  POSITION CC CODE TO BITS 13-15
 0003FA  C328 0014         564       MVB   R3,$IOIN               * PUT IN LOG OUT AREA
 0003FE  6802 04C0         565       B     $PRNT                  BRANCH TO PRINT ERROR
                           567 ********************************************************************
                           568 *                                                                  *
                           569 * SOUBROUTINE                                                     *
                           570 *                                                                  *
                           571 *     ERROR INTERRUPT              RUNS ON INTERRUPT LEVEL '$INTL' *
                           572 *                                                                  *
                           573 * PURPOSE                                                         *
                           574 *                                                                  *
                           575 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR *
                           576 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE   *
                           577 *     EXPECTED CODE.                                               *
                           578 *                                                                  *
                           579 * CALLING SEQUENCE                                                *
                           580 *                                                                  *
                           581 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT     *
                           582 *                                                                  *
                           583 * RETURN CONTROL                                                  *
                           584 *                                                                  *
                           585 *     SVC   EXIT                   RETURN TO USER VIA SUPVR        *
                           586 *                                                                  *
                           587 ********************************************************************
 000402  706E              588 INTER CPLSR R3                     SAVE INDICATORS
 000404  336A              589       SRL   13,R3                  POSITION INDICATORS IN R3
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
 000406  4424 000E         590       MVA   OPTN1,R4               SET UP BASE ADRS
 00040A  4C61              591       TBTS  (R4,ER)                SET ERROR ON I/O COMMAND CNTL BIT
 00040C  5007              592       J     INTR1                  BRANCH
                           594 ********************************************************************
                           595 *                                                                  *
                           596 * SOUBROUTINE                                                     *
                           597 *                                                                  *
                           598 *     OKAY  INTERRUPT              RUNS ON INTERRUPT LEVEL '$INTL' *
                           599 *                                                                  *
                           600 * PURPOSE                                                         *
                           601 *                                                                  *
                           602 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                 *
                           603 *                                                                  *
                           604 * CALLING SEQUENCE                                                *
                           605 *                                                                  *
                           606 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED       *
                           607 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE      *
                           608 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE           *
                           609 *     COMMON SECTION IS HANDLED HERE.                              *
                           610 *                                                                  *
                           611 * RETURN CONTROL                                                  *
                           612 *                                                                  *
                           613 *     SVC   EXIT                   RETURN TO USER VIA SUPVR        *
                           614 *                                                                  *
                           615 ********************************************************************
 00040E  706E              616 INTOK CPLSR R3                     SAVE INDICATORS
 000410  336A              617       SRL   13,R3                  POSITION INDICATORS IN R3
 000412  4424 000E         618       MVA   OPTN1,R4               SET UP BASE ADRS
 000416  4C24              619       TBT   (R4,XE)                IS AN ERROR EXPECTED
 000418  1001              620       JOFF  INTR1                  BRANCH NO
 00041A  4C69              621       TBTS  (R4,GI)                SET GOOD INTERRUPT BIT
 00041C  4C63              622 INTR1 TBTS  (R4,IN)                SET   INTERRUPT RECEIVED
 00041E  C328 0015         623       MVB   R3,$IOIN+1             SAVE INTERRUPTING CC CODE
 000422  6F0D 0016         624       MVW   R7,$ISB                SAVE INTR STATUS AND DEV ADRS
 000426  78B9              625 INTR2 CPCL  R5                     COPY INTERRUPT LEVEL TO CHECK
 000428  3521              626       SLL   4,R5                   POSITION INTR LEVEL AND PUT
 00042A  0501              627       ABI   1,R5                   * IN 'I' BIT
 00042C  CD24 0056         628       CW    $INTL,R5               IS THIS THE CORRECT INTR LEVEL
 000430  1004              629       JE    INTR3                  * YES, GO EXIT THIS LEVEL
 000432  3521              630       SLL   4,R5                   SET LEVEL IN HIGH ORDER BYTE
 000434  6D0D 0020         631       MVW   R5,DEV3+2              STORE IN DEV4
 000438  4C65              632       TBTS  (R4,LE)                SET INTR LEVEL ERROR CONTROL BIT
 00043A  4CA2              633 INTR3 TBTR  (R4,XI)                WAS INTERRUPT EXPECTED
 00043C  1201              634       JON   INTRX                  * YES, EXIT OFF THIS INTR LEVEL
 00043E  4C60              635       TBTS  (R4,MI)                * NO, SET MYSTERY INTR CONTROL BIT
 000440  6006              636 INTRX SVC   EXIT                   EXIT THIS LEVEL VIA SUPVR TO PGM
                           638 ********************************************************************
                           639 *                                                                  *
                           640 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT  *
                           641 *     HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN *
                           642 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS. *
                           643 *                                                                  *
                           644 ********************************************************************
 000442  4C20              645 XIOCK TBT   (R4,MI)                DID MYS INTERRUPT OCCUR
 000444  1208              646       JON   XIOCQ                  BRANCH YES
 000446  4C25              647       TBT   (R4,LE)                WAS AN INTR LEVEL ERROR FOUND
 000448  1002              648       JOFF  XIOCM                  * NO, CONTINUE CHECKING
 00044A  4C61              649       TBTS  (R4,ER)                SET ERROR CONTROL BIT ON
 00044C  5006              650       J     XIOCU                  BRANCH
 00044E  4C24              651 XIOCM TBT   (R4,XE)                WAS AN ERROR EXPECTED
 000450  120A              652       JN    XIOGI                  * YES, EXIT THIS ROUTINE
 000452  4C21              653 XIOCV TBT   (R4,ER)                WAS ERROR INTR CONTROL BIT ON
 000454  1004              654       JOFF  XIOCX                  * NO, EXIT THIS ROUTINE
 000456                    655 XIOCQ EQU   *
 000456  4C8C              656       TBTR  (R4,WRIT)              IS WRITE EXPECTING MORE THEN ONE INTR
 000458  1202              657       JON   XIOCX                  BRANCH IF ON
 00045A  6802 04C0         658 XIOCU B     $PRNT                  BRANCH TO PRINT ERROR
 00045E  CB25 0012         659 XIOCX MVWZ  OPTN3,R3               CLEAR OUT OPTION 3 CNTL BITS
 000462  68C2 0000         660       B     (R6)                   RETURN TO USER VIA REG 6
 000466  4C29              661 XIOGI TBT   (R4,GI)                IS GOOD INTERRUPT BIT ON
 000468  12F8              662       JON   XIOCU                  BRANCH YES
 00046A  68C2 0000         663       B     (R6)                   RETURN
                           664 *
                           665 *          I/O   PARAMETER LIST
                           666 *
 00046E  004C              667 IOBLK DC    A($DVAD)               ADRS OF DEVICE ADRS
 000470  03F6              668 IOERR DC    A(XIOER)               ERROR ROUTINE ADRS
 000472  0000              669 IODCB DC    A(*-*)                 DCB ADRS OR LEVEL & INTR
 000474  0000              670 IOMOD DC    A(*-*)                 MODIFIER
 000476  0000                        DC    A(*-*)                 ADRS OF LAST SVC CALL
 000478  0000              672 IORSP DC    A(*-*)                 SECOND WORD OF LAST IDCB
                           673 *
                           674 *          INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                           675 *
 00047A  004C              676 INTBL DC    A($DVAD)               ADRS OF DEVICE ADRS
 00047C  040E                        DC    A(INTOK)               INTERRUPT OK RETURN ADRS
 00047E  0402                        DC    A(INTER)               INTERRUPT ERROR ADRS
 000480  0004              679 INTCC DC    X'0004'                INTERRUPT CODE EXPECTED
                           681 ********************************************************************
                           682 *                                                                  *
                           683 * SUBROUTINE                                                      *
                           684 *                                                                  *
                           685 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE             *
                           686 *                                                                  *
                           687 * PURPOSE                                                         *
                           688 *                                                                  *
                           689 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND    *
                           690 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE *
                           691 *     TO INTERRUPT.                                                *
                           692 *                                                                  *
                           693 * CALLING SEQUENCE                                                *
                           694 *                                                                  *
                           695 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                   *
                           696 *                                                                  *
                           697 * --> BAL   $CONC,R6               CLEAR DEV DEP STG AND CONNECT I/O BLK
                           698 * --> BAL   $CONR,R6               BCH TO CONNECT                 *
                           699 * --> BAL   $CONP,R6               PREPARE DEVICE ONLY            *
                           700 *                                                                  *
                           701 * RETURN CONTROL                                                  *
                           702 *                                                                  *
                           703 *     BXS   (R6)                   RETURN TO USER VIA REG 6       *
                           704 *                                                                  *
                           705 ********************************************************************
 000482                    706 $CONR EQU   *
```

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000482 4724 047A            707        MVA   INTBL,R7              SET R7 TO CONTROL BLOCK AND
000486 6014                 708        SVC   CICB                  * CONNECT IT TO THIS DEVICE
000488 68C2 0000            709        B     (R6)                  RETURN
00048C                      710 $CONC  EQU   *
00048C 8828 0056 0472       711        MVW   $INTL,IODCB           PUT IN LEVEL & INTR PARAMETER
000492 CB25 0012            712        MVWZ  OPTN3,R3              CLEAR OLD CONTROLS FOR NEW ROUTINE
000496 CB25 0016            713        MVWZ  $ISB,R3               * AND CLEAR OLD ISB VALUE
00049A 680D 0018            714        MVW   R6,LSTIO              SET UP ADDRESS THAT STARTED LAST I/O
00049E 402E 0018 0004       715        SWI   4,LSTIO               DECREMENT TO POINT AT INSTRUCTION
0004A4 4324 0000            716        MVA   $PID,R3               LOAD ADDRESS OF START OF PROG
0004A8 C32F 0018            717        SW    R3,LSTIO              SUB TO OBTAIN LISTING ADDRESS
0004AC 4724 046E            718        MVA   IODLK,R7              SET R7 TO CONTROL BLOCK TO PREPARE
0004B0 4020 0014 07FF       719        MVWI  X'07FF',$IOIN         INITIALIZE CONDITION CODE STORAGE
0004B6 600C                 720        SVC   PREP                  * AND CALL ON SUPVR
0004B8 CF25 0472            721        MVWZ  IODCB,R7              ZERO PREP 'I' BIT
0004BC 68C2 0000            722        B     (R6)                  RETURN
                            724 ********************************************************************
                            725 *                  COMMON PRINT ERROR INTERFACE ROUTINE            *
                            726 *                                                                  *
                            727 * ----> R6        LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE  *
                            728 *                  BRANCH IS TAKEN TO PRINT THE ERROR              *
                            729 * ----> R4        LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE  *
                            730 *                  BRANCH IS TAKEN TO PRINT THE ERROR              *
                            731 * ----> R3        LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE      *
                            732 *                  BRANCH IS TAKEN TO PRINT THE ERROR              *
                            733 * ----> PRNTRTN THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST )  *
                            734 *                  POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                            735 *                  WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN    *
                            736 *                                                                  *
                            737 ********************************************************************
0004C0 4624 0012            738 $PRNT  MVA   OPTN3,R6              LOAD ADDRESS OF OPTION WORD THREE
0004C4 6D08 181E            739        MVW   PRNTRTN,R5            LOAD ADDRESS OF COMMON PRNT ROUTINE
0004C8 4424 0000            740        MVA   $PID,R4               LOAD ADDRESS OF START OF PROG
0004CC 4324 0042            741        MVA   PCTR,R3               LOAD ADDRESS OF PASS COUNTER
0004D0 6FA3 0000            742        BAL   (R5),R7               BRANCH TO COMMON PRINT ROUTINE
0004D4 CE25 0012            743        MVWZ  OPTN3,R6              ZERO OUT ALL FLAGS
0004D8 4424 000E            744        MVA   OPTN1,R4              LOAD BASE ADDRESS FOR INDICATORS
0004DC 802B 0232 0060       745        CB    CPUTYPE,TYPE23        IS THIS A TYPE 23 PROCESSOR
0004E2 1803                 746        JNE   $PRN2                 BRANCH IF NO
0004E4 4524 E000            747        MVWI  X'E000',R5            INIT LOOP COUNTER
0004E8 5002                 748        J     $PRN1                 BRANCH
0004EA 4524 8000            749 $PRN2  MVWI  X'8000',R5            INIT LOOP COUNTER
0004EE 6002                 750 $PRN1  SVC   IDLE                  DELAY
0004F0 4C03                 751        TBT   (R4,TM)               SHOULD PROG TERMINATE
0004F2 6A00 00CA            752        BON   $TERM                 BRANCH YES
0004F6 7DA1 0001            753        AWI   1,R5                  INCREMENT LOOP COUNTER
0004FA 18F9                 754        JNZ   $PRN1                 BRANCH NOT ZERO
0004FC 6802 0062            755        B     $PENT                 BRANCH TO RESTART FROM BEGINING
000062                      756        END   $PENT
```


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DECLARED  NAME      ATTRIBUTES AND REFERENCES
       0  .R1.      ABSOLUTE. HEX VALUE(00000001)
                    245  246  247  249  251  251  253  254  259
                    261  263  263  304  305  306  308  315  316
                    318  325  326  328  335  336  337  339  346
                    347  349  356  356  357  359
       0  .R2.      ABSOLUTE. HEX VALUE(00000002)
                    213  225
       0  .R3.      ABSOLUTE. HEX VALUE(00000003)
                    150  153  515  516  517  519  562  563  564
                    588  589  616  617  623  659  712  713  716
                    717  741
       0  .R4.      ABSOLUTE. HEX VALUE(00000004)
                    157  158  240  242  255  257  277  279  300
                    302  310  313  320  323  330  333  341  344
                    351  354  514  525  529  531  533  537  538
                    590  591  618  619  621  622  632  633  635
                    645  647  649  651  653  656  661  740  744
                    751
       0  .R5.      ABSOLUTE. HEX VALUE(00000005)
                    151  153  187  188  189  190  191  452  454
                    456  458  460  462  464  466  468  470  519
                    522  524  524  535  625  626  627  628  630
                    631  739  742  747  749  753
       0  .R6.      ABSOLUTE. HEX VALUE(00000006)
                    155  186  192  193  212  220  221  234  241
                    244  256  258  271  278  281  294  301  303
                    312  314  322  324  332  334  343  345  353
                    355  513  534  660  663  709  714  722  738
                    743
       0  .R7.      ABSOLUTE. HEX VALUE(00000007)
                    152  154  166  172  175  176  215  236  273
                    295  518  624  707  718  721  742
      62  $CKPT     ADDRESS. HEX LOCATION(0000000C) IN CSECT(EA3E0   ) LENGTH(2)
                    187  222  235  243  252  272  280  299  311
                    321  331  342  352
     710  $CONC     ADDRESS. HEX LOCATION(0000048C) IN CSECT(EA3E0   ) LENGTH(1)
                    220  234  271  294
     706  $CONR     ADDRESS. HEX LOCATION(00000482) IN CSECT(EA3E0   ) LENGTH(1)
                    212
     103  $DATA     ADDRESS. HEX LOCATION(0000001A) IN CSECT(EA3E0   ) LENGTH(2)
                    188  189
     126  $DVAD     ADDRESS. HEX LOCATION(0000004C) IN CSECT(EA3E0   ) LENGTH(2)
                     60  140  141  142  143  144  145  146  147
                    148  149  175  245  282  284  304  335  667
                    676
     128  $INTL     ADDRESS. HEX LOCATION(00000056) IN CSECT(EA3E0   ) LENGTH(2)
                    139  171  213  214  219  223  225  628  711
     100  $IOIN     ADDRESS. HEX LOCATION(00000014) IN CSECT(EA3E0   ) LENGTH(2)
                    564  623  719
     101  $ISB      ADDRESS. HEX LOCATION(00000016) IN CSECT(EA3E0   ) LENGTH(2)
                    624  713
     130  $MXSL     ADDRESS. HEX LOCATION(0000005A) IN CSECT(EA3E0   ) LENGTH(2)
                    181
     138  $PENT     ADDRESS. HEX LOCATION(00000062) IN CSECT(EA3E0   ) LENGTH(6)
                     59  182  197  755  756
      57  $PID      ADDRESS. HEX LOCATION(00000000) IN CSECT(EA3E0   ) LENGTH(4)
                    515  716  740
     738  $PRNT     ADDRESS. HEX LOCATION(000004C0) IN CSECT(EA3E0   ) LENGTH(4)
                    250  262  285  309  319  329  340  350  360
                    539  565  658
     750  $PRN1     ADDRESS. HEX LOCATION(000004EE) IN CSECT(EA3E0   ) LENGTH(2)
                    748  754
     749  $PRN2     ADDRESS. HEX LOCATION(000004EA) IN CSECT(EA3E0   ) LENGTH(4)
                    746
     157  $PUPD     ADDRESS. HEX LOCATION(000000C2) IN CSECT(EA3E0   ) LENGTH(4)
                    226  265  286  361
     180  $PUP8     ADDRESS. HEX LOCATION(0000010A) IN CSECT(EA3E0   ) LENGTH(6)
                    159
     170  $RET1     ADDRESS. HEX LOCATION(000000E6) IN CSECT(EA3E0   ) LENGTH(6)
                    164
     197  $RTAD     ADDRESS. HEX LOCATION(00000138) IN CSECT(EA3E0   ) LENGTH(2)
                    193
      61  $RTNE     ADDRESS. HEX LOCATION(0000000A) IN CSECT(EA3E0   ) LENGTH(2)
                    155  180  181  186
     164  $TERM     ADDRESS. HEX LOCATION(000000CA) IN CSECT(EA3E0   ) LENGTH(6)
                    530  752
     175  $TER1     ADDRESS. HEX LOCATION(000000FE) IN CSECT(EA3E0   ) LENGTH(4)
                    170
     403  ARDA2     ADDRESS. HEX LOCATION(0000034F) IN CSECT(EA3E0   ) LENGTH(1)
                    145
     368  ARMDA     ADDRESS. HEX LOCATION(0000033B) IN CSECT(EA3E0   ) LENGTH(1)
                    140
     366  ARM01     ADDRESS. HEX LOCATION(0000033A) IN CSECT(EA3E0   ) LENGTH(1)
                    452
     401  ARM02     ADDRESS. HEX LOCATION(0000034E) IN CSECT(EA3E0   ) LENGTH(1)
                    165  462
      39  CICB      ABSOLUTE. HEX VALUE(00000014)
                    708
      53  CPUTYPE   ABSOLUTE. HEX VALUE(00000232)
                    520  745
      45  CTRL      ABSOLUTE. HEX VALUE(00000012)
                    168  217  238  275  297
     106  DCBUF     ADDRESS. HEX LOCATION(00000022) IN CSECT(EA3E0   ) LENGTH(2)
                    151  517  526
     107  DCB2      ADDRESS. HEX LOCATION(00000024) IN CSECT(EA3E0   ) LENGTH(2)
                    247  259  282  306  316  326  337  347  357
     111  DCB6      ADDRESS. HEX LOCATION(0000002C) IN CSECT(EA3E0   ) LENGTH(2)
                    154
     104  DEV3      ADDRESS. HEX LOCATION(0000001E) IN CSECT(EA3E0   ) LENGTH(2)
                    190  191  631
     105  DEV4      ADDRESS. HEX LOCATION(00000020) IN CSECT(EA3E0   ) LENGTH(2)
                    249  261  284  308  318  328  339  349  359
      37  EA3E0     CSECT. START(00000000) LENGTH(1280) ESDID(0)
                     37
      88  ER        ABSOLUTE. HEX VALUE(00000021)
                    537  591  649  653
      40  EXIT      ABSOLUTE. HEX VALUE(00000006)
                    636
      96  GI        ABSOLUTE. HEX VALUE(00000029)
                    621  661
     131  H0000     ADDRESS. HEX LOCATION(0000005C) IN CSECT(EA3E0   ) LENGTH(2)
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		156
132	H0001	ADDRESS. HEX LOCATION(0000005E) IN CSECT(EA3E0) LENGTH(2)
		180
43	IDLE	ABSOLUTE. HEX VALUE(00000002)
		528 750
90	IN	ABSOLUTE. HEX VALUE(00000023)
		511 531 622
676	INTBL	ADDRESS. HEX LOCATION(0000047A) IN CSECT(EA3E0) LENGTH(2)
		707
588	INTER	ADDRESS. HEX LOCATION(00000402) IN CSECT(EA3E0) LENGTH(2)
		678
616	INTOK	ADDRESS. HEX LOCATION(0000040E) IN CSECT(EA3E0) LENGTH(2)
		677
636	INTRX	ADDRESS. HEX LOCATION(00000440) IN CSECT(EA3E0) LENGTH(2)
		634
622	INTR1	ADDRESS. HEX LOCATION(0000041C) IN CSECT(EA3E0) LENGTH(2)
		592 620
633	INTR3	ADDRESS. HEX LOCATION(0000043A) IN CSECT(EA3E0) LENGTH(2)
		629
667	IOBLK	ADDRESS. HEX LOCATION(0000046E) IN CSECT(EA3E0) LENGTH(2)
		166 172 215 236 273 295 718
669	IODCB	ADDRESS. HEX LOCATION(00000472) IN CSECT(EA3E0) LENGTH(2)
		171 173 711 721
668	IOERR	ADDRESS. HEX LOCATION(00000470) IN CSECT(EA3E0) LENGTH(2)
		138 164 170
670	IOMOD	ADDRESS. HEX LOCATION(00000474) IN CSECT(EA3E0) LENGTH(2)
		167 169 216 218 237 239 274 276 296
		298
215	ITST4	ADDRESS. HEX LOCATION(00000150) IN CSECT(EA3E0) LENGTH(4)
		224
92	LE	ABSOLUTE. HEX VALUE(00000025)
		632 647
93	LI	ABSOLUTE. HEX VALUE(00000026)
		538
102	LSTIO	ADDRESS. HEX LOCATION(00000018) IN CSECT(EA3E0) LENGTH(2)
		513 514 516 714 715 717
87	MI	ABSOLUTE. HEX VALUE(00000020)
		635 645
382	M1DA	ADDRESS. HEX LOCATION(00000343) IN CSECT(EA3E0) LENGTH(1)
		142
380	M1DCB	ADDRESS. HEX LOCATION(00000342) IN CSECT(EA3E0) LENGTH(1)
		456
410	M2DA	ADDRESS. HEX LOCATION(00000353) IN CSECT(EA3E0) LENGTH(1)
		146
408	M2DCB	ADDRESS. HEX LOCATION(00000352) IN CSECT(EA3E0) LENGTH(1)
		464
432	M3DA	ADDRESS. HEX LOCATION(0000035F) IN CSECT(EA3E0) LENGTH(1)
		149
430	M3DCB	ADDRESS. HEX LOCATION(0000035E) IN CSECT(EA3E0) LENGTH(1)
		470
98	NI	ABSOLUTE. HEX VALUE(0000002B)
		240 242 255 257 277 279 300 302 310
		313 320 323 330 333 341 344 351 354
		533
64	OPTN1	ADDRESS. HEX LOCATION(0000000E) IN CSECT(EA3E0) LENGTH(2)
		157 590 618 744
75	OPTN3	ADDRESS. HEX LOCATION(00000012) IN CSECT(EA3E0) LENGTH(2)
		659 712 738 743
123	PCTR	ADDRESS. HEX LOCATION(00000042) IN CSECT(EA3E0) LENGTH(2)
		156 741
44	PREP	ABSOLUTE. HEX VALUE(0000000C)
		174 720
52	PRNTRTN	ABSOLUTE. HEX VALUE(0000181E)
		739
375	REDA	ADDRESS. HEX LOCATION(0000033F) IN CSECT(EA3E0) LENGTH(1)
		141
373	REDCB	ADDRESS. HEX LOCATION(0000033E) IN CSECT(EA3E0) LENGTH(1)
		454
396	RFDA	ADDRESS. HEX LOCATION(0000034B) IN CSECT(EA3E0) LENGTH(1)
		144
394	RFDCB	ADDRESS. HEX LOCATION(0000034A) IN CSECT(EA3E0) LENGTH(1)
		460
46	RICB	ABSOLUTE. HEX VALUE(00000013)
		177
418	RSDA	ADDRESS. HEX LOCATION(00000357) IN CSECT(EA3E0) LENGTH(1)
		147
416	RSDCB	ADDRESS. HEX LOCATION(00000356) IN CSECT(EA3E0) LENGTH(1)
		466
212	RT01	ADDRESS. HEX LOCATION(00000142) IN CSECT(EA3E0) LENGTH(4)
		198
234	RT02	ADDRESS. HEX LOCATION(00000186) IN CSECT(EA3E0) LENGTH(4)
		199
251	RT021	ADDRESS. HEX LOCATION(000001CA) IN CSECT(EA3E0) LENGTH(2)
		248
253	RT022	ADDRESS. HEX LOCATION(000001D2) IN CSECT(EA3E0) LENGTH(4)
		264
263	RT023	ADDRESS. HEX LOCATION(000001F4) IN CSECT(EA3E0) LENGTH(2)
		260
271	RT03	ADDRESS. HEX LOCATION(000001FE) IN CSECT(EA3E0) LENGTH(4)
		200
286	RT031	ADDRESS. HEX LOCATION(0000023E) IN CSECT(EA3E0) LENGTH(4)
		283
294	RT04	ADDRESS. HEX LOCATION(00000242) IN CSECT(EA3E0) LENGTH(4)
		201
310	RT041	ADDRESS. HEX LOCATION(00000280) IN CSECT(EA3E0) LENGTH(2)
		307
320	RT042	ADDRESS. HEX LOCATION(000002A4) IN CSECT(EA3E0) LENGTH(2)
		317
330	RT043	ADDRESS. HEX LOCATION(000002C8) IN CSECT(EA3E0) LENGTH(2)
		327
341	RT044	ADDRESS. HEX LOCATION(000002F0) IN CSECT(EA3E0) LENGTH(2)
		338
351	RT045	ADDRESS. HEX LOCATION(00000314) IN CSECT(EA3E0) LENGTH(2)
		348
361	RT046	ADDRESS. HEX LOCATION(00000336) IN CSECT(EA3E0) LENGTH(4)
		358
48	TERM	ABSOLUTE. HEX VALUE(00000007)
		178
68	TM	ABSOLUTE. HEX VALUE(00000003)
		158 529 751
133	TYPE23	ADDRESS. HEX LOCATION(00000060) IN CSECT(EA3E0) LENGTH(2)

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		520 745
390	WRD01	ADDRESS. HEX LOCATION(00000348) IN CSECT(EA3E0) LENGTH(2)
		254
69	WRIT	ABSOLUTE. HEX VALUE(0000000C)
		656
425	W0DA	ADDRESS. HEX LOCATION(0000035B) IN CSECT(EA3E0) LENGTH(1)
		148
423	W0DCB	ADDRESS. HEX LOCATION(0000035A) IN CSECT(EA3E0) LENGTH(1)
		468
389	W1DA	ADDRESS. HEX LOCATION(00000347) IN CSECT(EA3E0) LENGTH(1)
		143
387	W1DCB	ADDRESS. HEX LOCATION(00000346) IN CSECT(EA3E0) LENGTH(1)
		458
91	XE	ABSOLUTE. HEX VALUE(00000024)
		619 651
89	XI	ABSOLUTE. HEX VALUE(00000022)
		525 633
511	XIO	ADDRESS. HEX LOCATION(0000039E) IN CSECT(EA3E0) LENGTH(2)
		453 455 457 459 461 463 465 467 469
		471
452	XIOA1	ADDRESS. HEX LOCATION(00000362) IN CSECT(EA3E0) LENGTH(4)
		221
462	XIOA2	ADDRESS. HEX LOCATION(00000380) IN CSECT(EA3E0) LENGTH(4)
		278
645	XIOCK	ADDRESS. HEX LOCATION(00000442) IN CSECT(EA3E0) LENGTH(2)
		512 532
651	XIOCM	ADDRESS. HEX LOCATION(0000044E) IN CSECT(EA3E0) LENGTH(2)
		648
655	XIOCQ	ADDRESS. HEX LOCATION(00000456) IN CSECT(EA3E0) LENGTH(1)
		646
658	XIOCU	ADDRESS. HEX LOCATION(0000045A) IN CSECT(EA3E0) LENGTH(4)
		650 662
659	XIOCX	ADDRESS. HEX LOCATION(0000045E) IN CSECT(EA3E0) LENGTH(4)
		654 657
562	XIOER	ADDRESS. HEX LOCATION(000003F6) IN CSECT(EA3E0) LENGTH(2)
		138 527 668
661	XIOGI	ADDRESS. HEX LOCATION(00000466) IN CSECT(EA3E0) LENGTH(2)
		652
456	XIOM1	ADDRESS. HEX LOCATION(0000036E) IN CSECT(EA3E0) LENGTH(4)
		241
464	XIOM2	ADDRESS. HEX LOCATION(00000386) IN CSECT(EA3E0) LENGTH(4)
		301
470	XIOM3	ADDRESS. HEX LOCATION(00000398) IN CSECT(EA3E0) LENGTH(4)
		332
454	XIORE	ADDRESS. HEX LOCATION(00000368) IN CSECT(EA3E0) LENGTH(4)
		244 281 303 334
460	XIORF	ADDRESS. HEX LOCATION(0000037A) IN CSECT(EA3E0) LENGTH(4)
		258 314 324 345 355
466	XIORS	ADDRESS. HEX LOCATION(0000038C) IN CSECT(EA3E0) LENGTH(4)
		312 343
468	XIOW0	ADDRESS. HEX LOCATION(00000392) IN CSECT(EA3E0) LENGTH(4)
		322 353
458	XIOW1	ADDRESS. HEX LOCATION(00000374) IN CSECT(EA3E0) LENGTH(4)
		256
524	XIO5	ADDRESS. HEX LOCATION(000003CA) IN CSECT(EA3E0) LENGTH(2)
		521
525	XIO6	ADDRESS. HEX LOCATION(000003CC) IN CSECT(EA3E0) LENGTH(2)
		523
528	XIO8	ADDRESS. HEX LOCATION(000003D6) IN CSECT(EA3E0) LENGTH(2)
		536

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                             3 ************************************************************************
                             4 *                                                                      *
                             5 *                      ***       PREREQUISITES        ***             *
                             6 *                                                                      *
                             7 *                           NONE                                       *
                             8 *                                                                      *
                             9 ************************************************************************
                            10 *                                                                      *
                            11 *                      ***       MODIFICATIONS        ***             *
                            12 *                                                                      *
                            13 *                       CHANGES MADE TO CORRECT DEVICE                 *
                            14 *                       ADDRESS ENDING IN EIGHT                        *
                            15 *                                                                      *
                            16 ************************************************************************
                            17 *                                                                      *
                            18 *                      ***     REA'S INCORPORATED     ***             *
                            19 *                                                                      *
                            20 *                           NONE                                       *
                            21 *                                                                      *
                            22 ************************************************************************
                            23 *                                                                      *
                            24 *                      ***    SPECIAL INSTRUCTIONS    ***             *
                            25 *                                                                      *
                            26 *                           NONE                                       *
                            27 *                                                                      *
                            28 ************************************************************************
                            29 *                                                                      *
                            30 *                      ***       E. C. HISTORY        ***             *
                            31 *                                                                      *
                            32 *          DATE 06MAY77  DATE 15SEP77  DATE 09DEC77  DATE              *
                            33 *          E.C. 578756   E.C. 754882   E.C. 755104   E.C.               *
                            34 *                                                                      *
                            35 ************************************************************************
 000000                     37 EA4E0 START X'0000'
                            38 *          SUPERVISOR EQUATES
 000014                     39 CICB   EQU   20                    CONNECT INTERRUPT CONTROL BLOCK
 000006                     40 EXIT   EQU   6                     EXIT INTERRUPT LEVEL
 000001                     41 OUTIN  EQU   1                     OUT MESSAGE WITH EXPECTED RESPONCE
 00001A                     42 HTOB   EQU   26                    CHANGE HEX DATA TO EBCDIC DATA
 000002                     43 IDLE   EQU   2                     SHARE PROGRAM TIME WITH OTHER PGMS
 00000C                     44 PREP   EQU   12                    PREPARE DEVICE
 000013                     45 RICB   EQU   19                    RELEASE INTERRUPT CONTROL BLOCK
 00000A                     46 START  EQU   10                    START CYCLE STEAL COMMAND
 000007                     47 TERM   EQU   7                     TERMINATE THIS PROGRAM
 000008                     48 RESET  EQU   8                     RESET DEVICE
 000009                     49 RID    EQU   9                     READ DEVICE ID
 000000                     50 REG    EQUR  0                     WORK REGISTER
 00181E                     51 PRNTRTN EQU  X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
 000232                     52 CPUTYPE EQU  X'0232'               ADDRESS OF PROCESSOR TYPE
                            53 *
                            54 *          PROGRAM HEADING AND CONTROL WORDS
                            55 *
 000000  C1F4F0F0            56 $PID   DC    C'A400'               PROGRAM IDENTIFICATION
 000004  0000                57         DC    XL2'0000'             CURRENT LEVEL OF PROGRAM
 000006  0062                58         DC    A($PENT)              -> TO START EXEC ADDRESS
 000008  004C                59         DC    A($DVAD)              -> TO DEVICE TABLE
 00000A  0000                60 $RTNE  DC    A(*-*)                ROUTINE NUMBER BEING RUN
 00000C  0000                61 $CKPT  DC    A(*-*)                LAST CHECK POINT PASSED
 00000E  0000                63 OPTN1  DC    X'0000'               PROGRAM OPTION CONTROL WORD 1
                            64 *
                            65 * BIT FUNCTION
                            66 *
 000003                     67 TM     EQU   3                     TERMINATE PROGRAM
 00000C                     68 WRIT   EQU   12                    ON = EITHER WRAPPED OR TTY
 00000D                     69 QUES   EQU   13                    QUESTION HAS BEEN ASKED
 00000E                     70 IND    EQU   14                    INDICATOR FOR TTY WRAP CABLE
 00000F                     71 DIR    EQU   15                    SEEK DIRECTION INDICATOR
                            72 *
 000010  0000               73 OPTN2  DC    X'0000'               PROGRAM OPTION CONTROL WORD 2
 000012  0000               74 OPTN3  DC    X'0000'               PROGRAM OPTION CONTROL WORD 3
                            75 *
                            76 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                            77 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                            78 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                            79 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                            80 *
                            81 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                            82 *  5  WRONG INTR LEVEL      LE       13  N.U.
                            83 *  6  LOAS INTERRUPT        LI       14  N.U.
                            84 *  7  CS STATUS IN PROGR    CS       15  N.U.
                            85 *                      BIT   HEX
 000020                     86 MI     EQU   32      0     8     MYSTERY INTERRUPT HAPPENED
 000021                     87 ER     EQU   33      1     4     ERROR RECEIVED ON INTERRUPT
 000022                     88 XI     EQU   34      2     2     EXPECTED INTERRUPT CONTROL BIT
 000023                     89 IN     EQU   35      3     1     INTERRUPT RECEIVED CONTROL BIT
 000024                     90 XE     EQU   36      4     8     EXPECTED ERROR RESPONSE
 000025                     91 LE     EQU   37      5     4     INTERRUPT ON WRONG LEVEL ERROR
 000026                     92 LI     EQU   38      6     2     LOST INTERRUPT
 000027                     93 CS     EQU   39      7     1     CYCLE STATUS IN PROGRESS
 000028                     94 CE     EQU   40      8     8     CYCLE STEAL STATUS INERRRUPT ERROR
 000029                     95 GI     EQU   41      9     4     GOOD INTERRUPT RECEIVED (EXPECTED ER)
 00002A                     96 PE     EQU   42      10    2     PROBABLE ERROR EXPECTED
 00002B                     97 NI     EQU   43      11    1     NO INTR. EXPECTED UNPREPED DEV.
 000014  0000               99 $IOIN  DC    A(*-*)                I/O AND INTR CONDITION CODES
 000016  0000              100 $ISB   DC    A(*-*)                R7, INTR STATUS BYTE & DEV ADRS
 000018  0000              101 LSTIO  DC    A(*-*)                ADRS OF LAST I/O + 4 BYTES
 00001A  00000000          102 $DATA  DC    2A(*-*)               DEVICE DEPENDENT DATA
 00001E  0000              103 DEV3   DC    A(*-*)                DEVICE DEPENDENT DATA DEV3
 000020  0000              104 DEV4   DC    A(*-*)                DEVICE DEPENDENT DATA DEV4
 000022  0000              105 DCBUF  DC    A(*-*)                LAST DCB TABLE, CONTROL WORD
 000024  0000              106 DCB2   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000026  0000              107 DCB3   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000028  0000              108 DCB4   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002A  0000              109 DCB5   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002C  0000              110 DCB6   DC    A(*-*)                LAST DCB TABLE, CHAIN ADRS
 00002E  0000              111 DCB7   DC    A(*-*)                LAST DCB TABLE, BYTE COUNT
 000030  0000              112 DCB8   DC    A(*-*)                LAST DCB TABLE, BUFFER ADDRESS
 000032                    113 CSBUF  EQU   *                     CYCLE STEAL DATA BUFFER
 000032  0000              114 CSTL1  DC    A(*-*)                CYCLE STEAL BUFFER, RESIDUAL ADRS
 000034  0000              115 CSTL2  DC    A(*-*)                CYCLE STEAL WD 2, DEVICE DEPEND
 000036  0000              116 CSTL3  DC    A(*-*)                CYCLE STEAL WD 3, DEVICE DEPEND
 000038  0000              117 CSTL4  DC    A(*-*)                CYCLE STEAL WD 4, DEVICE DEPEND
 00003A  0000              118 CSTL5  DC    A(*-*)                CYCLE STEAL WD 5, DEVICE DEPEND
 00003C  0000              119 CSTL6  DC    A(*-*)                CYCLE STEAL WD 6, DEVICE DEPEND
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
 00003E  0000              120 CSTL7  DC    A(*-*)                CYCLE STEAL WD 7, DEVICE DEPEND
 000040  0000              121 CSTL8  DC    A(*-*)                CYCLE STEAL WD 8, DEVICE DEPEND
 000042  00000000          122 PCTR   DC    2A(*-*)               PASS COUNTER
 000046  00000000          123 ECTR   DC    2A(*-*)               ERROR COUNTER
 00004A  0005              124 ERNUM  DC    X'0005'               NUM OF ERRORS ALLOWED BEFORE TERM
 00004C  00A4              125 $DVAD  DC    X'00A4'               DEVICE ADDRESS BEING TESTED
 00004E  0000000000000000  126         DC    XL8'00'
 000056  0011              127 $INTL  DC    X'0011'               INTERRUPT LEVEL REQUESTED
 000058  0000              128 $DVID  DC    X'0000'               DEVICE IDENTIFICATION
 00005A  0005              129 $MXSL  DC    A(05)                 MAXIMUM SELECTABLE ROUTINES
 00005C  0000              130 H0000  DC    X'0000'               CONSTANT
 00005E  0001              131 H0001  DC    X'0001'               HEX WORD CONSTANT
 000060  2300              132 TYPE23 DC    X'2300'               CONSTANT TO CHECK PROCESSOR AGAINST
                           134 ************************************************************************
                           135 *          PROGRAM CONTROL FUNCTIONS                                   *
                           136 ************************************************************************
 000062  4020 0434 03BA    137 $PENT  MVA   XIOER,IOERR           INIT ERROR RETURN ADDRESS
 000068  4020 0056 0011    138        MVWI  X'0011',$INTL         INIT THE INTERRUPT LEVEL
 00006E  8028 004C 02FF    139        MVB   $DVAD,ARMDA           MOVE DEV ADDRESS TO ALL LOCATIONS
 000074  8028 004C 0303    140        MVB   $DVAD,REDA            *  ----------------------------
 00007A  8028 004C 0307    141        MVB   $DVAD,M1DA            *  ----------------------------
 000080  8028 004C 030B    142        MVB   $DVAD,W1DA            *  ----------------------------
 000086  8028 004C 030F    143        MVB   $DVAD,RFDA            *  ----------------------------
 00008C  8028 004C 0313    144        MVB   $DVAD,ARDA2           *  ----------------------------
 000092  8028 004C 0317    145        MVB   $DVAD,M2DA            *  ----------------------------
 000098  8028 004C 031B    146        MVB   $DVAD,RSDA            *  ----------------------------
 00009E  8028 004C 031F    147        MVB   $DVAD,WODA            *  ----------------------------
 0000A4  8028 004C 0323    148        MVB   $DVAD,M3DA            *  ----------------------------
 0000AA  0BFF              149        MVBI  255,R3                LOAD MASK FIELD INTO R3
 0000AC  4524 0022         150        MVA   DCBUF,R5              LOAD ADDRESS OF TO FIELD
 0000B0  0F20              151        MVBI  32,R7                 LOAD LENGTH TO MOVE
 0000B2  2BAC              152        FFN   R3,(R5)               INIT DCBUFFER AREA
 0000B4  CF25 002C         153        MVWZ  DCB6,R7               ZERO CHAIN ADDRESS
 0000B8  CE25 000A         154 $PEN1  MVWZ  $RTNE,R6              CLEAR OLD ROUTINE NUMBER
 0000BC  A82A 005C 0042    155        AD    H0000,PCTR            ADVANCE PASS COUNTER BY 1
 0000C2  4424 000E         156 $PUPD  MVA   OPTN1,R4              R4 MUST BE SET TO 'OPTN1'
 0000C6  4C03              157 $PUP2  TBT   (R4,TM)               IS TERMINATE PGM REQUESTED
 0000C8  101A              158        JZ    $PUP8                 * NO, CONTINUE CHECKING
                           160 *
                           161 *          TERMINATE CONTROL BIT FOUND ON
                           162 *
 0000CA  4020 0434 00DA    163 $TERM  MVA   $RET1,IOERR           INIT ERROR RETURN ADDRESS
 0000D0  680C 0312         164        IO    ARM02                 RELEASE FROM DIAG MODE
 0000D4  4724 0432         165        MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
 0000D8  6008              166        SVC   RESET                 ISSUE SVC
 0000DA  4020 0434 00F2    167 $RET1  MVA   $TER1,IOERR           INIT ERROR RETURN ADDRESS
 0000E0  8828 0056 0436    168        MVW   $INTL,IODCB           LOAD INTERRUPT LEVEL
 0000E6  4724 0432         169        MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
 0000EA  402D 0436 0001    170        RBTWI X'0001',IODCB         TURN OFF 'I' BIT
 0000F0  600C              171        SVC   PREP                  ISSUE SVC
 0000F2  C720 004C         172 $TER1  MVB   $DVAD,R7              LOAD DEV ADDRESS
 0000F6  7FE4 FF00         173        RBTWI X'FF00',R7            ZERO HIGH ORDER BYTE
 0000FA  6013              174        SVC   RICB                  ISSUE SVC
 0000FC  6007              175        SVC   TERM                  ISSUE SVC
 0000FE  A828 005E 000A    177 $PUP8  AW    H0001,$RTNE           ADVANCE ROUTINE NUMBER
 000104  882B 005A 000A    178        CW    $MXSL,$RTNE           CHECK FOR LAST AUTOMATIC ROUTINE
 00010A  6800 0062         179        BE    $PENT                 * BCH AND START WITH RTN 1
                           180 *
                           181 *          GET RTN NUMBER AND BCH TO THAT RTN
                           182 *
 00010E  6E08 000A         183 $PSEL  MVW   $RTNE,R6              MOVE RTN NUMBER IN REG
 000112  CD25 000C         184        MVWZ  $CKPT,R5              ZERO CHECKPOINT
 000116  CD25 001A         185        MVWZ  $DATA,R5              ZERO DEV DEPENDENT DATA DEV1
 00011A  CD25 001C         186        MVWZ  $DATA+2,R5                                    DEV2
 00011E  CD25 001E         187        MVWZ  DEV3,R5                                       DEV3
 000122  CD25 0020         188        MVWZ  DEV3+2,R5                                     DEV4
 000126  3609              189        SLL   1,R6                  DOUBLE R6 FOR BRANCH TABLE
 000128  68D2 012C         190        B     (R6,$RTAD)*           BCH VIA RTN TABLE
                           191 *
                           192 *          TABLE OF ROUTINE ADDRESSES
                           193 *
 00012C  0062              194 $RTAD  DC    A($PENT)              NO RTN SELECTED
 00012E  0136              195        DC    A(RT01)               ROUTINE ADDRESS
 000130  016E              196        DC    A(RT02)                 ''      ''
 000132  01DA              197        DC    A(RT03)                 ''      ''
 000134  0212              198        DC    A(RT04)                 ''      ''
                           200 ************************************************************************
                           201 *     CHANNEL INTERFACE TEST                                           *
                           202 *                                                                      *
                           203 *     TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS      *
                           204 *     THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO  *
                           205 *     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS  *
                           206 *     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS       *
                           207 *     EXCEPT LEVEL THREE.                                              *
                           208 ************************************************************************
 000136  6E03 0446         209 RT01   BAL   $CONR,R6              CLEAR AND CONNECT I/O BLK
 00013A  6A08 0056         210        MVW   $INTL,R2              SAVE SELECTED INTERRUPT
 00013E  4020 0056 FFF1    211        MVWI  X'FFF1',$INTL         SET UP INTERRUPT LEVEL FOR PREP
 000144  4724 0432         212 ITST4  MVA   IOBLK,R7              LOAD CONTROL BLOCK ADDRESS
 000148  6008              213        SVC   RESET                 ISSUE RESET
 00014A  4029 0056 0010    214        AWI   X'10',$INTL           ADV INTR LEVEL, STARTING AT 0
 000150  6E03 0450         215        BAL   $CONC,R6              GO PREPARE ON NEW LEVEL
 000154  6E03 0326         216        BAL   XIOA1,R6              ARM PI
 000158  4029 000C 0001    217        AWI   1,$CKPT               BUMP CHECKPOINT
 00015E  402F 0056 0021    218        CWI   X'21',$INTL           HAS INTR LEVEL COME DOWN TO 2
 000164  18EF              219        JNE   ITST4                 * NO, BCH AND CONTINUE TEST
 000166  6A0D 0056         220        MVW   R2,$INTL              RESTORE SELECTED INTR LEVEL
 00016A  6802 00C2         221        B     $PUPD                 BRANCH TO CONTINUE
                           223 ************************************************************************
                           224 *                                                                      *
                           225 *     PURPOSE: TO INSURE THE 4982 ATTACHMENT WILL WRAP ALL DATA        *
                           226 *              PATTERNES FROM X'FFFF' THRU X'0000'.                    *
                           227 *                                                                      *
                           228 ************************************************************************
 00016E  6E03 0450         229 RT02   BAL   $CONC,R6              PREPARE DEVICE ON CORRECT LEVEL
 000172  4029 000C 0001    230        AWI   1,$CKPT               BUMP CHECKPOINT
 000178  4724 0432         231        MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
 00017C  6008              232        SVC   RESET                 RESET DEVICE
 00017E  4C6B              233        TBTS  (R4,NI)               SET NO INTERRUPT PENDING BIT
 000180  6E03 0332         234        BAL   XIOM1,R6              SET DIAG MODE ONE
 000184  4C6B              235        TBTS  (R4,NI)               SET NO INTERRUPT PENDING BIT
 000186  4029 000C 0001    236        AWI   1,$CKPT               BUMP CHECKPOINT
 00018C  6E03 032C         237        BAL   XIORE,R6              BRANCH TO READ DIAG REGISTER
 000190  6908 0050         238        MVW   $DVAD+4,R1            LOAD CONFIG DATA
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000194  7923 8000           239         OWI   X'8000',R1           TURN ON HIGH ORDER BIT
000198  C924 0024           240         CW    DCB2,R1              COMPARE TO RECEIVED
00019C  1004                241         JE    RT021                BRANCH IF EQUAL
00019E  690D 0020           242         MVW   R1,DEV4              MOVE EXPECTED DATA INTO DEV3
0001A2  6802 0484           243         B     $PRNT                BRANCH TO PRINT ERROR
0001A6  712A                244 RT021   SW    R1,R1                ZERO R1
0001A8  4029 000C 0001      245         AWI   1,$CKPT              BUMP CHECKPOINT
0001AE  7921 0001           246 RT022   AWI   X'0001',R1           BUMP R1
0001B2  690D 030C           247         MVW   R1,WRD01             LOAD INTO WRITE FIELD
0001B6  4C6B                248         TBTS  (R4,NI)              SET NO INTERRUPT PENDING BIT
0001B8  6E03 0338           249         BAL   XIOW1,R6             BRANCH TO WRITE DATA
0001BC  4C6B                250         TBTS  (R4,NI)              SET NO INTERRUPT PENDING BIT
0001BE  6E03 033E           251         BAL   XIORF,R6             BRANCH TO READ REGISTER
0001C2  C924 0024           252         CW    DCB2,R1              CHECK RECEIVED DATA
0001C6  1004                253         JE    RT023                BRANCH IF EQUAL
0001C8  690D 0020           254         MVW   R1,DEV4              LOAD EXPECTED DATA
0001CC  6802 0484           255         B     $PRNT                BRANCH TO PRINT ERROR
0001D0  7127                256 RT023   IR    R1,R1                CHECK REG ONE
0001D2  6681 01AE           257         BNZ   RT022                BRANCH IF NOT ZERO
0001D6  6802 00C2           258         B     $PUPD                BRANCH TO CONTINUE
                            260 ***********************************************************************
                            261 *     PURPOSE: TO INSURE THE 4982 ATTACHMENT WILL RESPOND WITH A      *
                            262 *              VALID STATUS AFTER A DIAG MODE ONE COMMAND.            *
                            263 ***********************************************************************
0001DA  6E03 0450           264 RT03    BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
0001DE  4029 000C 0001      265         AWI   1,$CKPT              BUMP CHECKPOINT
0001E4  4724 0432           266         MVA   IOBLK,R7             LOAD ADDRESS OF CONTROL BLOCK
0001E8  6008                267         SVC   RESET                RESET DEVICE
0001EA  4C6B                268         TBTS  (R4,NI)              SET NO INTERRUPT PENDING BIT
0001EC  6E03 0344           269         BAL   XIOA2,R6             SET DIAG MODE ONE
0001F0  4C6B                270         TBTS  (R4,NI)              SET NO INTERRUPT PENDING BIT
0001F2  4029 000C 0001      271         AWI   1,$CKPT              BUMP CHECKPOINT
0001F8  6E03 032C           272         BAL   XIORE,R6             BRANCH TO READ DIAG REGISTER
0001FC  882B 0024 0050      273         CW    DCB2,$DVAD+4         COMPARE TO RECEIVED
000202  1005               274         JE    RT031                BRANCH IF EQUAL
000204  8828 0050 0020      275         MVW   $DVAD+4,DEV4         MOVE EXPECTED DATA INTO DEV3
00020A  6802 0484           276         B     $PRNT                BRANCH TO PRINT ERROR
00020E  6802 00C2           277 RT031   B     $PUPD                BRANCH TO CONTINUE
                            279 ***********************************************************************
                            280 *     DIAG MODE 2 AND 3 STATUS CHECK                                  *
                            281 *                                                                     *
                            282 *     THE ATTACHMENT WILL BE ISSUED A DIAG MODE TWO THEN A DIAG MODE  *
                            283 *     THREE COMMAND AFTER EACH THE STATUS IS CHECKED FOR VALIDITY.    *
                            284 ***********************************************************************
000212  6E03 0450           285 RT04    BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
000216  4724 0432           286         MVA   IOBLK,R7             LOAD CONTROL BLOCK ADDRESS
00021A  6008                287         SVC   RESET                RESET DEV ADD
00021C  4029 000C 0001      288         AWI   1,$CKPT              BUMP CHECK POINT
000222  4C6B                289         TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
000224  6E03 034A           290         BAL   XIOA2,R6             BRANCH TO ISSUE IO
000228  4C6B                291         TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
00022A  6E03 032C           292         BAL   XIORE,R6             BRANCH TO ISSUE IO
00022E  6908 0050           293         MVW   $DVAD+4,R1           LOAD CONFIG DATA
000232  7923 8000           294         OWI   X'8000',R1           TURN ON HIGH ORDER BIT
000236  C924 0024           295         CW    DCB2,R1              COMPARE TO RECEIVED
00023A  1004                296         JE    RT041                BRANCH IF EQUAL
00023C  690D 0020           297         MVW   R1,DEV4              MOVE EXPECTED DATA INTO DEV4
000240  6802 0484           298         B     $PRNT                BRANCH TO PRINT ERROR
000244  4C6B                299 RT041   TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
000246  4029 000C 0001      300         AWI   1,$CKPT              BUMP CHECKPOINT
00024C  6E03 0350           301         BAL   XIORS,R6             BRANCH TO ISSUE IO
000250  4C6B                302         TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
000252  6E03 033E           303         BAL   XIORF,R6             BRANCH TO ISSUE IO
000256  4124 06F0           304         MVWI  X'06F0',R1           PUT IN THE MASK
00025A  C924 0024           305         CW    DCB2,R1              COMPARE TO RECEIVED
00025E  1004                306         JE    RT042                BRANCH IF EQUAL
000260  690D 0020           307         MVW   R1,DEV4              MOVE EXPECTED DATA INTO DEV4
000264  6802 0484           308         B     $PRNT                BRANCH TO PRINT ERROR
000268  4C6B                309 RT042   TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
00026A  4029 000C 0001      310         AWI   1,$CKPT              BUMP CHECKPOINT
000270  6E03 0356           311         BAL   XIOW0,R6             BRANCH TO ISSUE IO
000274  4C6B                312         TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
000276  6E03 033E           313         BAL   XIORF,R6             BRANCH TO ISSUE IO
00027A  4124 0500           314         MVWI  X'0500',R1           PUT IN THE MASK
00027E  C924 0024           315         CW    DCB2,R1              COMPARE TO RECEIVED
000282  1004                316         JE    RT043                BRANCH IF EQUAL
000284  690D 0020           317         MVW   R1,DEV4              MOVE EXPECTED DATA INTO DEV4
000288  6802 0484           318         B     $PRNT                BRANCH TO PRINT ERROR
00028C  4C6B                319 RT043   TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
00028E  4029 000C 0001      320         AWI   1,$CKPT              BUMP CHECK POINT
000294  6E03 035C           321         BAL   XIOM3,R6             BRANCH TO ISSUE IO
000298  4C6B                322         TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
00029A  6E03 032C           323         BAL   XIORE,R6             BRANCH TO ISSUE IO
00029E  6908 0050           324         MVW   $DVAD+4,R1           LOAD CONFIG DATA
0002A2  7923 8000           325         OWI   X'8000',R1           TURN ON HIGH ORDER BIT
0002A6  C924 0024           326         CW    DCB2,R1              COMPARE TO RECEIVED
0002AA  1004                327         JE    RT044                BRANCH IF EQUAL
0002AC  690D 0020           328         MVW   R1,DEV4              MOVE EXPECTED DATA INTO DEV4
0002B0  6802 0484           329         B     $PRNT                BRANCH TO PRINT ERROR
0002B4  4C6B                330 RT044   TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
0002B6  4029 000C 0001      331         AWI   1,$CKPT              BUMP CHECKPOINT
0002BC  6E03 0350           332         BAL   XIORS,R6             BRANCH TO ISSUE IO
0002C0  4C6B                333         TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
0002C2  6E03 033E           334         BAL   XIORF,R6             BRANCH TO ISSUE IO
0002C6  4124 06F0           335         MVWI  X'06F0',R1           PUT IN THE MASK
0002CA  C924 0024           336         CW    DCB2,R1              COMPARE TO RECEIVED
0002CE  1004                337         JE    RT045                BRANCH IF EQUAL
0002D0  690D 0020           338         MVW   R1,DEV4              MOVE EXPECTED DATA INTO DEV4
0002D4  6802 0484           339         B     $PRNT                BRANCH TO PRINT ERROR
0002D8  4C6B                340 RT045   TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
0002DA  4029 000C 0001      341         AWI   1,$CKPT              BUMP CHECKPOINT
0002E0  6E03 0356           342         BAL   XIOW0,R6             BRANCH TO ISSUE IO
0002E4  4C6B                343         TBTS  (R4,NI)              TURN ON NO INTERRUPT FLAG
0002E6  6E03 033E           344         BAL   XIORF,R6             BRANCH TO ISSUE IO
0002EA  712A                345         SW    R1,R1                ZERO REG ONE
0002EC  C924 0024           346         CW    DCB2,R1              COMPARE TO RECEIVED
0002F0  1004                347         JE    RT046                BRANCH IF EQUAL
0002F2  690D 0020           348         MVW   R1,DEV4              MOVE EXPECTED DATA INTO DEV4
0002F6  6802 0484           349         B     $PRNT                BRANCH TO PRINT ERROR
0002FA  6802 00C2           350 RT046   B     $PUPD                BRANCH TO CONTINUE
                            352 *
                            353 *                   SET DIAG MODE CONTROL BLOCK
                            354 *
0002FE                      355 ARM01   EQU   *                    USE FOR DCB REFERENCE ONLY
```



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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0002FE  61                  356 ARMCT   DC    X'61'                CONTROL WORD
0002FF  00                  357 ARMDA   DC    X'00'
000300  0000                358         DC    X'0000'
                            359 *
                            360 *                   DIAG READ MOD. = E CONTROL BLOCK
                            361 *
000302                      362 REDCB   EQU   *                    USE FOR DCB REFERENCE ONLY
000302  2E                  363 RECTL   DC    X'2E'                CONTROL WORD
000303  00                  364 REDA    DC    X'00'
000304  0000                365         DC    X'0000'
                            366 *
                            367 *                   SET MODE ONE CONTROL BLOCK
                            368 *
000306                      369 M1DCB   EQU   *                    USE FOR DCB REFERENCE ONLY
000306  61                  370 M1CTL   DC    X'61'                CONTROL WORD
000307  00                  371 M1DA    DC    X'00'
000308  0001                372         DC    X'0001'
                            373 *
                            374 *                   WRITE CONTROL BLOCK
                            375 *
00030A                      376 W1DCB   EQU   *                    USE FOR DCB REFERENCE ONLY
00030A  48                  377 W1CTL   DC    X'48'                CONTROL WORD
00030B  00                  378 W1DA    DC    X'00'
00030C  0000                379 WRD01   DC    X'0000'
                            380 *
                            381 *                   DIAG READ MOD. = F CONTROL BLOCK
                            382 *
00030E                      383 RFDCB   EQU   *                    USE FOR DCB REFERENCE ONLY
00030E  2F                  384 RFCTL   DC    X'2F'                CONTROL WORD
00030F  00                  385 RFDA    DC    X'00'
000310  0000                386         DC    X'0000'
                            387 *
                            388 *                   RESET DIAG MODE CONTROL BLOCK
                            389 *
000312                      390 ARM02   EQU   *                    USE FOR DCB REFERENCE ONLY
000312  62                  391 ARCT2   DC    X'62'                CONTROL WORD
000313  00                  392 ARDA2   DC    X'00'
000314  0000                393         DC    X'0000'
                            394 *
                            395 *                   SET MODE TWO CONTROL BLOCK
                            396 *
000316                      397 M2DCB   EQU   *                    USE FOR DCB REFERENCE ONLY
000316  61                  398 M2CTL   DC    X'61'                CONTROL WORD
000317  00                  399 M2DA    DC    X'00'
000318  0002                400         DC    X'0002'
                            402 *
                            403 *                    RESET CONTROL BLOCK
                            404 *
00031A                      405 RSDCB   EQU   *                    USE FOR DCB REFERENCE ONLY
00031A  6F                  406 RSCTL   DC    X'6F'                CONTROL WORD
00031B  00                  407 RSDA    DC    X'00'
00031C  FFFF                408         DC    X'FFFF'
                            409 *
                            410 *                   WRITE 0 CONTROL BLOCK
                            411 *
00031E                      412 WODCB   EQU   *                    USE FOR DCB FREERENCE ONLY
00031E  50                  413 WOCTL   DC    X'50'                CONTROL WORD
00031F  00                  414 WODA    DC    X'00'
000320  0000                415         DC    X'0000'
                            416 *
                            417 *                   SET MODE THREE CONTROL BLOCK
                            418 *
000322                      419 M3DCB   EQU   *                    USE FOR DCB REFERENCE ONLY
000322  61                  420 M3CTL   DC    X'61'                CONTROL WORD
000323  00                  421 M3DA    DC    X'00'
000324  0003                422         DC    X'0003'
                            424 ***********************************************************************
                            425 *     ISSUE ALL I/O COMMANDS FROM A COMMON SUBROUTINE                 *
                            426 *     TO DISPLAY INSTRUCTIONS AND OPERATING PROCEDURES TO THE OPERATOR*
                            427 *     AND SET UP ANY REQUIREMENTS FOR OTHER I/O COMMANDS              *
                            428 *                                                                     *
                            429 * --> BAL   XIOA1,R6               XEQ SET DIAG MODE                 *
                            430 * --> BAL   XIORE,R6               XEQ READ MOD. = E                 *
                            431 * --> BAL   XIOM1,R6               XEQ SET MODE ONE                  *
                            432 * --> BAL   XIOW1,R6               XEQ WRITE ONE                     *
                            433 * --> BAL   XIORF,R6               XEQ READ MOD. = F                 *
                            434 * --> BAL   XIOA2,R6               XEQ RESET DIAG MODE               *
                            435 * --> BAL   XIOM2,R6               XEQ SET MODE TWO                  *
                            436 * --> BAL   XIORS,R6               XEQ RESET                         *
                            437 * --> BAL   XIOW0,R6               XEQ WRITE ZERO                    *
                            438 * --> BAL   XIOM3,R6               XEQ SET MODE THREE                *
                            439 *                                                                     *
                            440 ***********************************************************************
000326  4524 02FE           441 XIOA1   MVA   ARM01,R5             SET UP CONTROL BLOCK FOR SVC CALL
00032A  5018                442         J     XIO                  BRANCH
00032C  4524 0302           443 XIORE   MVA   REDCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
000330  5018                444         J     XIO                  BRANCH
000332  4524 0306           445 XIOM1   MVA   M1DCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
000336  5015                446         J     XIO                  BRANCH
000338  4524 030A           447 XIOW1   MVA   W1DCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
00033C  5012                448         J     XIO                  BRANCH
00033E  4524 030E           449 XIORF   MVA   RFDCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
000342  500F                450         J     XIO                  BRANCH
000344  4524 0312           451 XIOA2   MVA   ARM02,R5             SET UP CONTROL BLOCK FOR SVC CALL
000348  500C                452         J     XIO                  BRANCH
00034A  4524 0316           453 XIOM2   MVA   M2DCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
00034E  5009                454         J     XIO                  BRANCH
000350  4524 031A           455 XIORS   MVA   RSDCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
000354  5006                456         J     XIO                  BRANCH
000356  4524 031E           457 XIOW0   MVA   WODCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
00035A  5003                458         J     XIO                  BRANCH
00035C  4524 0322           459 XIOM3   MVA   M3DCB,R5             SET UP CONTROL BLOCK FOR SVC CALL
000360  5000                460         J     XIO                  BRANCH
                            462 ***********************************************************************
                            463 *                                                                     *
                            464 * SOUBROUTINE                                                        *
                            465 *                                                                     *
                            466 *     EXECUTE INPUT AND OUTPUT COMMANDS                               *
                            467 *                                                                     *
                            468 * PURPOSE                                                            *
                            469 *                                                                     *
                            470 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.                *
                            471 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:                *
                            472 *                                                                     *
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 LOCTR  OBJECT TEXT       STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           473 *     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED *
                           474 *        THE I/O COMMAND.                                             *
                           475 *     2. SAVES THE DCB BLOCK USED                                     *
                           476 *     3. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT  *
                           477 *        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND, *
                           478 *        MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.                   *
                           479 *     4. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE    *
                           480 *        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE NECESSARY IO.   *
                           481 *     5. AFTER ISSUING THE I/O COMMAND, TIMING                        *
                           482 *        STARTS TO DETERMINE A LOST INTERRUPT.                        *
                           483 *     6. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF  *
                           484 *        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.       *
                           485 *     7. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.                  *
                           486 *     8. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.      *
                           487 *     9. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.        *
                           488 *                                                                     *
                           489 * CALLING SEQUENCE                                                  *
                           490 *                                                                     *
                           491 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                         *
                           492 *                                                                     *
                           493 * --> B     XIO                    XEQ ANY CYCLE STEAL COMMAND, MOD=0 *
                           494 *                                                                     *
                           495 * RETURN CONTROL                                                    *
                           496 *                                                                     *
                           497 *     BXS   (R6)                   RETURN TO USER NO ERROR          *
                           498 ***********************************************************************
000362  4CA3               500 XIO   TBTR  (R4,IN)                CLEAR INTERRUPT RECEIVED CNTL BIT
000364  1250               501       JON   XIOCK                  BRANCH IF ON
000366  6E0D 0018          502       MVW   R6,LSTIO               SAVE IAR FOR RETRY IF REQUESTED
00036A  402E 0018 0004     503       SWI   4,LSTIO                POINT AT CORRECT INSTRUCTION
000370  4324 0000          504       MVA   $PID,R3                LOAD ADDRESS OF START OF PROG
000374  CB2F 0018          505       SW    R3,LSTIO               SUB TO OBTAIN LISTING ADDRESS
000378  4324 0022          506       MVA   DCBUF,R3               SET UP TO ADRS TO MOVE DCB TABLE
00037C  0F04               507       MVBI  4,R7                   * THE NUMBER OF MOVES
00037E  2D64               508       MVFN  (R5),(R3)              MOVE 1 STATUS WORD AND ADJUST
000380  802B 0232 0060     509       CB    CPUTYPE,TYPE23         CHECK FOR PROCESSOR 23
000386  1803              510       JNE   XIO5                   BRANCH NOT EQUAL
000388  4524 C000          511       MVWI  X'C000',R5             LOAD LOOP COUNT
00038C  5001               512       J     XIO6                   BRANCH
00038E  75AA               513 XIO5  SW    R5,R5                  LOAD LOOP COUNT
000390  4C62               514 XIO6  TBTS  (R4,XI)                SET EXPECTED INTR CONTROL BIT
000392  680C 0022          515       IO    DCBUF                  ISSUE IO
000396  6F05 03BA          516       BNCC  7,XIOER                ERROR IF NOT CC=7
00039A  6002               517 XIO8  SVC   IDLE                  ALLOW OTHER PROG TIME
00039C  4C03               518       TBT   (R4,TM)                IS TERHINATE BIT ON
00039E  6A00 00CA          519       BON   $TERM                  BRANCH IF ON
0003A2  4CA3               520       TBTR  (R4,IN)                HAS INTERRUPT BEEN RECEIVED
0003A4  1230               521       JON   XIOCK                  * YES, CHECK IF ALL WAS SATISFACTORY
0003A6  4CAB               522       TBTR  (R4,NI)                IS THERE GOING TO BE A INTERRUPT
0003A8  6AC0 0000          523       BON   (R6)                   BRANCH NO
0003AC  7DA1 0001          524       AWI   1,R5                   ADVANCE TIME OUT COUNT
0003B0  18F4               525       JNZ   XIO8                   BCH IF TIME OUT NOT REACHED
0003B2  4C61               526       TBTS  (R4,ER)                SET ON ERROR CONTROL BIT
0003B4  4C66               527       TBTS  (R4,LI)                SET ON LOST INTERRUPT CONTROL BIT
0003B6  6802 0484          528       B     $PRNT                  BRANCH TO PRINT ERROR
                           530 ***********************************************************************
                           531 *                                                                     *
                           532 * SUBROUTINE                                                        *
                           533 *                                                                     *
                           534 *     I/O EXECUTE ERROR HANDLING ROUTINE                              *
                           535 *                                                                     *
                           536 * PURPOSE                                                           *
                           537 *                                                                     *
                           538 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE     *
                           539 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE   *
                           540 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                             *
                           541 *                                                                     *
                           542 * CALLING SEQUENCE                                                  *
                           543 *                                                                     *
                           544 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND          *
                           545 *                                                                     *
                           546 * RETURN CONTROL                                                    *
                           547 *                                                                     *
                           548 *     B     $PRNT                  DUMP STATUS BEFORE TERMINATION   *
                           549 *                                                                     *
                           550 ***********************************************************************
0003BA  706E               551 XIOER CPLSR R3                     SAVE CONDITION CODE ON I/O ERROR
0003BC  336A               552       SRL   13,R3                  POSITION CC CODE TO BITS 13-15
0003BE  C328 0014          553       MVB   R3,$IOIN               * PUT IN LOG OUT AREA
0003C2  6802 0484          554       B     $PRNT                  BRANCH TO PRINT ERROR
                           556 ***********************************************************************
                           557 *                                                                     *
                           558 * SOUBROUTINE                                                       *
                           559 *                                                                     *
                           560 *     ERROR INTERRUPT              RUNS ON INTERRUPT LEVEL '$INTL'    *
                           561 *                                                                     *
                           562 * PURPOSE                                                           *
                           563 *                                                                     *
                           564 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR    *
                           565 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE      *
                           566 *     EXPECTED CODE.                                                  *
                           567 *                                                                     *
                           568 * CALLING SEQUENCE                                                  *
                           569 *                                                                     *
                           570 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT        *
                           571 *                                                                     *
                           572 * RETURN CONTROL                                                    *
                           573 *                                                                     *
                           574 *     SVC   EXIT                   RETURN TO USER VIA SUPVR           *
                           575 *                                                                     *
                           576 ***********************************************************************
0003C6  706E               577 INTER CPLSR R3                     SAVE INDICATORS
0003C8  336A               578       SRL   13,R3                  POSITION INDICATORS IN R3
0003CA  4424 000E          579       MVA   OPTN1,R4               SET UP BASE ADRS
0003CE  4C61               580       TBTS  (R4,ER)                SET ERROR ON I/O COMMAND CNTL BIT
0003D0  5007               581       J     INTR1                  BRANCH
                           583 ***********************************************************************
                           584 *                                                                     *
                           585 * SOUBROUTINE                                                       *
                           586 *                                                                     *
                           587 *     OKAY  INTERRUPT              RUNS ON INTERRUPT LEVEL '$INTL'    *
                           588 *                                                                     *
                           589 * PURPOSE                                                           *
                           590 *                                                                     *
```



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 LOCTR  OBJECT TEXT       STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           591 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                    *
                           592 *                                                                     *
                           593 * CALLING SEQUENCE                                                  *
                           594 *                                                                     *
                           595 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED          *
                           596 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE         *
                           597 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE              *
                           598 *     COMMON SECTION IS HANDLED HERE.                                 *
                           599 *                                                                     *
                           600 * RETURN CONTROL                                                    *
                           601 *                                                                     *
                           602 *     SVC   EXIT                   RETURN TO USER VIA SUPVR           *
                           603 *                                                                     *
                           604 ***********************************************************************
0003D2  706E               605 INTOK CPLSR R3                     SAVE INDICATORS
0003D4  336A               606       SRL   13,R3                  POSITION INDICATORS IN R3
0003D6  4424 000E          607       MVA   OPTN1,R4               SET UP BASE ADRS
0003DA  4C24               608       TBT   (R4,XE)                IS AN ERROR EXPECTED
0003DC  1001               609       JOFF  INTR1                  BRANCH NO
0003DE  4C69               610       TBTS  (R4,GI)                SET GOOD INTERRUPT BIT
0003E0  4C63               611 INTR1 TBTS  (R4,IN)                SET   INTERRUPT RECEIVED
0003E2  C328 0015          612       MVB   R3,$IOIN+1             SAVE INTERRUPTING CC CODE
0003E6  6F0D 0016          613       MVW   R7,$ISB                SAVE INTR STATUS AND DEV ADRS
0003EA  78B9               614 INTR2 CPCL  R5                     COPY INTERRUPT LEVEL TO CHECK
0003EC  3521               615       SLL   4,R5                   POSITION INTR LEVEL AND PUT
0003EE  0501               616       ABI   1,R5                   * IN 'I' BIT
0003F0  CD24 0056          617       CW    $INTL,R5               IS THIS THE CORRECT INTR LEVEL
0003F4  1004               618       JE    INTR3                  * YES, GO EXIT THIS LEVEL.
0003F6  3521               619       SLL   4,R5                   SET LEVEL IN HIGH ORDER BYTE
0003F8  6D0D 0020          620       MVW   R5,DEV3+2              STORE IN DEV4
0003FC  4C65               621       TBTS  (R4,LE)                SET INTR LEVEL ERROR CONTROL BIT
0003FE  4CA2               622 INTR3 TBTR  (R4,XI)                WAS INTERRUPT EXPECTED
000400  1201               623       JON   INTRX                  * YES, EXIT OFF THIS INTR LEVEL
000402  4C60               624       TBTS  (R4,MI)                * NO,  SET MYSTERY INTR CONTROL BIT
000404  6006               625 INTRX SVC   EXIT                   EXIT THIS LEVEL VIA SUPVR TO PGM
                           627 ***********************************************************************
                           628 *                                                                     *
                           629 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT     *
                           630 *     HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN    *
                           631 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.   *
                           632 *                                                                     *
                           633 ***********************************************************************
000406  4C20               634 XIOCK TBT   (R4,MI)                DID MYS INTERRUPT OCCUR
000408  1208               635       JON   XIOCQ                  BRANCH YES
00040A  4C25               636       TBT   (R4,LE)                WAS AN INTR LEVEL ERROR FOUND
00040C  1002               637       JOFF  XIOCM                  * NO, CONTINUE CHECKING
00040E  4C61               638       TBTS  (R4,ER)                SET ERROR CONTROL BIT ON
000410  5006               639       J     XIOCU                  BRANCH
000412  4C24               640 XIOCM TBT   (R4,XE)                WAS AN ERROR EXPECTED
000414  120A               641       JN    XIOGI                  * YES, EXIT THIS ROUTINE
000416  4C21               642 XIOCV TBT   (R4,ER)                WAS ERROR INTR CONTROL BIT ON
000418  1004               643       JOFF  XIOCX                  * NO, EXIT THIS ROUTINE
00041A                     644 XIOCQ EQU   *
00041A  4C8C               645       TBTR  (R4,WRIT)              IS WRITE EXPECTING MORE THEN ONE INTR
00041C  1202               646       JON   XIOCX                  BRANCH IF ON
00041E  6802 0484          647 XIOCU B     $PRNT                  BRANCH TO PRINT ERROR
000422  CB25 0012          648 XIOCX MVWZ  OPTN3,R3               CLEAR OUT OPTION 3 CNTL BITS
000426  68C2 0000          649       B     (R6)                   RETURN TO USER VIA REG 6
00042A  4C29               650 XIOGI TBT   (R4,GI)                IS GOOD INTERRUPT BIT ON
00042C  12F8               651       JON   XIOCU                  BRANCH YES
00042E  68C2 0000          652       B     (R6)                   RETURN
                           653 *
                           654 *            I/O   PARAMETER LIST
                           655 *
000432  004C               656 IOBLK DC    A($DVAD)               ADRS OF DEVICE ADRS
000434  03BA               657       DC    A(XIOER)               ERROR ROUTINE ADRS
000436  0000               658 IODCB DC    A(*-*)                 DCB ADRS OR LEVEL & INTR
000438  0000               659 IOMOD DC    A(*-*)                 MODIFIER
00043A  0000               660       DC    A(*-*)                 ADRS OF LAST SVC CALL
00043C  0000               661 IORSP DC    A(*-*)                 SECOND WORD OF LAST IDCB
                           662 *
                           663 *           INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                           664 *
00043E  004C               665 INTBL DC    A($DVAD)               ADRS OF DEVICE ADRS
000440  03D2               666       DC    A(INTOK)               INTERRUPT OK RETURN ADRS
000442  03C6               667       DC    A(INTER)               INTERRUPT ERROR ADRS
000444  0004               668 INTCC DC    X'0004'                INTERRUPT CODE EXPECTED
                           670 ***********************************************************************
                           671 *                                                                     *
                           672 * SUBROUTINE                                                        *
                           673 *                                                                     *
                           674 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE                *
                           675 *                                                                     *
                           676 * PURPOSE                                                           *
                           677 *                                                                     *
                           678 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND       *
                           679 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE  *
                           680 *     TO INTERRUPT.                                                   *
                           681 *                                                                     *
                           682 * CALLING SEQUENCE                                                  *
                           683 *                                                                     *
                           684 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                      *
                           685 *                                                                     *
                           686 * --> BAL   $CONC,R6               CLEAR DEV DEP STG AND CONNECT I/O BLK
                           687 * --> BAL   $CONR,R6               BCH TO CONNECT                     *
                           688 * --> BAL   $CONP,R6               PREPARE DEVICE ONLY                *
                           689 *                                                                     *
                           690 * RETURN CONTROL                                                    *
                           691 *                                                                     *
                           692 *     BXS   (R6)                   RETURN TO USER VIA REG 6           *
                           693 *                                                                     *
                           694 ***********************************************************************
000446                     695 $CONR EQU   *
000446  4724 043E          696       MVA   INTBL,R7               SET R7 TO CONTROL BLOCK AND
00044A  6014               697       SVC   CICB                   * CONNECT IT TO THIS DEVICE
00044C  68C2 0000          698       B     (R6)                   RETURN
000450                     699 $CONC EQU   *
000450  8828 0056 0436     700       MVW   $INTL,IODCB            PUT IN LEVEL & INTR PARAMETER
000456  CB25 0012          701       MVWZ  OPTN3,R3               CLEAR OLD CONTROLS FOR NEW ROUTINE
00045A  6E0D 0018          702       MVWZ  $ISB,R3                * AND CLEAR OLD  ISB VALUE
00045E  402E 0018 0004     703       MVW   R6,LSTIO               SET UP ADDRESS THAT STARTED LAST I/O
000462  4324 0000          704       SWI   4,LSTIO                DECREMENT TO POINT AT INSTRUCTION
000468  CB2F 0018          705       MVA   $PID,R3                LOAD ADDRESS OF START OF PROG
00046C                     706       SW    R3,LSTIO               SUB TO OBTAIN LISTING ADDRESS
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 LOCTR  OBJECT TEXT          STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000470  4724 0432               707        MVA   IOBLK,R7            SET R7 TO CONTROL BLOCK TO PREPARE
000474  4020 0014 07FF          708        MVWI  X'07FF',$IOIN       INITIALIZE CONDITION CODE STORAGE
00047A  600C                    709        SVC   PREP                * AND CALL ON SUPVR
00047C  CE25 0436               710        MVWZ  IODCB,R7            ZERO PREP 'I' BIT
000480  68C2 0000               711        B     (R6)                RETURN
                                712 ************************************************************************
                                713 *                                                                      *
                                714 *                COMMON PRINT ERROR INTERFACE ROUTINE                  *
                                715 *                                                                      *
                                716 * ----> R6      LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE   *
                                717 *                BRANCH IS TAKEN TO PRINT THE ERROR                    *
                                718 * ----> R4      LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE   *
                                719 *                BRANCH IS TAKEN TO PRINT THE ERROR                    *
                                720 * ----> R3      LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE        *
                                721 *                BRANCH IS TAKEN TO PRINT THE ERROR                    *
                                722 * ----> PRNTRTN THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST ) *
                                723 *                POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                                724 *                WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN     *
                                725 *                                                                      *
                                726 ************************************************************************
000484  4624 0012               727 $PRNT  MVA   OPTN3,R6              LOAD ADDRESS OF OPTION WORD THREE
000488  6D08 181E               728        MVW   PRNTRTN,R5           LOAD ADDRESS OF COMMON PRNT ROUTINE
00048C  4424 0000               729        MVA   $PID,R4              LOAD ADDRESS OF START OF PROG
000490  4324 0042               730        MVA   PCTR,R3              LOAD ADDRESS OF PASS COUNTER
000494  6FA3 0000               731        BAL   (R5),R7              BRANCH TO COMMON PRINT ROUTINE
000498  CE25 0012               732        MVWZ  OPTN3,R6             ZERO OUT ALL FLAGS
00049C  4424 000E               733        MVA   OPTN1,R4             LOAD BASE ADDRESS FOR INDICATORS
0004A0  802B 0232 0060          734        CB    CPUTYPE,TYPE23       IS THIS A TYPE 23 PROCESSOR
0004A6  1803                    735        JNE   $PRN2                BRANCH IF NO
0004A8  4524 E000               736        MVWI  X'E000',R5           INIT LOOP COUNTER
0004AC  5002                    737        J     $PRN1                BRANCH
0004AE  4524 8000               738 $PRN2  MVWI  X'8000',R5           INIT LOOP COUNTER
0004B2  6002                    739 $PRN1  SVC   IDLE                 DELAY
0004B4  4C03                    740        TBT   (R4,TM)              SHOULD PROG TERMINATE
0004B6  6A00 00CA               741        BON   $TERM                BRANCH YES
0004BA  7DA1 0001               742        AWI   1,R5                 INCREMENT LOOP COUNTER
0004BE  18F9                    743        JNZ   $PRN1                BRANCH NOT ZERO
0004C0  6802 0062               744        B     $PENT                BRANCH TO RESTART FROM BEGINING
000062                          745        END   $PENT
```


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DECLARED  NAME      ATTRIBUTES AND REFERENCES
       0  .R1.      ABSOLUTE. HEX VALUE(00000001)
                    238  239  240  242  244  244  246  247  252
                    254  256  256  293  294  295  297  304  305
                    307  314  315  317  324  325  326  328  335
                    336  338  345  345  346  348
       0  .R2.      ABSOLUTE. HEX VALUE(00000002)
                    210  220
       0  .R3.      ABSOLUTE. HEX VALUE(00000003)
                    149  152  504  505  506  508  551  552  553
                    577  578  605  606  612  648  701  702  705
                    706  730
       0  .R4.      ABSOLUTE. HEX VALUE(00000004)
                    156  157  233  235  248  250  268  270  289
                    291  299  302  309  312  319  322  330  333
                    340  343  500  514  518  520  522  526  527
                    579  580  607  608  610  611  621  622  624
                    634  636  638  640  642  645  650  729  733
                    740
       0  .R5.      ABSOLUTE. HEX VALUE(00000005)
                    150  152  184  185  186  187  188  441  443
                    445  447  449  451  453  455  457  459  508
                    511  513  513  524  614  615  616  617  619
                    620  728  731  736  738  742
       0  .R6.      ABSOLUTE. HEX VALUE(00000006)
                    154  183  189  190  209  215  216  229  234
                    237  249  251  264  269  272  285  290  292
                    301  303  311  313  321  323  332  334  342
                    344  502  523  649  652  698  703  711  727
                    732
       0  .R7.      ABSOLUTE. HEX VALUE(00000007)
                    151  153  165  169  172  173  212  231  266
                    286  507  613  696  707  710  731  288  300
      61  $CKPT     ADDRESS. HEX LOCATION(0000000C) IN CSECT(EA4E0   ) LENGTH(2)
                    184  217  230  236  245  265  271  288  300
                    310  320  331  341
     699  $CONC     ADDRESS. HEX LOCATION(00000450) IN CSECT(EA4E0   ) LENGTH(1)
                    215  229  264  285
     695  $CONR     ADDRESS. HEX LOCATION(00000446) IN CSECT(EA4E0   ) LENGTH(1)
                    209
     102  $DATA     ADDRESS. HEX LOCATION(0000001A) IN CSECT(EA4E0   ) LENGTH(2)
                    185  186
     125  $DVAD     ADDRESS. HEX LOCATION(0000004C) IN CSECT(EA4E0   ) LENGTH(2)
                     59  139  140  141  142  143  144  145  146
                    147  148  172  238  273  275  293  324  656
                    665
     127  $INTL     ADDRESS. HEX LOCATION(00000056) IN CSECT(EA4E0   ) LENGTH(2)
                    138  168  210  211  214  218  220  617  700
      99  $IOIN     ADDRESS. HEX LOCATION(00000014) IN CSECT(EA4E0   ) LENGTH(2)
                    553  612  708
     100  $ISB      ADDRESS. HEX LOCATION(00000016) IN CSECT(EA4E0   ) LENGTH(2)
                    613  702
     129  $MXSL     ADDRESS. HEX LOCATION(0000005A) IN CSECT(EA4E0   ) LENGTH(2)
                    178
     137  $PENT     ADDRESS. HEX LOCATION(00000062) IN CSECT(EA4E0   ) LENGTH(6)
                     58  179  194  744  745
      56  $PID      ADDRESS. HEX LOCATION(00000000) IN CSECT(FA4E0   ) LENGTH(4)
                    504  705  729
     727  $PRNT     ADDRESS. HEX LOCATION(00000484) IN CSECT(EA4E0   ) LENGTH(4)
                    243  255  276  298  308  318  329  339  349
                    528  554  647
     739  $PRN1     ADDRESS. HEX LOCATION(000004B2) IN CSECT(EA4E0   ) LENGTH(2)
                    737  743
     738  $PRN2     ADDRESS. HEX LOCATION(000004AE) IN CSECT(EA4E0   ) LENGTH(4)
                    735
     156  $PUPD     ADDRESS. HEX LOCATION(000000C2) IN CSECT(EA4E0   ) LENGTH(4)
                    221  258  277  350
     177  $PUP8     ADDRESS. HEX LOCATION(000000FE) IN CSECT(EA4E0   ) LENGTH(6)
                    158
     167  $RET1     ADDRESS. HEX LOCATION(000000DA) IN CSECT(EA4E0   ) LENGTH(6)
                    163
     194  $RTAD     ADDRESS. HEX LOCATION(0000012C) IN CSECT(EA4E0   ) LENGTH(2)
                    190
      60  $RTNE     ADDRESS. HEX LOCATION(0000000A) IN CSECT(EA4E0   ) LENGTH(2)
                    154  177  178  183
     163  $TERM     ADDRESS. HEX LOCATION(000000CA) IN CSECT(EA4E0   ) LENGTH(6)
                    519  741
     172  $TER1     ADDRESS. HEX LOCATION(000000F2) IN CSECT(EA4E0   ) LENGTH(4)
                    167
     392  ARDA2     ADDRESS. HEX LOCATION(00000313) IN CSECT(EA4E0   ) LENGTH(1)
                    144
     357  ARMDA     ADDRESS. HEX LOCATION(000002FF) IN CSECT(EA4E0   ) LENGTH(1)
                    139
     355  ARM01     ADDRESS. HEX LOCATION(000002FE) IN CSECT(EA4E0   ) LENGTH(1)
                    441
     390  ARM02     ADDRESS. HEX LOCATION(00000312) IN CSECT(EA4E0   ) LENGTH(1)
                    164  451
      39  CICB      ABSOLUTE. HEX VALUE(00000014)
                    697
      52  CPUTYPE   ABSOLUTE. HEX VALUE(00000232)
                    509  734
     105  DCBUF     ADDRESS. HEX LOCATION(00000022) IN CSECT(EA4E0   ) LENGTH(2)
                    150  506  515
     106  DCB2      ADDRESS. HEX LOCATION(00000024) IN CSECT(EA4E0   ) LENGTH(2)
                    240  252  273  295  305  315  326  336  346
     110  DCB6      ADDRESS. HEX LOCATION(0000002C) IN CSECT(EA4E0   ) LENGTH(2)
                    153
     103  DEV3      ADDRESS. HEX LOCATION(0000001E) IN CSECT(EA4E0   ) LENGTH(2)
                    187  188  620
     104  DEV4      ADDRESS. HEX LOCATION(00000020) IN CSECT(EA4E0   ) LENGTH(2)
                    242  254  275  297  307  317  328  338  348
      37  EA4E0     CSECT. START(00000000) LENGTH(1220) ESDID(0)
                     37
      87  ER        ABSOLUTE. HEX VALUE(00000021)
                    526  580  638  642
      40  EXIT      ABSOLUTE. HEX VALUE(00000006)
                    625
      95  GI        ABSOLUTE. HEX VALUE(00000029)
                    610  650
     130  H0000     ADDRESS. HEX LOCATION(0000005C) IN CSECT(EA4E0   ) LENGTH(2)
                    155
     131  H0001     ADDRESS. HEX LOCATION(0000005E) IN CSECT(EA4E0   ) LENGTH(2)
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
                    177
    43    IDLE      ABSOLUTE. HEX VALUE(00000002)
                    517   739
    89    IN        ABSOLUTE. HEX VALUE(00000023)
                    500   520   611
   665    INTBL     ADDRESS. HEX LOCATION(0000043E) IN CSECT(EA4E0   ) LENGTH(2)
                    696
   577    INTER     ADDRESS. HEX LOCATION(000003C6) IN CSECT(EA4E0   ) LENGTH(2)
                    667
   605    INTOK     ADDRESS. HEX LOCATION(000003D2) IN CSECT(EA4E0   ) LENGTH(2)
                    666
   625    INTRX     ADDRESS. HEX LOCATION(00000404) IN CSECT(EA4E0   ) LENGTH(2)
                    623
   611    INTR1     ADDRESS. HEX LOCATION(000003E0) IN CSECT(EA4E0   ) LENGTH(2)
                    581   609
   622    INTR3     ADDRESS. HEX LOCATION(000003FE) IN CSECT(EA4E0   ) LENGTH(2)
                    618
   656    IOBLK     ADDRESS. HEX LOCATION(00000432) IN CSECT(EA4E0   ) LENGTH(2)
                    165   169   212   231   266   286   707
   658    IODCB     ADDRESS. HEX LOCATION(00000436) IN CSECT(EA4E0   ) LENGTH(2)
                    168   170   700   710
   657    IOERR     ADDRESS. HEX LOCATION(00000434) IN CSECT(EA4E0   ) LENGTH(2)
                    137   163   167
   212    ITST4     ADDRESS. HEX LOCATION(00000144) IN CSECT(EA4E0   ) LENGTH(4)
                    219
    91    LE        ABSOLUTE. HEX VALUE(00000025)
                    621   636
    92    LI        ABSOLUTE. HEX VALUE(00000026)
                    527
   101    LSTIO     ADDRESS. HEX LOCATION(00000018) IN CSECT(EA4E0   ) LENGTH(2)
                    502   503   505   703   704   706
    86    MI        ABSOLUTE. HEX VALUE(00000020)
                    624   634
   371    M1DA      ADDRESS. HEX LOCATION(00000307) IN CSECT(EA4E0   ) LENGTH(1)
                    141
   369    M1DCB     ADDRESS. HEX LOCATION(00000306) IN CSECT(EA4E0   ) LENGTH(1)
                    445
   399    M2DA      ADDRESS. HEX LOCATION(00000317) IN CSECT(EA4E0   ) LENGTH(1)
                    145
   397    M2DCB     ADDRESS. HEX LOCATION(00000316) IN CSECT(EA4E0   ) LENGTH(1)
                    453
   421    M3DA      ADDRESS. HEX LOCATION(00000323) IN CSECT(EA4E0   ) LENGTH(1)
                    148
   419    M3DCB     ADDRESS. HEX LOCATION(00000322) IN CSECT(EA4E0   ) LENGTH(1)
                    459
    97    NI        ABSOLUTE. HEX VALUE(0000002B)
                    233   235   248   250   268   270   289   291   299
                    302   309   312   319   322   330   333   340   343
                    522
    63    OPTN1     ADDRESS. HEX LOCATION(0000000E) IN CSECT(EA4E0   ) LENGTH(2)
                    156   579   607   733
    74    OPTN3     ADDRESS. HEX LOCATION(00000012) IN CSECT(EA4E0   ) LENGTH(2)
                    648   701   727   732
   122    PCTR      ADDRESS. HEX LOCATION(00000042) IN CSECT(EA4E0   ) LENGTH(2)
                    155   730
    44    PREP      ABSOLUTE. HEX VALUE(0000000C)
                    171   709
    51    PRNTRTN   ABSOLUTE. HEX VALUE(0000181E)
                    728
   364    REDA      ADDRESS. HEX LOCATION(00000303) IN CSECT(EA4E0   ) LENGTH(1)
                    140
   362    REDCB     ADDRESS. HEX LOCATION(00000302) IN CSECT(EA4E0   ) LENGTH(1)
                    443
    48    RESET     ABSOLUTE. HEX VALUE(00000008)
                    166   213   232   267   287
   385    RFDA      ADDRESS. HEX LOCATION(0000030F) IN CSECT(EA4E0   ) LENGTH(1)
                    143
   383    RFDCB     ADDRESS. HEX LOCATION(0000030E) IN CSECT(EA4E0   ) LENGTH(1)
                    449
    45    RICB      ABSOLUTE. HEX VALUE(00000013)
                    174
   407    RSDA      ADDRESS. HEX LOCATION(0000031B) IN CSECT(EA4E0   ) LENGTH(1)
                    146
   405    RSDCB     ADDRESS. HEX LOCATION(0000031A) IN CSECT(EA4E0   ) LENGTH(1)
                    455
   209    RT01      ADDRESS. HEX LOCATION(00000136) IN CSECT(EA4E0   ) LENGTH(4)
                    195
   229    RT02      ADDRESS. HEX LOCATION(0000016E) IN CSECT(EA4E0   ) LENGTH(4)
                    196
   244    RT021     ADDRESS. HEX LOCATION(000001A6) IN CSECT(EA4E0   ) LENGTH(2)
                    241
   246    RT022     ADDRESS. HEX LOCATION(000001AE) IN CSECT(EA4E0   ) LENGTH(4)
                    257
   256    RT023     ADDRESS. HEX LOCATION(000001D0) IN CSECT(EA4E0   ) LENGTH(2)
                    253
   264    RT03      ADDRESS. HEX LOCATION(000001DA) IN CSECT(EA4E0   ) LENGTH(4)
                    197
   277    RT031     ADDRESS. HEX LOCATION(0000020E) IN CSECT(EA4E0   ) LENGTH(4)
                    274
   285    RT04      ADDRESS. HEX LOCATION(00000212) IN CSECT(EA4E0   ) LENGTH(4)
                    198
   299    RT041     ADDRESS. HEX LOCATION(00000244) IN CSECT(EA4E0   ) LENGTH(2)
                    296
   309    RT042     ADDRESS. HEX LOCATION(00000268) IN CSECT(EA4E0   ) LENGTH(2)
                    306
   319    RT043     ADDRESS. HEX LOCATION(0000028C) IN CSECT(EA4E0   ) LENGTH(2)
                    316
   330    RT044     ADDRESS. HEX LOCATION(000002B4) IN CSECT(EA4E0   ) LENGTH(2)
                    327
   340    RT045     ADDRESS. HEX LOCATION(000002D8) IN CSECT(EA4E0   ) LENGTH(2)
                    337
   350    RT046     ADDRESS. HEX LOCATION(000002FA) IN CSECT(EA4E0   ) LENGTH(4)
                    347
    47    TERM      ABSOLUTE. HEX VALUE(00000007)
                    175
    67    TM        ABSOLUTE. HEX VALUE(00000003)
                    157   518   740
   132    TYPE23    ADDRESS. HEX LOCATION(00000060) IN CSECT(EA4E0   ) LENGTH(2)
                    509   734
   379    WRD01     ADDRESS. HEX LOCATION(0000030C) IN CSECT(EA4E0   ) LENGTH(2)
                    247
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
    68    WRIT      ABSOLUTE. HEX VALUE(0000000C)
                    645
   414    W0DA      ADDRESS. HEX LOCATION(0000031F) IN CSECT(EA4E0   ) LENGTH(1)
                    147
   412    W0DCB     ADDRESS. HEX LOCATION(0000031E) IN CSECT(EA4E0   ) LENGTH(1)
                    457
   378    W1DA      ADDRESS. HEX LOCATION(0000030B) IN CSECT(EA4E0   ) LENGTH(1)
                    142
   376    W1DCB     ADDRESS. HEX LOCATION(0000030A) IN CSECT(EA4E0   ) LENGTH(1)
                    447
    90    XE        ABSOLUTE. HEX VALUE(00000024)
                    608   640
    88    XI        ABSOLUTE. HEX VALUE(00000022)
                    514   622
   500    XIO       ADDRESS. HEX LOCATION(00000362) IN CSECT(EA4E0   ) LENGTH(2)
                    442   444   446   448   450   452   454   456   458
                    460
   441    XIOA1     ADDRESS. HEX LOCATION(00000326) IN CSECT(EA4E0   ) LENGTH(4)
                    216   707
   451    XIOA2     ADDRESS. HEX LOCATION(00000344) IN CSECT(EA4E0   ) LENGTH(4)
                    269
   634    XIOCK     ADDRESS. HEX LOCATION(00000406) IN CSECT(EA4E0   ) LENGTH(2)
                    501   521
   640    XIOCM     ADDRESS. HEX LOCATION(00000412) IN CSECT(EA4E0   ) LENGTH(2)
                    637
   644    XIOCQ     ADDRESS. HEX LOCATION(0000041A) IN CSECT(EA4E0   ) LENGTH(1)
                    635
   647    XIOCU     ADDRESS. HEX LOCATION(0000041E) IN CSECT(EA4E0   ) LENGTH(4)
                    639   651
   648    XIOCX     ADDRESS. HEX LOCATION(00000422) IN CSECT(EA4E0   ) LENGTH(4)
                    643   646
   551    XIOER     ADDRESS. HEX LOCATION(000003BA) IN CSECT(EA4E0   ) LENGTH(2)
                    137   516   657
   650    XIOGI     ADDRESS. HEX LOCATION(0000042A) IN CSECT(EA4E0   ) LENGTH(2)
                    641
   445    XIOM1     ADDRESS. HEX LOCATION(00000332) IN CSECT(EA4E0   ) LENGTH(4)
                    234
   453    XIOM2     ADDRESS. HEX LOCATION(0000034A) IN CSECT(EA4E0   ) LENGTH(4)
                    290
   459    XIOM3     ADDRESS. HEX LOCATION(0000035C) IN CSECT(EA4E0   ) LENGTH(4)
                    321
   443    XIORE     ADDRESS. HEX LOCATION(0000032C) IN CSECT(EA4E0   ) LENGTH(4)
                    237   272   292   323
   449    XIORF     ADDRESS. HEX LOCATION(0000033E) IN CSECT(EA4E0   ) LENGTH(4)
                    251   303   313   334   344
   455    XIORS     ADDRESS. HEX LOCATION(00000350) IN CSECT(EA4E0   ) LENGTH(4)
                    301   332
   457    XIOW0     ADDRESS. HEX LOCATION(00000356) IN CSECT(EA4E0   ) LENGTH(4)
                    311   342
   447    XIOW1     ADDRESS. HEX LOCATION(00000338) IN CSECT(EA4E0   ) LENGTH(4)
                    249
   513    XIO5      ADDRESS. HEX LOCATION(0000038E) IN CSECT(EA4E0   ) LENGTH(2)
                    510
   514    XIO6      ADDRESS. HEX LOCATION(00000390) IN CSECT(EA4E0   ) LENGTH(2)
                    512
   517    XIO8      ADDRESS. HEX LOCATION(0000039A) IN CSECT(EA4E0   ) LENGTH(2)
                    525
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                             3 ************************************************************************
                             4 *                                                                      *
                             5 *                    ***       PREREQUISITES        ***               *
                             6 *                                                                      *
                             7 *                                 NONE                                 *
                             8 *                                                                      *
                             9 ************************************************************************
                            10 *                                                                      *
                            11 *                    ***       MODIFICATIONS        ***               *
                            12 *                                                                      *
                            13 *                    CHANGES MADE TO ROUTINE TO INSPECT DIAG DATA      *
                            14 *                                                                      *
                            15 ************************************************************************
                            16 *                                                                      *
                            17 *                    ***     REA'S INCORPORATED     ***               *
                            18 *                                                                      *
                            19 *                                  27-11576                            *
                            20 *                                                                      *
                            21 ************************************************************************
                            22 *                                                                      *
                            23 *                    ***    SPECIAL INSTRUCTIONS    ***               *
                            24 *                                                                      *
                            25 *                                 NONE                                 *
                            26 *                                                                      *
                            27 ************************************************************************
                            28 *                                                                      *
                            29 *                    ***       E. C. HISTORY        ***               *
                            30 *                                                                      *
                            31 *          DATE 06MAY77  DATE 15SEP77  DATE          DATE              *
                            32 *          E.C. 578756   E.C. 754882   E.C.          E.C.              *
                            33 *                                                                      *
                            34 ************************************************************************
000000                      36 EE8E0 START X'0000'
                            37 *                SUPERVISOR EQUATES
000014                      38 CICB   EQU   20                    CONNECT INTERRUPT CONTROL BLOCK
000001                      39 OUTIN  EQU   1                     OUT MESSAGE WITH EXPECTED RESPONCE
00001A                      40 HTOE   EQU   26                    CHANGE HEX DATA TO EBCDIC DATA
000006                      41 EXIT   EQU   6                     EXIT INTERRUPT LEVEL
000002                      42 IDLE   EQU   2                     SHARE PROGRAM TIME WITH OTHER PGMS
00000C                      43 PREP   EQU   12                    PREPARE DEVICE
000013                      44 RICB   EQU   19                    RELEASE INTERRUPT CONTROL BLOCK
00000A                      45 START  EQU   10                    START CYCLE STEAL COMMAND
000007                      46 TERM   EQU   7                     TERMINATE THIS PROGRAM
000008                      47 RESET  EQU   8                     DEVICE RESET
000009                      48 RID    EQU   9                     DEVICE READ ID
000000                      49 REG    EQUR  0                     WORK REGISTER
00181E                      50 PRNTRTN EQU  X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
000232                      51 CPUTYPE EQU  X'0232'               ADDRESS OF PROCESSOR TYPE
                            52 *
                            53 *                PROGRAM HEADING AND CONTROL WORDS
000000  C5F8F0F0            55 $PID   DC    C'E800'               PROGRAM IDENTIFICATION
000004  0000                56        DC    XL2'0000'             CURRENT LEVEL OF PROGRAM
000006  0062                57        DC    A($PENT)              -> TO START EXEC ADDRESS
000008  004C                58        DC    A($DVAD)              -> TO DEVICE TABLE
00000A  0000                59 $RTNE  DC    A(*-*)                ROUTINE NUMBER BEING RUN
00000C  0000                60 $CKPT  DC    A(*-*)                LAST CHECK POINT PASSED
00000E  0000                62 OPTN1  DC    X'0000'               PROGRAM OPTION CONTROL WORD 1
                            63 *
                            64 * BIT FUNCTION
                            65 *
000003                      66 TM     EQU   3                     TERMINATE PROGRAM
00000D                      67 QUES   EQU   13                    QUESTION HAS BEEN ASKED
00000E                      68 IND    EQU   14                    INDICATOR
00000F                      69 DIR    EQU   15                    SEEK DIRECTION INDICATOR
                            70 *
000010  0000               71 OPTN2  DC    X'0000'               PROGRAM OPTION CONTROL WORD 2
000012  0000               72 OPTN3  DC    X'0000'               PROGRAM OPTION CONTROL WORD 3
                            73 *
                            74 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                            75 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                            76 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                            77 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                            78 *
                            79 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                            80 *  5  WRONG INTR LEVEL      LE       13  N.U.
                            81 *  6  LOAS INTERRUPT        LI       14  N.U.
                            82 *  7  CS STATUS IN PROGR    CS       15  N.U.
                            83 *                      BIT    HEX
000020                      84 MI     EQU   32      0      8    MYSTERY INTERRUPT HAPPENED
000021                      85 ER     EQU   33      1      4    ERROR RECEIVED ON INTERRUPT
000022                      86 XI     EQU   34      2      2    EXPECTED INTERRUPT CONTROL BIT
000023                      87 IN     EQU   35      3      1    INTERRUPT RECEIVED CONTROL BIT
000024                      88 XE     EQU   36      4      8    EXPECTED ERROR RESPONSE
000025                      89 LE     EQU   37      5      4    INTERRUPT ON WRONG LEVEL ERROR
000026                      90 LI     EQU   38      6      2    LOST INTERRUPT
000027                      91 CS     EQU   39      7      1    CYCLE STEAL STATUS IN PROGRESS
000028                      92 CE     EQU   40      8      8    CYCLE STEAL STATUS INERRUPT ERROR
000029                      93 GI     EQU   41      9      4    GOOD INTERRUPT RECEIVED (EXPECTED ER)
00002A                      94 PE     EQU   42      10     2    PROBABLE ERROR EXPECTED
00002B                      95 NI     EQU   43      11     1    NO INTR. EXPECTED UNPREPED DEV.
000014  0000                97 $IOIN  DC    A(*-*)                I/O AND INTR CONDITION CODES
000016  0000                98 $ISB   DC    A(*-*)                R7, INTR STATUS BYTE & DEV ADRS
000018  0000                99 LSTIO  DC    A(*-*)                ADRS OF LAST I/O + 4 BYTES
00001A  00000000           100 $DATA  DC    2A(*-*)               DEVICE DEPENDENT DATA
00001E  0000               101 DEV3   DC    A(*-*)                DEPENDENT DATA DEV3
000020  0000               102 DEV4   DC    A(*-*)                DEPENDENT DATA DEV4
000022  0000               103 DCBUF  DC    A(*-*)                LAST DCB TABLE, CONTROL WORD
000024  0000               104 DCB2   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
000026  0000               105 DCB3   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
000028  0000               106 DCB4   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
00002A  0000               107 DCB5   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
00002C  0000               108 DCB6   DC    A(*-*)                LAST DCB TABLE, CHAIN ADRS
00002E  0000               109 DCB7   DC    A(*-*)                LAST DCB TABLE, BYTE COUNT
000030  0000               110 DCB8   DC    A(*-*)                LAST DCB TABLE, BUFFER ADDRESS
000032                     111 CSBUF  EQU   *                     CYCLE STEAL DATA BUFFER
000032  0000               112 CSTL1  DC    A(*-*)                CYCLE STEAL BUFFER, RESIDUAL ADRS
000034  0000               113 CSTL2  DC    A(*-*)                CYCLE STEAL WD 2, DEVICE DEPEND
000036  0000               114 CSTL3  DC    A(*-*)                CYCLE STEAL WD 3, DEVICE DEPEND
000038  0000               115 CSTL4  DC    A(*-*)                CYCLE STEAL WD 4, DEVICE DEPEND
00003A  0000               116 CSTL5  DC    A(*-*)                CYCLE STEAL WD 5, DEVICE DEPEND
00003C  0000               117 CSTL6  DC    A(*-*)                CYCLE STEAL WD 6, DEVICE DEPEND
00003E  0000               118 CSTL7  DC    A(*-*)                CYCLE STEAL WD 7, DEVICE DEPEND
000040  0000               119 CSTL8  DC    A(*-*)                CYCLE STEAL WD 8, DEVICE DEPEND
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000042  00000000           120 PCTR   DC    2A(*-*)               PASS COUNTER
000046  00000000           121 ECTR   DC    2A(*-*)               ERROR COUNTER
00004A  0005               122 ERNUM  DC    X'0005'               NUM OF ERRORS PROG CAN HAVE
00004C  00E8               123 $DVAD  DC    X'00E8'               DEVICE ADDRESS BEING TESTED
00004E  0000000000000000   124        DC    XL8'00'
000056  0011               125 $INTL  DC    X'0011'               INTERRUPT LEVEL REQUESTED
000058  100E               126 $DVID  DC    X'100E'               DEVICE IDENTIFICATION
00005A  0005               127 $MXSL  DC    A(5)                  MAXIMUM SELECTABLE ROUTINES
00005C  0000               128 H0000  DC    X'0000'               CONSTANT
00005E  0001               129 H0001  DC    X'0001'               HEX WORD CONSTANT
000060  2300               130 TYPE23 DC    X'2300'               CONSTANT TO CHECK PROCESSOR AGAINST
                           132 ************************************************************************
                           133 *                                                                      *
                           134 *              PROGRAM CONTROL FUNCTIONS                               *
                           135 *                                                                      *
                           136 ************************************************************************
000062  4020 04E8 043E     137 $PENT  MVA   XIOER,IOERR           RESTORE ERROR ADDRESS
000068  A82A 005C 0042     138        AD    H0000,PCTR            ADVANCE PASS COUNTER BY 1
00006E  4020 0056 0011     139        MVWI  X'0011',$INTL         INIT INTERRUPT LEVEL
000074  CE25 000A          140 $PEN1  MVWZ  $RTNE,R6              CLEAR OLD ROUTINE NUMBER
000078  4424 000E          141 $PUPD  MVA   OPTN1,R4              R4 MUST BE SET TO 'OPTN1'
00007C  4C03               142 $PUP2  TBT   (R4,TM)               IS TERMINATE PGM REQUESTED
00007E  1018               143        JZ    $PUP8                 * NO, CONTINUE CHECKING
                           144 *
                           145 *              TERMINATE CONTROL BIT FOUND ON
                           146 *
000080  4020 04E8 008C     147 $TERM  MVA   $RETI,IOERR           INIT ERROR ADDRESS
000086  4724 04E6          148        MVA   IOBLK,R7                LOAD ADDRESS OF CONTROL BLOCK
00008A  6008               149        SVC   RESET                   ISSUE SVC
00008C  4020 04E8 00A4     150 $RETI  MVA   $TER1,IOERR           INIT ERROR ADDRESS
000092  8828 0056 04EA     151        MVW   $INTL,IODCB             LOAD CURRENT INTERRUPT LEVEL
000098  4724 04E6          152        MVA   IOBLK,R7                LOAD ADDRESS OF CONTROL BLOCK
00009C  402D 04EA 0001     153        RBTWI X'0001',IODCB           TURN OF PREPARE 'I' BIT
0000A2  600C               154        SVC   PREP                    ISSUE SVC
0000A4  C720 004C          155 $TER1  MVB   $DVAD,R7              LOAD CURRENT DEV ADDRESS
0000A8  7FE4 FF00          156        RBTWI X'FF00',R7              ZERO HIGH ORDER BYTE
0000AC  6013               157        SVC   RICB                    ISSUE SVC
0000AE  6007               158        SVC   TERM                    ISSUE SVC
                           160 *
0000B0  A828 005E 000A     161 $PUP8  AW    H0001,$RTNE           ADVANCE ROUTINE NUMBER
0000B6  882B 005A 000A     162        CW    $MXSL,$RTNE           CHECK FOR LAST AUTOMATIC ROUTINE
0000BC  10D2               163        JE    $PENT                 * BCH AND START WITH RTN 1
                           164 *
                           165 *              GET RTN NUMBER AND BCH TO THAT RTN
                           166 *
0000BE  6E08 000A          167 $PSEL  MVW   $RTNE,R6              MOVE RTN NUMBER IN REG
0000C2  CD25 000C          168        MVWZ  $CKPT,R5                ZERO CHECKPOINT
0000C6  CD25 001A          169        MVWZ  $DATA,R5                ZERO ALL FOUR WORDS OF DEV
0000CA  CD25 001C          170        MVWZ  $DATA+2,R5              * DEPENDENT DATA
0000CE  CD25 001E          171        MVWZ  DEV3,R5                 * -------------
0000D2  CD25 0020          172        MVWZ  DEV3+2,R5               * -------------
0000D6  3609               173        SLL   1,R6                    DOUBLE FOR BRANCH TABLE
0000D8  68D2 00DC          174        B     (R6,$RTAD)*             BCH VIA RTN TABLE
                           175 *
                           176 *              TABLE OF ROUTINE ADDRESSES
                           177 *
0000DC  0062               178 $RTAD  DC    A($PENT)              NO RTN SELECTED
0000DE  00E6               179        DC    A(RT01)               ROUTINE ADDRESS
0000E0  0184               180        DC    A(RT02)                 ''      ''
0000E2  01A8               181        DC    A(RT03)                 ''      ''
0000E4  02DC               182        DC    A(RT04)                 ''      ''
                           184 ************************************************************************
                           185 *     CHANNEL INTERFACE TEST                                           *
                           186 *                                                                      *
                           187 *     TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS      *
                           188 *     THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO  *
                           189 *     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS  *
                           190 *     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS       *
                           191 *     EXCEPT LEVEL THREE. THE CHECKSUM IS THEN READ AND CHECKED.       *
                           192 ************************************************************************
0000E6  6E03 04FA          193 RT01   BAL   $CONR,R6              CLEAR AND CONNECT I/O BLK
0000EA  6A08 0056          194        MVW   $INTL,R2                SAVE SELECTED INTERRUPT
0000EE  4020 0056 FFF1     195        MVWI  X'FFF1',$INTL           SET UP INTERRUPT LEVEL FOR PREP
0000F4  4029 0056 0010     196 ITST4  AWI   X'10',$INTL             ADV INTR LEVEL, STARTING AT 0
0000FA  6E03 0504          197        BAL   $CONC,R6                GO PREPARE ON NEW LEVEL
0000FE  4724 04E6          198        MVA   IOBLK,R7                SET UP POINTER TO CONTROL BLOCK
000102  6008               199        SVC   RESET                   CALL SUPVR TO ISSUE RESET
000104  4724 04E6          200        MVA   IOBLK,R7                SET UP POINTER TO CONTROL BLOCK
000108  6009               201        SVC   RID                     CALL SUPVR TO ISSUE READ ID
00010A  882B 04F0 0058     202        CW    IORSP,$DVID             IS ID RECEIVED THE SAME
000110  1008               203        JE    ITST5                   * YES, CONTINUE
000112  8828 04F0 001E     204        MVW   IORSP,DEV3              LOAD RECEIVED ID INTO DEV3
000118  8828 0058 0020     205        MVW   $DVID,DEV3+2            LOAD EXPECTED ID INTO DEV4
00011E  6802 0534          206        B     $PRNT                   BRANCH TO PRINT ERROR
000122  6E03 03A2          207 ITST5  BAL   XIODR,R6                EXEC NO-OP TO GET AN INTR
000126  4029 000C 0001     208        AWI   1,$CKPT                 BUMP CHECKPOINT
00012C  402F 0056 0021     209        CWI   X'21',$INTL             HAS INTR LEVEL COME DOWN TO 2
000132  18E0               210        JNE   ITST4                   * NO, BCH AND CONTINUE TEST
000134  6A0D 0056          211        MVW   R2,$INTL                RESTORE SELECTED INTR LEVEL
000138  6E03 0504          212        BAL   $CONC,R6                SET UP FOR START IO ON CORRECT LEV.
00013C  402B 0054 0080     213        TWI   X'0080',$DVAD+8         IS DTR JUMPERED ON
000142  1203               214        JON   ITSTA                   BRANCH IF YES
000144  6803 03BA          215        BAL   $IODS,R6                BRANCH TO ISSUE IO
000148  6E03 0386          216 ITSTA  BAL   XIODG,R6                SET UP FOR START IO
00014C  4224 0574          217 ITSTC  MVA   DRBUF,R2                SET UP TO CHECK CHECKSUM
000150  6903 0574          218        MVW   DRBUF,R1                SET UP TO CHECK CHECKSUM VALUE
000154  690B 0576          219        XW    DRBUF+2,R1              * AGAINST SHOULD BE
000158  7921 0001          220        AWI   1,R1                    CHECK FOR A VALID CHECKSUM
00015C  1005               221        JZ    ITST9                   BCH IF OKAY
00015E  9028 0574 001E     222        MVD   DRBUF,DEV3              MOVE ERRORED CHECKSUM VALUE
000164  6802 0534          223        B     $PRNT                   BRANCH TO PRINT ERROR
000168  6908 0578          224 ITST9  MVW   DRBUF+4,R1              SET UP TO CHECK CHECKSUM VALUE
00016C  690B 057A          225        XW    DRBUF+6,R1              * AGAINST SHOULD BE
000170  7921 0001          226        AWI   1,R1                    CHECK FOR A VALID CHECKSUM
000174  1005               227        JZ    ITST7                   BCH IF OKAY
000176  9028 0578 001E     228        MVD   DRBUF+4,DEV3            MOVE ERRORED CHECKSUM VALUE
00017C  6802 0534          229        B     $PRNT                   BRANCH TO PRINT ERROR
000180  6802 0078          230 ITST7  B     $PUPD                   BRANCH TO CONTINUE
                           232 ************************************************************************
                           233 *     CYCLE STEAL STATUS                                               *
                           234 *     THIS TEST WILL VERIFY THAT THE ATTACHMENT WILL SEND BACK THE     *
                           235 *     ADDRESS OF THE LAST CYCLE STEAL ADDRESS.                         *
                           236 *                                                                      *
                           237 ************************************************************************
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

000184  6E03 0504          238 RT02  BAL   $CONC,R6                 PREPARE DEVICE ON CORRECT LEVEL
000188  4124 0597          239       MVA   DRBUF+35,R1              LAST CYCLE ADRS USED
00018C  4029 000C 0001     240       AWI   1,$CKPT                  BUMP CHECKPOINT
000192  6E03 03CC          241       BAL   XIOCS,R6                 GO GET STATUS FROM LAST I/O
000196  C924 0032          242       CW    CSBUF,R1                 COMPARE LAST STG LOCATION USED
00019A  1004               243       JE    CSST4                    BRANCH IF GOOD ADDRESS
00019C  690D 0020          244       MVW   R1,DEV3+2                LOAD EXPECTED ADDRESS INTO DEV4
0001A0  6802 0534          245       B     $PRNT                    BRANCH TO PRINT ERROR
0001A4  6802 0078          246 CSST4 B     $PUPD                    BRANCH TO CONTINUE
                           248 ********************************************************************
                           249 *     DIAGNOSTIC MODE                                              *
                           250 *     CHECK ALL POSSIBLE FUNCTION OF DIAGNOSTIC MODE               *
                           251 *                                                                  *
                           252 *     ISSUE A DIAG MODE TWO COMMAND THEN INSPECT THE RECEIVED DATA *
                           253 *     WORD 4 THRU 17 AGAINST SHOULD BE VALUES.                     *
                           254 ********************************************************************
0001A8  6E03 0504          255 RT03  BAL   $CONC,R6                 PREPARE DEVICE ON CORRECT LEVEL
0001AC  4029 000C 0001     256       AWI   1,$CKPT                  BUMP CHECKPOINT
0001B2  6E03 0386          257       BAL   XIODC,R6                 BRANCH TO ISSUE DIAG. COM.
0001B6  902B 057C 0344     258       CD    DRBUF+8,DGDCB            COMPARE FIRST TWO DCB WORDS
0001BC  1008               259       JE    RT031                    BRANCH EQUAL
0001BE  9028 057C 001A     260       MVD   DRBUF+8,$DATA            MOVE RECEIVED VALUES
0001C4  9028 0344 001E     261       MVD   DGDCB,DEV3               MOVE EXPECTED VALUES
0001CA  6802 0534          262       B     $PRNT                    BRANCH TO PRINT ERROR
0001CE  902B 0580 0348     263 RT031 CD    DRBUF+12,DGDCB+4         COMPARE SECOND TWO WORDS
0001D4  1008               264       JE    RT032                    BRANCH IF EQUAL
0001D6  9028 0580 001A     265       MVD   DRBUF+12,$DATA           MOVE RECEIVED VALUES
0001DC  9028 0348 001E     266       MVD   DGDCB+4,DEV3             MOVE EXPECTED VALUES
0001E2  6802 0534          267       B     $PRNT                    BRANCH TO PRINT ERROR
0001E6  902B 0584 034C     268 RT032 CD    DRBUF+16,DGDCB+8         COMPARE THIRD TWO WORDS
0001EC  1008               269       JE    RT033                    BRANCH IF EQUAL
0001EE  9028 0584 001A     270       MVD   DRBUF+16,$DATA           MOVE RECEIVED VALUES
0001F4  9028 034C 001E     271       MVD   DGDCB+8,DEV3             MOVE EXPECTED VALUES
0001FA  6802 0534          272       B     $PRNT                    BRANCH TO PRINT ERROR
0001FE  4029 0588 0014     273 RT033 AWI   20,DRBUF+20              ADD TWENTY TO BYTE COUNT
000204  882B 0588 0350     274       CW    DRBUF+20,DGDCB+12        COMPARE BYTE COUNTS
00020A  100B               275       JE    RT034                    BRANCH IF EQUAL
00020C  402E 0588 0014     276       SWI   20,DRBUF+20              REPLACE WITH ORIGINAL VALUE
000212  8828 0588 001A     277       MVW   DRBUF+20,$DATA           LOAD RECEIVED BYTE COUNT
000218  8828 0350 001E     278       MVW   DGDCB+12,DEV3            LOAD EXPECTED VALUE
00021E  6802 0534          279       B     $PRNT                    BRANCH TO PRINT ERROR
000222  402E 058A 0016     280 RT034 SWI   22,RBUF+22               ADD 22 TO DATA ADDRESS
000228  882B 058A 0352     281       CW    DRBUF+22,DGDCB+14        COMPARE ADDRESS
00022E  100B               282       JE    RT035                    BRANCH IF EQUAL
000230  4029 058A 0016     283       AWI   22,DRBUF+22              REPLACE WITH ORIGINAL VALUE
000236  8828 058A 001A     284       MVW   DRBUF+22,$DATA           LOAD RECEIVED BYTE COUNT
00023C  8828 0352 001E     285       MVW   DGDCB+14,DEV3            LOAD EXPECTED VALUE
000242  6802 0534          286       B     $PRNT                    BRANCH TO PRINT ERROR
000246  402B 0054 8000     287 RT035 TWI   X'8000',$DVAD+8          IS CARRIER DETECT JUMPER INSTALLED
00024C  1005               288       JOFF  RT036                    BRANCH NO
00024E  402B 058C 1000     289       TWI   X'1000',DRBUF+24         DOES HARDWARE VERIFY
000254  1035               290       JOFF  RT03E                    BRANCH IF NO
000256  5004               291       J     RT039                    BRANCH
000258  402B 058C 1000     292 RT036 TWI   X'1000',DRBUF+24         DOES HARDWARE VERIFY
00025E  1230               293       JON   RT03E                    BRANCH IF NO
000260  402B 0054 0080     294 RT039 TWI   X'0080',$DVAD+8          IS DTR JUMPER INSTALLED
000266  1009               295       JOFF  RT037                    BRANCH NO
000268  402B 058C 0040     296       TWI   X'0040',DRBUF+24         DOES HARDWARE VERIFY
00026E  1228               297       JON   RT03E                    BRANCH NO
000270  402B 0590 8000     298       TWI   X'8000',DRBUF+28         DOES HARDWARE SEE DTR
000276  1024               299       JOFF  RT03E                    BRANCH NO
000278  5004               300       J     RT03A                    BRANCH
00027A  402B 058C 0040     301 RT037 TWI   X'0040',DRBUF+24         DOES HARDWARE VERIFY
000280  101F               302       JOFF  RT03E                    BRANCH NO
000282  402B 0054 0040     303 RT03A TWI   X'0040',$DVAD+8          REQ TO SEND JUMPERED ON
000288  1009               304       JOFF  RT038                    BRANCH NO
00028A  402B 058C 0020     305       TWI   X'0020',DRBUF+24         DOES HARDWARE VERIFY
000290  1217               306       JON   RT03E                    BRANCH NO
000292  402B 0590 2000     307       TWI   X'2000',DRBUF+28         DOES HARDWARE VERIFY
000298  1013               308       JOFF  RT03E                    BRANCH NO
00029A  5004               309       J     RT03B                    BRANCH
00029C  402B 058C 0020     310 RT038 TWI   X'0020',DRBUF+24         DOES HARDWARE VERIFY
0002A2  100E               311       JOFF  RT03E                    BRANCH NO
0002A4  402B 0590 0800     312 RT03B TWI   X'0800',DRBUF+28         RING FROM MODEM ON
0002AA  120A               313       JON   RT03E                    ERROR IF YES - BRANCH
0002AC  402F 0594 00FF     314       CWI   X'00FF',DRBUF+32         IS WORD 17 = X'00FF'
0002B2  1806               315       JNE   RT03E                    BRANCH NO
0002B4  402F 0596 0030     316       CWI   X'0030',DRBUF+34         IS WORD 18 = X'0030'
0002BA  1802               317       JNE   RT03E                    BRANCH NO
0002BC  6802 0078          318       B     $PUPD                    BRANCH TO CONTINUE
0002C0  4029 000C 0001     319 RT03E AWI   1,$CKPT                  BUMP CHECKPOINT
0002C6  8828 058C 001A     320       MVW   DRBUF+24,$DATA           MOVE 13/TH WORD
0002CC  8828 0590 001C     321       MVW   DRBUF+28,$DATA+2         MOVE 15/TH WORD
0002D2  9028 0594 001E     322       MVD   DRBUF+32,DEV3            MOVE 17 AND 18/TH WORDS
0002D8  6802 0534          323       B     $PRNT                    BRANCH TO PRINT ERROR
                           325 ********************************************************************
                           326 *     DIAGNOSTIC MODE                                              *
                           327 *     CHECK ERROR RETURNS                                          *
                           328 *                                                                  *
                           329 *     ISSUE THE DCB'S NECESSARY TO OBTAIN A COMMAND REJCET THEN    *
                           330 *     A DCB SPEC. CHECK.                                           *
                           331 ********************************************************************
0002DC  6E03 0504          332 RT04  BAL   $CONC,R6                 PREPARE DEVICE ON CORRECT LEVEL
0002E0  4C64               333       TBTS  (R4,XE)                  SET EXPECTED ERROR BIT
0002E2  4029 000C 0001     334       AWI   1,$CKPT                  BUMP CHECKPOINT
0002E8  6E03 03AA          335       BAL   XIOE1,R6                 BRANCH TO TEST ERROR
0002EC  402B 0016 1000     336       TWI   X'1000',$ISB             IS ISB EQU TO 10XX
0002F2  1208               337       JON   RT041                    BRANCH YES
0002F4  4020 0020 1000     338       MVWI  X'1000',DEV4             DEV4 EQUALS EXPECTED DATA
0002FA  8028 004C 0021     339 RT043 MVB   $DVAD,DEV4+1             LOAD DEV ADDRESS
000300  6802 0534          340       B     $PRNT                    BRANCH TO PRINT ERROR
000304  4C64               341 RT041 TBTS  (R4,XE)                  SET EXPECTED ERROR BIT
000306  4029 000C 0001     342       AWI   1,$CKPT                  BUMP CHECKPOINT
00030C  6E03 03B2          343       BAL   XIOE2,R6                 BRANCH TO TEST ERROR
000310  402B 0016 4000     344       TWI   X'4000',$ISB             IS ISB EQUAL TO 40XX
000316  1204               345       JON   RT042                    BRANCH YES
000318  4020 0020 4000     346       MVWI  X'4000',DEV4             DEV3 EQUALS EXPECTED DATA
00031E  50ED               347       J     RT043                    BRANCH
000320  6802 0078          348 RT042 B     $PUPD                    BRANCH TO CONTINUE
                           350 *                    DTR CONTROL BLOCK
                           352 *
000324                     353 DRDCB EQU   *                        USE FOR DCB REFERENCE ONLY
000324  000D               354 DRCTL DC    X'000D'                  CONTROL WORD
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

000326  0716               355 DRFMS DC    X'0716'
000328  3D40               356 DRSKP DC    X'3D40'
00032A  761F               357       DC    X'761F'
00032C  7C7C               358       DC    X'7C7C'
00032E  0000               359 DRCHN DC    A(*-*)                   CHAIN ADRS
000330  0000               360 DRBCT DC    A(*-*)                   BYTE COUNT
000332  0574               361 DRADR DC    A(DRBUF)                 BUFFER ADRS
                           362 *
                           363 *                CYCLE STEAL DATA CONTROL BLOCK
                           364 *
000334                     365 CSDCB EQU   *                        USE FOR DCB REFERENCE ONLY
000334  2000               366 CSCTL DC    X'2000'                  CONTROL WORD
000336  0000               367 CSFMS DC    X'0000'                  NOT USED
000338  0000               368 CSSKP DC    X'0000'                  NOT USED
00033A  0000               369       DC    X'0000'
00033C  0000               370       DC    X'0000'
00033E  0000               371 CSCHN DC    A(0000)                  CHAIN ADRS, NOT USED
000340  0006               372 CSBCT DC    X'0006'                  BYTE COUNT
000342  0032               373 CSADR DC    A(CSBUF)                 BUFFER ADRS
                           374 *
                           375 *                DIAGNOSTIC  DATA CONTROL BLOCK
                           376 *
000344                     377 DGDCB EQU   *                        USED FOR DCB REFERENCE ONLY
000344  200D               378 DGCTL DC    X'200D'                  CONTROL WORD
000346  7FFE               379 DGDC2 DC    X'7FFE'                  N.U.
000348  DCBA               380 DGDC3 DC    X'DCBA'
00034A  9876               381 DGDC4 DC    X'9876'
00034C  5432               382 DGDC5 DC    X'5432'
00034E  0000               383 DGCHN DC    A(0000)                  CHAIN ADDRESS
000350  0024               384 DGBCT DC    X'0024'                  BYTE COUNT
000352  0574               385 DGADR DC    A(DRBUF)                 BUFFER ADDRESS
                           387 *
                           388 *                DISABLE DTR CONTROL BLOCK
                           389 *
000354                     390 DSDCB EQU   *                        USED FOR DCB REFERENCE ONLY
000354  000C               391 DSCTL DC    X'000C'                  CONTROL WORD
000356  0000               392 DSDC2 DC    X'0000'                  N.U.
000358  0000               393 DSDC3 DC    X'0000'
00035A  0000               394 DSDC4 DC    X'0000'
00035C  0000               395 DSDC5 DC    X'0000'
00035E  0000               396 DSCHN DC    X'0000'                  CHAIN ADDRESS
000360  0000               397 DSBCT DC    X'0000'                  BYTE COUNT
000362  0574               398 DSADR DC    A(DRBUF)                 BUFFER ADDRESS
                           399 *
                           400 *                ERROR ONE DATA CONTROL BLOCK
                           401 *
000364                     402 E1DCB EQU   *                        USED FOR DCB REFERENCE ONLY
000364  8008               403 E1CTL DC    X'8008'                  CONTROL WORD
000366  0000               404 E1DC2 DC    X'0000'                  N.U.
000368  0003               405 E1DC3 DC    X'0003'
00036A  0333               406 E1DC4 DC    X'0333'
00036C  0000               407 E1DC5 DC    X'0000'
00036E  0375               408 E1CHN DC    A(E2DCB)                 CHAIN ADDRESS
000370  0000               409 E1BCT DC    X'0000'                  BYTE COUNT
000372  0574               410 E1ADR DC    A(DRBUF)                 BUFFER ADDRESS
                           411 *
                           412 *                ERROR FOUR DATA CONTROL BLOCK
                           413 *
000374  00                 414       DC    X'00'
000375                     415 E2DCB EQU   *                        USED FOR DCB REFERENCE ONLY
000375  0000               416 E2CTL DC    X'0000'                  CONTROL WORD
000377  0000               417 E2DC2 DC    X'0000'                  N.U.
000379  0000               418 E2DC3 DC    X'0000'
00037B  0000               419 E2DC4 DC    X'0000'
00037D  0000               420 E2DC5 DC    X'0000'
00037F  0000               421 E2CHN DC    X'0000'                  CHAIN ADDRESS
000381  0000               422 E2BCT DC    X'0000'                  BYTE COUNT
000383  0000               423 E2ADR DC    X'0000'                  BUFFER ADDRESS
000385  00                 424       ALIGN WORD
                           426 ********************************************************************
                           427 *     ISSUE ALL I/O COMMANDS FROM A COMMON SUBROUTINE              *
                           428 *     TO DISPLAY INSTRUCTIONS AND OPERATING PROCEDURES TO THE OPERATOR*
                           429 *     AND SET UP ANY REQUIREMENTS FOR OTHER I/O COMMANDS           *
                           430 *                                                                  *
                           431 * --> BAL   XIODG,R6                 XEQ DIAG. MOD = D COMMAND    *
                           432 * --> BAL   XIODR,R6                 XEQ DTR COMMAND              *
                           433 * --> BAL   XIOE1,R6                 XEQ ERROR ONE COMMAND        *
                           434 * --> BAL   XIOE2,R6                 XEQ ERROR TWO COMMAND        *
                           435 *                                                                  *
                           436 ********************************************************************
000386  4020 04EA 0344     437 XIODG MVA   DGDCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
00038C  4020 04EC 000D     438       MVWI  X'0D',IOMOD              MOVE MODIFIER INTO CONTROL BLOCK
000392  402B 0054 0004     439       TWI   X'0004',$DVAD+8          HIGH SPEED JUMPER INSTALLED
000398  1223               440       JON   XIO1                     BRANCH YES
00039A  402D 0346 F000     441       RBTWI X'F000',DGDCB+2          INDICATE LOW SPEED WITHIN DCB
0003A0  501F               442       J     XIO1                     BRANCH
0003A2  4020 04EA 0324     443 XIODR MVA   DRDCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0003A8  500C               444       J     XIO                      BRANCH
0003AA  4020 04EA 0364     445 XIOE1 MVA   E1DCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0003B0  5008               446       J     XIO                      BRANCH
0003B2  4020 04EA 0375     447 XIOE2 MVA   E2DCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0003B8  5004               448       J     XIO                      BRANCH
0003BA  4020 04EA 0354     449 XIODS MVA   DSDCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0003C0  5000               450       J     XIO                      BRANCH
                           452 ********************************************************************
                           453 *                                                                  *
                           454 * SOUBROUTINE                                                      *
                           455 *                                                                  *
                           456 *     EXECUTE INPUT AND OUTPUT COMMANDS                            *
                           457 *                                                                  *
                           458 * PURPOSE                                                          *
                           459 *                                                                  *
                           460 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.             *
                           461 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:             *
                           462 *                                                                  *
                           463 *     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED *
                           464 *        THE I/O COMMAND.                                          *
                           465 *     2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS *
                           466 *        ISSUED BY THIS SUBROUTINE.                                *
                           467 *     3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE       *
                           468 *        START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.         *
                           469 *     4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT *
                           470 *        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND, *
                           471 *        MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

                           472 *      5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE    *
                           473 *         EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'.    *
                           474 *      6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING *
                           475 *         STARTS TO DETERMINE A LOST INTERRUPT.                        *
                           476 *      7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF   *
                           477 *         WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.       *
                           478 *      8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.                   *
                           479 *      9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.       *
                           480 *     10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.         *
                           481 *     11. CHECK IS A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS     *
                           482 *         ISSUED BY THIS SUBROUTINE.                                   *
                           483 *     12. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A      *
                           484 *         CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON,*
                           485 *         COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.   *
                           486 *                                                                       *
                           487 * CALLING SEQUENCE                                                     *
                           488 *                                                                       *
                           489 *      THIS ROUTINE HAS THE FOLLOWING ENTRIES:                          *
                           490 *                                                                       *
                           491 * --> B     XIO                    XEQ ANY CYCLE STEAL COMMAND, MOD=0  *
                           492 * --> BAL   XIOCS,R6               XEQ START CYCLE STEAL STATUS, MOD=F  *
                           493 *                                                                       *
                           494 * RETURN CONTROL                                                       *
                           495 *                                                                       *
                           496 *      BXS   (R6)                 RETURN TO USER NO ERROR             *
                           497 ***************************************************************************
0003C2  CB25 04EC          499 XIO   MVWZ  IOMOD,R3               SET MOF OF 0 FOR CYCLE STEAL OP
0003C6  500C               500       J     XIO1                   TS I/O'S ARE NOT RETRIED
0003C8  4CA8               501       TBTR  (R4,CE)                RESET CS STATUS INTER ERROR INDICAT.
0003CA  4C67               502       TBTS  (R4,CS)                SET 'CYCLE STEAL STATUS' IN PROGRESS
0003CC  4020 04EA 0334     503 XIOCS MVA   CSDCB,IODCB            SET UP CONTROL BLOCK FOR SVC CALL
0003D2  4020 04EC 000F     504       MVWI  X'000F',IOMOD          SET CYCLE STEAL MODIFIER
0003D8  4C27               505       TBT   (R4,CS)                IS CS IN PROGRESS, ERROR CONDITION
0003DA  1216               506       JON   XIO2                   * YES, BYPASS SAVING I/O ADRS
0003DC  4C23               507       TBT   (R4,IN)                TEST FOR INTERRUPT
0003DE  125F               508       JON   XIOCK                  BRANCH IF YES
0003E0  6E0D 0018          509 XIO1  MVW   R6,LSTIO               SAVE IAR FOR RETRY IF REQUESTED
0003E4  402E 0018 0004     510       SWI   4,LSTIO                DECREMENT FOR LAS INSTRUCTION
0003EA  4324 0000          511       MVA   $PID,R3                LOAD ADDRESS OF PROGRAM START
0003EE  CB2F 0018          512       SW    R3,LSTIO               SUB TO OBTAIN LISTING ADDRESS
0003F2  4324 0022          513       MVA   DCBUF,R3               SET UP TO ADRS TO MOVE DCB TABLE
0003F6  6D08 04EA          514       MVW   IODCB,R5               * AND THE FROM ADRS, ALONG WITH
0003FA  0F10               515       MVBI  16,R7                  * THE NUMBER OF MOVES
0003FC  2D64               516       MVFN  (R5),(R3)              MOVE 1 STATUS WORD AND ADJUST
0003FE  0BFF               517       MVBI  255,R3                 CLEAR CYCLE STATUS BUFFER
000400  4524 0032          518       MVA   CSBUF,R5               *  TO ALL ONES  *
000404  0F10               519       MVBI  16,R7                  *
000406  2BAC               520       FFN   R3,(R5)                *
000408  4CA3               521 XIO2  TBTR  (R4,IN)                CLEAR INTERRUPT RECEIVED CNTL BIT
00040A  1249               522       JON   XIOCK                  BRANCH IF ON
00040C  4724 04E6          523       MVA   IOBLK,R7               SET UP CONTROL BLOCK FOR SUPVR
000410  802B 0232 0060     524       CB    CPUTYPE,TYPE23         CHECK FOR PROCESSOR 23
000416  1803               525       JNE   XIO5                   BRANCH NOT EQUAL
000418  4524 0000          526       MVWI  X'0000',R5             LOAD LOOP COUNT
00041C  5001               527       J     XIO6                   BRANCH
00041E  75AA               528 XIO5  SW    R5,R5                  LOAD LOOP COUNT
000420  4C62               529 XIO6  TBTS  (R4,XI)                SET EXPECTED INTR CONTROL BIT
000422  6004               530       SVC   START                  CALL SUPVR FOR I/O COMMAND
000424  6002               531 XIO8  SVC   IDLE                   ALLOW OTHER PROG TIME
000426  4C03               532       TBT   (R4,TM)                IS TERMINATE BIT ON
000428  6A00 0080          533       BON   $TERM                  BRANCH IF ON
00042C  4CA3               534       TBTR  (R4,IN)                HAS INTERRUPT BEEN RECEIVED
00042E  1237               535       JON   XIOCK                  * YES, CHECK IF ALL WAS SATISFACTORY
000430  7DA1 0001          536       AWI   1,R5                   ADVANCE TIME OUT COUNT
000434  18F7               537       JNZ   XIO8                   BCH IF TIME OUT NOT REACHED
000436  4C61               538       TBTS  (R4,ER)                SET ON ERROR CONTROL BIT
000438  4C66               539       TBTS  (R4,LI)                SET LOST INTERRUPT CONTROL BIT
00043A  6802 0534          540       B     $PRNT                  * BCH TO FINISH ERROR SEQUENCE
                           542 ***************************************************************************
                           543 *                                                                       *
                           544 * SUBROUTINE                                                           *
                           545 *                                                                       *
                           546 *      I/O EXECUTE ERROR HANDLING ROUTINE                               *
                           547 *                                                                       *
                           548 * PURPOSE                                                              *
                           549 *                                                                       *
                           550 *      THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE      *
                           551 *      PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE    *
                           552 *      SUPERVISOR AND IT WAS NOT ACCEPTED.                              *
                           553 *                                                                       *
                           554 * CALLING SEQUENCE                                                     *
                           555 *                                                                       *
                           556 *      SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND           *
                           557 *                                                                       *
                           558 * RETURN CONTROL                                                       *
                           559 *                                                                       *
                           560 *      B     $PRNT                DUMP STATUS BEFORE TERMINATION      *
                           561 *                                                                       *
                           562 ***************************************************************************
00043E  706E               563 XIOER CPLSR R3                     SAVE CONDITION CODE ON I/O ERROR
000440  336A               564       SRL   13,R3                  POSITION CC CODE TO BITS 13-15
000442  C328 0014          565       MVB   R3,$IOIN               PUT IN LOG OUT AREA
000446  6802 0534          566       B     $INT                   BRANCH TO PRINT ERROR
                           568 ***************************************************************************
                           569 *                                                                       *
                           570 * SOUBROUTINE                                                          *
                           571 *                                                                       *
                           572 *      ERROR INTERRUPT              RUNS ON INTERRUPT LEVEL '$INTL'     *
                           573 *                                                                       *
                           574 * PURPOSE                                                              *
                           575 *                                                                       *
                           576 *      THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR     *
                           577 *      OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE       *
                           578 *      EXPECTED CODE.                                                   *
                           579 *                                                                       *
                           580 * CALLING SEQUENCE                                                     *
                           581 *                                                                       *
                           582 *      SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT        *
                           583 *                                                                       *
                           584 * RETURN CONTROL                                                       *
                           585 *                                                                       *
                           586 *      SVC   EXIT                   RETURN TO USER VIA SUPVR            *
                           587 *                                                                       *
                           588 ***************************************************************************
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

00044A  706E               589 INTER CPLSR R3                     SAVE INDICATORS
00044C  336A               590       SRL   13,R3                  POSITION INDICATORS IN R3
00044E  4424 000E          591       MVA   OPTN1,R4               SET UP BASE ADRS
000452  4C27               592       TBT   (R4,CS)                IS CS IN PROGRESS
000454  1026               593       JOFF  INTET                   * NO
000456  4C68               594       TBTS  (R4,CE)                TURN ON CYCLE STEAL INTER ERROR
000458  6F0D 0040          595       MVW   R7,CSTL8               SAVE CS ERR ISB VALUE, BITS 0-7
00045C  C328 0041          596       MVB   R3,CSTL8+1             * AND THE COND CODE
000460  5009               597       J     INTR1                  BRANCH
000462  4C61               598 INTET TBTS  (R4,ER)                SET ERROR ON I/O COMMAND CNTL BIT
000464  5007               599       J     INTR1                  BRANCH
                           601 ***************************************************************************
                           602 *                                                                       *
                           603 * SOUBROUTINE                                                          *
                           604 *                                                                       *
                           605 *      OKAY  INTERRUPT              RUNS ON INTERRUPT LEVEL '$INTL'     *
                           606 *                                                                       *
                           607 * PURPOSE                                                              *
                           608 *                                                                       *
                           609 *      TO CHECK THE INTERRUPT AND CONTINUE THE TEST                     *
                           610 *                                                                       *
                           611 * CALLING SEQUENCE                                                     *
                           612 *                                                                       *
                           613 *      SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED           *
                           614 *      THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE          *
                           615 *      AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE               *
                           616 *      COMMON SECTION IS HANDLED HERE.                                  *
                           617 *                                                                       *
                           618 * RETURN CONTROL                                                       *
                           619 *                                                                       *
                           620 *      SVC   EXIT                   RETURN TO USER VIA SUPVR            *
                           621 *                                                                       *
                           622 ***************************************************************************
000466  706E               623 INTOK CPLSR R3                     SAVE INDICATORS
000468  336A               624       SRL   13,R3                  POSITION INDICATORS IN R3
00046A  4424 000E          625       MVA   OPTN1,R4               SET UP BASE ADRS
00046E  4C24               626       TBT   (R4,XE)                TEST EXPECTED ERROR BIT
000470  1001               627       JOFF  INTR1                  BRANCH IF OFF
000472  4C69               628       TBTS  (R4,GI)                SET GOOD INTERRUPT BIT
000474  4C63               629 INTR1 TBTS  (R4,IN)                SET  INTERRUPT RECEIVED
000476  4C27               630       TBT   (R4,CS)                IS 'CS IN PROGRESS' ON
000478  1004               631       JON   INTET                   * YES, BCH AROUND UPDATE
00047A  C328 0015          632       MVB   R3,$IOIN+1             SAVE INTERRUPTING CC CODE
00047E  6F0D 0016          633       MVW   R7,$ISB                SAVE INTR STATUS AND DEV ADRS
000482  78B9               634 INTR2 CPCL  R5                     COPY INTERRUPT LEVEL TO CHECK
000484  3521               635       SLL   4,R5                   POSITION INTR LEVEL AND PUT
000486  0501               636       ABI   1,R5                   * IN 'I' BIT
000488  CD24 0056          637       CW    $INTL,R5               IS THIS THE CORRECT INTR LEVEL
00048C  1004               638       JE    INTR3                  * YES, GO EXIT THIS LEVEL
00048E  3521               639       SLL   4,R5                   POSITION RECEIVED LEVEL
000490  6D0D 0020          640       MVW   R5,DEV3+2              STORE INTO DEV4
000494  4C65               641       TBTS  (R4,LE)                SET INTR LEVEL ERROR CONTROL BIT
000496  4CA2               642 INTR3 TBTR  (R4,XI)                WAS INTERRUPT EXPECTED
000498  1201               643       JON   INTRX                  * YES, EXIT OFF THIS INTR LEVEL
00049A  4C60               644       TBTS  (R4,MI)                * NO, SET MYSTERY INTR CONTROL BIT
00049C  6006               645 INTRX SVC   EXIT                   EXIT THIS LEVEL VIA SUPVR TO PGM
                           647 ***************************************************************************
                           648 *
                           649 *      THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                           650 *      HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN
                           651 *      RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
                           652 *
                           653 ***************************************************************************
00049E  4C20               654 XIOCK TBT   (R4,MI)                WAS THERE AN UNEXPECTED INTERRUPT
0004A0  1214               655       JON   XIOCU                  BRANCH IF YES
0004A2  4C25               656       TBT   (R4,LE)                WAS AN INTR LEVEL ERROR FOUND
0004A4  1002               657       JOFF  XIOCM                  * NO, CONTINUE CHECKING
0004A6  4C61               658       TBTS  (R4,ER)                SET ERROR CONTROL BIT ON
0004A8  5010               659       J     XIOCU                  BRANCH
0004AA  4CAA               660 XIOCM TBTR  (R4,PE)                WAS A PROBABLE ERROR EXPECTED
0004AC  6ACA 0000          661       BON   (R6)                   BRANCH YES
0004B0  4C24               662       TBT   (R4,XE)                WAS AN ERROR EXPECTED
0004B2  1211               663       JN    XIOGI                  * YES, BRANCH
0004B4  4C27               664       TBT   (R4,CS)                WAS AUTO CS IN PROGRESS
0004B6  1005               665       JOFF  XIOCV                  * NO, CONTINUE CHECKING
0004B8  4C28               666       TBT   (R4,CE)                IS CS IN AN ERR CONDITION
0004BA  6800 04DE          667       BOFF  CSRTN                  * NO, BCH
0004BE  6802 0534          668       B     $PRNT                  GO LOG CS ERROR
0004C2  4C21               669 XIOCV TBT   (R4,ER)                WAS ERROR INTR CONTROL BIT ON
0004C4  1004               670       JOFF  XIOCX                  * NO, EXIT THIS ROUTINE
0004C6  6802 03C8          671 XIOCQ B     XIOCS-4                * AVAILABLE, GO AND GET IT
0004CA  6802 0534          672 XIOCU B     $PRNT                  PRINT ERROR
0004CE  CB25 0012          673 XIOCX MVWZ  OPTN3,R3               CLEAR OUT OPTION 3 CNTL BITS
0004D2  68C2 0000          674       B     (R6)                   RETURN TO USER VIA REG 6
0004D6  4C29               675 XIOGI TBT   (R4,GI)                WAS A GOOD INTERRUPT RECEIVED
0004D8  12F8               676       JON   XIOCU                  YES BRANCH
0004DA  68C2 0000          677       B     (R6)                   RETURN
0004DE  4C21               678 CSRTN TBT   (R4,ER)                TEST FOR ERROR
0004E0  6A00 0534          679       BON   $PRNT                  BRANCH IF YES
0004E4  5600               680       BXS   (R6)                   RETURN
                           681 *
                           682 *            I/O   PARAMETER LIST
                           683 *
0004E6  004C               684 IOBLK DC    A($DVAD)               ADRS OF DEVICE ADRS
0004E8  043E               685 IOERR DC    A(XIOER)               ERROR ROUTINE ADRS
0004EA  0000               686 IODCB DC    A(*-*)                 DCB ADRS OR LEVEL & INTR
0004EC  0000               687 IOMOD DC    A(*-*)                 MODIFIER
0004EE  0000               688       DC    A(*-*)                 ADRS OF LAST SVC CALL
0004F0  0000               689 IORSP DC    A(*-*)                 SECOND WORD OF LAST IDCB
                           690 *
                           691 *            INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                           692 *
0004F2  004C               693 INTBL DC    A($DVAD)               ADRS OF DEVICE ADRS
0004F4  0466               694 INT01 DC    A(INTOK)               INTERRUPT OK RETURN ADRS
0004F6  044A               695 INT02 DC    A(INTER)               INTERRUPT ERROR ADRS
0004F8  0003               696 INTCC DC    X'0003'                INTERRUPT CODE EXPECTED
                           698 ***************************************************************************
                           699 *                                                                       *
                           700 * SUBROUTINE                                                           *
                           701 *                                                                       *
                           702 *      CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE                 *
                           703 *                                                                       *
                           704 * PURPOSE                                                              *
                           705 *                                                                       *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           706 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND       *
                           707 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE  *
                           708 *     TO INTERRUPT.                                                   *
                           709 *                                                                     *
                           710 * CALLING SEQUENCE                                                    *
                           711 *                                                                     *
                           712 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                      *
                           713 *                                                                     *
                           714 * --> BAL   $CONC,R6              CLEAR DEV DEP STG AND CONNECT I/O BLK
                           715 * --> BAL   $CONR,R6              BCH TO CONNECT                      *
                           716 * --> BAL   $CONP,R6              PREPARE DEVICE ONLY                 *
                           717 *                                                                     *
                           718 * RETURN CONTROL                                                      *
                           719 *                                                                     *
                           720 *     BXS   (R6)                  RETURN TO USER VIA REG 6            *
                           721 *                                                                     *
                           722 ***************************************************************************
0004FA                     723 $CONR EQU   *
0004FA 4724 04F2           724       MVA   INTBL,R7            SET R7 TO CONTROL BLOCK AND
0004FE 6014                725       SVC   CICB                * CONNECT IT TO THIS DEVICE
000500 68C2 0000           726       B     (R6)                RETURN
000504                     727 $CONC EQU   *
000504 CB25 0012           728       MVWZ  OPTN3,R3            CLEAR OLD CONTROLS FOR NEW ROUTINE
000508 8828 0056 04EA      729 $CONP MVW   $IWTL,IODCB         PUT IN LEVEL & INTR PARAMETER
00050E 4724 04E6           730       MVA   IOBLK,R7            SET R7 TO CONTROL BLOCK TO PREPARE
000512 4020 0014 07FF      731       MVWI  X'07FF',$IOIN       INITIALIZE CONDITION CODE STORAGE
000518 CB25 0016           732       MVWZ  $ISB,R3             * AND CLEAR OLD ISB VALUE
00051C 6E0D 0018           733       MVW   R6,LSTIO            SET UP ADDRESS THAT STARTED LAST I/O
000520 402E 0018 0004      734       SWI   4,LSTIO             DECREMENT TO POINT AT INSTRUCTION
000526 4324 0000           735       MVA   $PID,R3             LOAD ADDRESS OF START OF PROG
00052A CB2F 0018           736       SW    R3,LSTIO            SUB TO OBTAIN LISTING ADDRESS
00052E 600C                737       SVC   PREP                * AND CALL ON SUPVR
000530 68C2 0000           738       B     (R6)                RETURN
                           739 ***************************************************************************
                           740 *                   COMMON PRINT ERROR INTERFACE ROUTINE                  *
                           741 *                                                                         *
                           742 *  ----> R6      LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE    *
                           743 *                BRANCH IS TAKEN TO PRINT THE ERROR                       *
                           744 *  ----> R4      LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE    *
                           745 *                BRANCH IS TAKEN TO PRINT THE ERROR                       *
                           746 *  ----> R3      LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE         *
                           747 *                BRANCH IS TAKEN TO PRINT THE ERROR                       *
                           748 *  ----> PRNTRTN THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST ) *
                           749 *                POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE   *
                           750 *                WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN        *
                           751 *                                                                         *
                           752 ***************************************************************************
000534 4624 0012           753 $PRNT MVA   OPTN3,R6            LOAD ADDRESS OF OPTION WORD THREE
000538 6D08 181E           754       MVW   PRNTRTN,R5          LOAD ADDRESS OF COMMON PRNT ROUTINE
00053C 4424 0000           755       MVA   $PID,R4             LOAD ADDRESS OF START OF PROG
000540 4324 0042           756       MVA   PCTR,R3             LOAD ADDRESS OF PASS COUNTER
000544 6FA3 0000           757       BAL   (R5),R7             BRANCH TO COMMON PRINT ROUTINE
000548 CE25 0012           758       MVWZ  OPTN3,R6            ZERO OUT ALL FLAGS
00054C 4424 000E           759       MVA   OPTN1,R4            LOAD BASE ADDRESS FOR INDICATORS
000550 802B 0232 0060      760       CB    CPUTYPE,TYPE23      IS THIS A TYPE 23 PROCESSOR
000556 1803                761       JNE   $PRN2               BRANCH IF NO
000558 4524 E000           762       MVWI  X'E000',R5          INIT LOOP COUNTER
00055C 5002                763       J     $PRN1               BRANCH
00055E 4524 8000           764 $PRN2 MVWI  X'8000',R5          INIT LOOP COUNTER
000562 6002                765 $PRN1 SVC   IDLE                DELAY
000564 4C03                766       TBT   (R4,TM)             SHOULD PROG TERMINATE
000566 6A00 0080           767       BON   $TERM               BRANCH YES
00056A 7DA1 0001           768       AWI   1,R5                INCREMENT LOOP COUNTER
00056E 18F9                769       JNZ   $PRN1               BRANCH NOT ZERO
000570 6802 0062           770       B     $PENT               BRANCH TO RESTART FROM BEGINING
                           771 ***************************************************************************
                           772 ***************************************************************************
000574 40404040404040404   773 DRBUF DC    CL40' '             MAXIMUM READ BUFFER
00059C                     774 TSTEN EQU   *
                           775 ***************************************************************************
000062                     776       END   $PENT
```


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DECLARED  NAME      ATTRIBUTES AND REFERENCES
       0  .R1.      ABSOLUTE. HEX VALUE(00000001)
                    218  219  220  224  225  226  239  242  244
       0  .R2.      ABSOLUTE. HEX VALUE(00000002)
                    194  211  217
       0  .R3.      ABSOLUTE. HEX VALUE(00000003)
                    499  511  512  513  516  517  520  563  564
                    565  589  590  596  623  624  632  673  728
                    732  735  736  757
       0  .R4.      ABSOLUTE. HEX VALUE(00000004)
                    141  142  333  341  501  502  505  507  521
                    529  532  534  538  539  591  592  594  598
                    625  626  628  629  630  641  642  644  654
                    656  658  660  662  664  666  669  675  678
                    756  760  767
       0  .R5.      ABSOLUTE. HEX VALUE(00000005)
                    168  169  170  171  172  514  516  518  520
                    526  528  528  536  634  635  636  637  639
                    640  755  758  763  765  769
       0  .R6.      ABSOLUTE. HEX VALUE(00000006)
                    140  167  173  174  193  197  207  212  215
                    216  238  241  255  257  332  335  343  509
                    661  674  677  680  726  733  738  754  759
       0  .R7.      ABSOLUTE. HEX VALUE(00000007)
                    148  152  155  156  198  200  515  519  523
                    595  633  724  730  758
      60  $CKPT     ADDRESS. HEX LOCATION(0000000C) IN CSECT(EE8E0  ) LENGTH(2)
                    168  208  240  256  319  334  342
     727  $CONC     ADDRESS. HEX LOCATION(00000504) IN CSECT(EE8E0  ) LENGTH(1)
                    197  212  238  255  332
     723  $CONR     ADDRESS. HEX LOCATION(000004FA) IN CSECT(EE8E0  ) LENGTH(1)
                    193
     100  $DATA     ADDRESS. HEX LOCATION(0000001A) IN CSECT(EE8E0  ) LENGTH(2)
                    169  170  260  265  270  277  284  320  321
     123  $DVAD     ADDRESS. HEX LOCATION(0000004C) IN CSECT(EE8E0  ) LENGTH(2)
                     58  155  213  287  294  303  339  439  684
                    693
     126  $DVID     ADDRESS. HEX LOCATION(00000058) IN CSECT(EE8E0  ) LENGTH(2)
                    202  205
     125  $INTL     ADDRESS. HEX LOCATION(00000056) IN CSECT(EE8E0  ) LENGTH(2)
                    139  151  194  195  196  209  211  637  729
      97  $IOIN     ADDRESS. HEX LOCATION(00000014) IN CSECT(EE8E0  ) LENGTH(2)
                    565  632  731
      98  $ISB      ADDRESS. HEX LOCATION(00000016) IN CSECT(EE8E0  ) LENGTH(2)
                    336  344  633  732
     127  $MXSL     ADDRESS. HEX LOCATION(0000005A) IN CSECT(EE8E0  ) LENGTH(2)
                    162
     137  $PENT     ADDRESS. HEX LOCATION(00000062) IN CSECT(EE8E0  ) LENGTH(6)
                     57  163  178  771  777
      55  $PID      ADDRESS. HEX LOCATION(00000000) IN CSECT(EE8E0  ) LENGTH(4)
                    511  735  756
     754  $PRNT     ADDRESS. HEX LOCATION(00000534) IN CSECT(EE8E0  ) LENGTH(4)
                    206  223  229  245  262  267  272  279  286
                    323  340  540  566  668  672  679
     766  $PRN1     ADDRESS. HEX LOCATION(00000562) IN CSECT(EE8E0  ) LENGTH(2)
                    764  770
     765  $PRN2     ADDRESS. HEX LOCATION(0000055E) IN CSECT(EE8E0  ) LENGTH(4)
                    762
     141  $PUPD     ADDRESS. HEX LOCATION(00000078) IN CSECT(EE8E0  ) LENGTH(4)
                    230  246  318  348
     161  $PUP8     ADDRESS. HEX LOCATION(000000B0) IN CSECT(EE8E0  ) LENGTH(6)
                    143
     150  $RETI     ADDRESS. HEX LOCATION(0000008C) IN CSECT(EE8E0  ) LENGTH(6)
                    147
     178  $RTAD     ADDRESS. HEX LOCATION(000000DC) IN CSECT(EE8E0  ) LENGTH(2)
                    174
      59  $RTNE     ADDRESS. HEX LOCATION(0000000A) IN CSECT(EE8E0  ) LENGTH(2)
                    140  161  162  167
     147  $TERM     ADDRESS. HEX LOCATION(00000080) IN CSECT(EE8E0  ) LENGTH(6)
                    533  768
     155  $TER1     ADDRESS. HEX LOCATION(000000A4) IN CSECT(EE8E0  ) LENGTH(4)
                    150
      92  CE        ABSOLUTE. HEX VALUE(00000028)
                    501  594  666
      38  CICB      ABSOLUTE. HEX VALUE(00000014)
                    725
      51  CPUTYPE   ABSOLUTE. HEX VALUE(00000232)
                    524  761
      91  CS        ABSOLUTE. HEX VALUE(00000027)
                    502  505  592  630  664
     111  CSBUF     ADDRESS. HEX LOCATION(00000032) IN CSECT(EE8E0  ) LENGTH(1)
                    242  373  518
     365  CSDCB     ADDRESS. HEX LOCATION(00000334) IN CSECT(EE8E0  ) LENGTH(1)
                    503
     678  CSRTN     ADDRESS. HEX LOCATION(000004DE) IN CSECT(EE8E0  ) LENGTH(2)
                    667
     246  CSST4     ADDRESS. HEX LOCATION(000001A4) IN CSECT(EE8E0  ) LENGTH(4)
                    243
     119  CSTL8     ADDRESS. HEX LOCATION(00000040) IN CSECT(EE8E0  ) LENGTH(2)
                    595  596
     103  DCBUF     ADDRESS. HEX LOCATION(00000022) IN CSECT(EE8E0  ) LENGTH(2)
                    513
     101  DEV3      ADDRESS. HEX LOCATION(0000001E) IN CSECT(EE8E0  ) LENGTH(2)
                    171  172  204  205  222  228  244  261  266
                    271  278  285  322  640
     102  DEV4      ADDRESS. HEX LOCATION(00000020) IN CSECT(EE8E0  ) LENGTH(2)
                    338  339  346
     377  DGDCB     ADDRESS. HEX LOCATION(00000344) IN CSECT(EE8E0  ) LENGTH(1)
                    258  261  263  266  268  271  274  278  281
                    285  437  441
     774  DRBUF     ADDRESS. HEX LOCATION(00000574) IN CSECT(EE8E0  ) LENGTH(40)
                    217  218  219  222  224  225  228  239  258
                    260  263  265  268  270  273  274  276  277
                    280  281  283  284  289  292  296  298  301
                    305  307  310  312  314  316  320  321  322
                    361  385  398  410
     353  DRDCB     ADDRESS. HEX LOCATION(00000324) IN CSECT(EE8E0  ) LENGTH(1)
                    443
     390  DSDCB     ADDRESS. HEX LOCATION(00000354) IN CSECT(EE8E0  ) LENGTH(1)
                    449
      36  EE8E0     CSECT. START(00000000) LENGTH(1436) ESDID(0)
                     36
```

CROSS-REFERENCE LISTING


```
DECLARED  NAME      ATTRIBUTES AND REFERENCES
    85    ER          ABSOLUTE. HEX VALUE(00000021)
                      538   598   658   669   678
    41    EXIT        ABSOLUTE. HEX VALUE(00000006)
                      645
   402    E1DCB       ADDRESS. HEX LOCATION(00000364) IN CSECT(EE8E0   ) LENGTH(1)
                      445
   415    E2DCB       ADDRESS. HEX LOCATION(00000375) IN CSECT(EE8E0   ) LENGTH(1)
                      408   447
    93    GI          ABSOLUTE. HEX VALUE(00000029)
                      628   675
   128    H0000       ADDRESS. HEX LOCATION(0000005C) IN CSECT(EE8E0   ) LENGTH(2)
                      138
   129    H0001       ADDRESS. HEX LOCATION(0000005E) IN CSECT(EE8E0   ) LENGTH(2)
                      161
    42    IDLE        ABSOLUTE. HEX VALUE(00000002)
                      531   766
    87    IN          ABSOLUTE. HEX VALUE(00000023)
                      507   521   534   629
   693    INTBL       ADDRESS. HEX LOCATION(000004F2) IN CSECT(EE8E0   ) LENGTH(2)
                      724
   589    INTER       ADDRESS. HEX LOCATION(0000044A) IN CSECT(EE8E0   ) LENGTH(2)
                      695
   598    INTET       ADDRESS. HEX LOCATION(00000462) IN CSECT(EE8E0   ) LENGTH(2)
                      593
   623    INTOK       ADDRESS. HEX LOCATION(00000466) IN CSECT(EE8E0   ) LENGTH(2)
                      694
   645    INTRX       ADDRESS. HEX LOCATION(0000049C) IN CSECT(EE8E0   ) LENGTH(2)
                      643
   629    INTR1       ADDRESS. HEX LOCATION(00000474) IN CSECT(EE8E0   ) LENGTH(2)
                      597   599   627
   634    INTR2       ADDRESS. HEX LOCATION(00000482) IN CSECT(EE8E0   ) LENGTH(2)
                      631
   642    INTR3       ADDRESS. HEX LOCATION(00000496) IN CSECT(EE8E0   ) LENGTH(2)
                      638
   684    IOBLK       ADDRESS. HEX LOCATION(000004E6) IN CSECT(EE8E0   ) LENGTH(2)
                      148   152   198   200   523   730
   686    IODCB       ADDRESS. HEX LOCATION(000004EA) IN CSECT(EE8E0   ) LENGTH(2)
                      151   153   437   443   445   447   449   503   514
                      729
   685    IOERR       ADDRESS. HEX LOCATION(000004E8) IN CSECT(EE8E0   ) LENGTH(2)
                      137   147   150
   687    IOMOD       ADDRESS. HEX LOCATION(000004EC) IN CSECT(EE8E0   ) LENGTH(2)
                      438   499   504
   689    IORSP       ADDRESS. HEX LOCATION(000004F0) IN CSECT(EE8E0   ) LENGTH(2)
                      202   204
   216    ITSTA       ADDRESS. HEX LOCATION(00000148) IN CSECT(EE8E0   ) LENGTH(4)
                      214
   196    ITST4       ADDRESS. HEX LOCATION(000000F4) IN CSECT(EE8E0   ) LENGTH(6)
                      210
   207    ITST5       ADDRESS. HEX LOCATION(00000122) IN CSECT(EE8E0   ) LENGTH(4)
                      203
   230    ITST7       ADDRESS. HEX LOCATION(00000180) IN CSECT(EE8E0   ) LENGTH(4)
                      227
   224    ITST9       ADDRESS. HEX LOCATION(00000168) IN CSECT(EE8E0   ) LENGTH(4)
                      221
    89    LE          ABSOLUTE. HEX VALUE(00000025)
                      641   656
    90    LI          ABSOLUTE. HEX VALUE(00000026)
                      539
    99    LSTIO       ADDRESS. HEX LOCATION(00000018) IN CSECT(EE8E0   ) LENGTH(2)
                      509   510   512   733   734   736
    84    MI          ABSOLUTE. HEX VALUE(00000020)
                      644   654
    62    OPTN1       ADDRESS. HEX LOCATION(0000000E) IN CSECT(EE8E0   ) LENGTH(2)
                      141   591   625   760
    72    OPTN3       ADDRESS. HEX LOCATION(00000012) IN CSECT(EE8E0   ) LENGTH(2)
                      673   728   754   759
   120    PCTR        ADDRESS. HEX LOCATION(00000042) IN CSECT(EE8E0   ) LENGTH(2)
                      138   757
    94    PE          ABSOLUTE. HEX VALUE(0000002A)
                      660
    43    PREP        ABSOLUTE. HEX VALUE(0000000C)
                      154   737
    50    PRNTRTN     ABSOLUTE. HEX VALUE(0000181E)
                      755
    47    RESET       ABSOLUTE. HEX VALUE(00000008)
                      149   199
    44    RICB        ABSOLUTE. HEX VALUE(00000013)
                      157
    48    RID         ABSOLUTE. HEX VALUE(00000009)
                      201
   193    RT01        ADDRESS. HEX LOCATION(000000E6) IN CSECT(EE8E0   ) LENGTH(4)
                      179
   238    RT02        ADDRESS. HEX LOCATION(00000184) IN CSECT(EE8E0   ) LENGTH(4)
                      180
   255    RT03        ADDRESS. HEX LOCATION(000001A8) IN CSECT(EE8E0   ) LENGTH(4)
                      181
   303    RT03A       ADDRESS. HEX LOCATION(00000282) IN CSECT(EE8E0   ) LENGTH(6)
                      300
   312    RT03B       ADDRESS. HEX LOCATION(000002A4) IN CSECT(EE8E0   ) LENGTH(6)
                      309
   319    RT03E       ADDRESS. HEX LOCATION(000002C0) IN CSECT(EE8E0   ) LENGTH(6)
                      290   293   297   299   302   306   308   311   313
                      315   317
   263    RT031       ADDRESS. HEX LOCATION(000001CE) IN CSECT(EE8E0   ) LENGTH(6)
                      259
   268    RT032       ADDRESS. HEX LOCATION(000001E6) IN CSECT(EE8E0   ) LENGTH(6)
                      264
   273    RT033       ADDRESS. HEX LOCATION(000001FE) IN CSECT(EE8E0   ) LENGTH(6)
                      269
   280    RT034       ADDRESS. HEX LOCATION(00000222) IN CSECT(EE8E0   ) LENGTH(6)
                      275
   287    RT035       ADDRESS. HEX LOCATION(00000246) IN CSECT(EE8E0   ) LENGTH(6)
                      282
   292    RT036       ADDRESS. HEX LOCATION(00000258) IN CSECT(EE8E0   ) LENGTH(6)
                      288
   301    RT037       ADDRESS. HEX LOCATION(0000027A) IN CSECT(EE8E0   ) LENGTH(6)
                      295
   310    RT038       ADDRESS. HEX LOCATION(0000029C) IN CSECT(EE8E0   ) LENGTH(6)
                      304
   294    RT039       ADDRESS. HEX LOCATION(00000260) IN CSECT(EE8E0   ) LENGTH(6)
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CROSS-REFERENCE LISTING


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DECLARED  NAME      ATTRIBUTES AND REFERENCES
                      291
   332    RT04        ADDRESS. HEX LOCATION(000002DC) IN CSECT(EE8E0   ) LENGTH(4)
                      182
   341    RT041       ADDRESS. HEX LOCATION(00000304) IN CSECT(EE8E0   ) LENGTH(2)
                      337
   348    RT042       ADDRESS. HEX LOCATION(00000320) IN CSECT(EE8E0   ) LENGTH(4)
                      345
   339    RT043       ADDRESS. HEX LOCATION(000002FA) IN CSECT(EE8E0   ) LENGTH(6)
                      347
    45    START       ABSOLUTE. HEX VALUE(0000000A)
                      530
    46    TERM        ABSOLUTE. HEX VALUE(00000007)
                      158
    66    TM          ABSOLUTE. HEX VALUE(00000003)
                      142   532   767
   130    TYPE23      ADDRESS. HEX LOCATION(00000060) IN CSECT(EE8E0   ) LENGTH(2)
                      524   761
    88    XE          ABSOLUTE. HEX VALUE(00000024)
                      333   341   626   662
    86    XI          ABSOLUTE. HEX VALUE(00000022)
                      529   642
   499    XIO         ADDRESS. HEX LOCATION(000003C2) IN CSECT(EE8E0   ) LENGTH(4)
                      444   446   448   450
   654    XIOCK       ADDRESS. HEX LOCATION(0000049E) IN CSECT(EE8E0   ) LENGTH(2)
                      508   522   535
   660    XIOCM       ADDRESS. HEX LOCATION(000004AA) IN CSECT(EE8E0   ) LENGTH(2)
                      657
   503    XIOCS       ADDRESS. HEX LOCATION(000003CC) IN CSECT(EE8E0   ) LENGTH(6)
                      241   671
   672    XIOCU       ADDRESS. HEX LOCATION(000004CA) IN CSECT(EE8E0   ) LENGTH(4)
                      655   659   676
   669    XIOCV       ADDRESS. HEX LOCATION(000004C2) IN CSECT(EE8E0   ) LENGTH(2)
                      665
   673    XIOCX       ADDRESS. HEX LOCATION(000004CE) IN CSECT(EE8E0   ) LENGTH(4)
                      670
   437    XIODG       ADDRESS. HEX LOCATION(00000386) IN CSECT(EE8E0   ) LENGTH(6)
                      216   257
   443    XIODR       ADDRESS. HEX LOCATION(000003A2) IN CSECT(EE8E0   ) LENGTH(6)
                      207
   449    XIODS       ADDRESS. HEX LOCATION(000003BA) IN CSECT(EE8E0   ) LENGTH(6)
                      215
   563    XIOER       ADDRESS. HEX LOCATION(0000043E) IN CSECT(EE8E0   ) LENGTH(2)
                      137   685
   445    XIOE1       ADDRESS. HEX LOCATION(000003AA) IN CSECT(EE8E0   ) LENGTH(6)
                      335
   447    XIOE2       ADDRESS. HEX LOCATION(000003B2) IN CSECT(EE8E0   ) LENGTH(6)
                      343
   675    XIOGI       ADDRESS. HEX LOCATION(000004D6) IN CSECT(EE8E0   ) LENGTH(2)
                      663
   509    XIO1        ADDRESS. HEX LOCATION(000003E0) IN CSECT(EE8E0   ) LENGTH(4)
                      440   442   500
   521    XIO2        ADDRESS. HEX LOCATION(00000408) IN CSECT(EE8E0   ) LENGTH(2)
                      506
   528    XIO5        ADDRESS. HEX LOCATION(0000041E) IN CSECT(EE8E0   ) LENGTH(2)
                      525
   529    XIO6        ADDRESS. HEX LOCATION(00000420) IN CSECT(EE8E0   ) LENGTH(2)
                      527
   531    XIO8        ADDRESS. HEX LOCATION(00000424) IN CSECT(EE8E0   ) LENGTH(2)
                      537
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                             3 ************************************************************************
                             4 *                                                                      *
                             5 *                    ***       PREREQUISITES        ***               *
                             6 *                                                                      *
                             7 *                                 NONE                                 *
                             8 *                                                                      *
                             9 ************************************************************************
                            10 *                                                                      *
                            11 *                    ***       MODIFICATIONS        ***               *
                            12 *                                                                      *
                            13 *              CHANGES MADE TO ROUTINE TO TEST DIAG DATA               *
                            14 *                                                                      *
                            15 ************************************************************************
                            16 *                                                                      *
                            17 *                    ***     REA'S INCORPORATED     ***               *
                            18 *                                                                      *
                            19 *                                 27-11576                             *
                            20 *                                                                      *
                            21 ************************************************************************
                            22 *                                                                      *
                            23 *                    ***    SPECIAL INSTRUCTIONS    ***               *
                            24 *                                                                      *
                            25 *                                 NONE                                 *
                            26 *                                                                      *
                            27 ************************************************************************
                            28 *                                                                      *
                            29 *                    ***       E. C. HISTORY        ***               *
                            30 *                                                                      *
                            31 *        DATE 06MAY77  DATE 15SEP77  DATE          DATE                *
                            32 *        E.C. 578756   E.C. 754882   E.C.          E.C.                 *
                            33 *                                                                      *
                            34 ************************************************************************
 000000                     36 EE9E0 START X'0000'
                            37 *             SUPERVISOR EQUATES
 000014                     38 CICB   EQU   20                    CONNECT INTERRUPT CONTROL BLOCK
 000001                     39 OUTIN  EQU   1                     OUT MESSAGE WITH EXPECTED RESPONCE
 00001A                     40 HTOE   EQU   26                    CHANGE HEX DATA TO EBCDIC DATA
 000006                     41 EXIT   EQU   6                     EXIT INTERRUPT LEVEL
 000002                     42 IDLE   EQU   2                     SHARE PROGRAM TIME WITH OTHER PGMS
 00000C                     43 PREP   EQU   12                    PREPARE DEVICE
 000013                     44 RICB   EQU   19                    RELEASE INTERRUPT CONTROL BLOCK
 00000A                     45 START  EQU   10                    START CYCLE STEAL COMMAND
 000007                     46 TERM   EQU   7                     TERMINATE THIS PROGRAM
 000008                     47 RESET  EQU   8                     DEVICE RESET
 000009                     48 RID    EQU   9                     DEVICE READ ID
 000000                     49 REG    EQUR  0                     WORK REGISTER
 00181E                     50 PRNTRTN EQU  X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
 000232                     51 CPUTYPE EQU  X'0232'               ADDRESS OF PROCESSOR TYPE
                            52 *
                            53 *             PROGRAM HEADING AND CONTROL WORDS
                            54 *
 000000  C5F9F0F0            55 $PID   DC    C'E900'               PROGRAM IDENTIFICATION
 000004  0000                56        DC    XL2'0000'             CURRENT LEVEL OF PROGRAM
 000006  00B2                57        DC    A($PENT)              -> TO START EXEC ADDRESS
 000008  004C                58        DC    A($DVAD)              -> TO DEVICE TABLE
 00000A  0000                59 $RTNE  DC    A(*-*)                ROUTINE NUMBER BEING RUN
 00000C  0000                60 $CKPT  DC    A(*-*)                LAST CHECK POINT PASSED
 00000E  0000                61 OPTN1  DC    X'0000'               PROGRAM OPTION CONTROL WORD 1
                            62 *
                            63 * BIT FUNCTION
                            64 *
 000003                     65 TM     EQU   3                     TERMINATE PROGRAM
 00000D                     66 QUES   EQU   13                    QUESTION HAS BEEN ASKED
 00000E                     67 IND    EQU   14                    INDICATOR
 00000F                     68 DIR    EQU   15                    SEEK DIRECTION INDICATOR
                            69 *
 000010  0000               70 OPTN2  DC    X'0000'               PROGRAM OPTION CONTROL WORD 2
 000012  0000               71 OPTN3  DC    X'0000'               PROGRAM OPTION CONTROL WORD 3
                            72 *
                            73 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                            74 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                            75 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                            76 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                            77 *
                            78 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                            79 *  5  WRONG INTR LEVEL      LE       13  N.U.
                            80 *  6  LOAS INTERRUPT        LI       14  N.U.
                            81 *  7  CS STATUS IN PROGR    CS       15  N.U.
                            82 *                          BIT      HEX
 000020                     83 MI     EQU   32          0        8   MYSTERY INTERRUPT HAPPENED
 000021                     84 ER     EQU   33          1        4   ERROR RECEIVED ON INTERRUPT
 000022                     85 XI     EQU   34          2        2   EXPECTED INTERRUPT CONTROL BIT
 000023                     86 IN     EQU   35          3        1   INTERRUPT RECEIVED CONTROL BIT
 000024                     87 XE     EQU   36          4        8   EXPECTED ERROR RESPONSE
 000025                     88 LE     EQU   37          5        4   INTERRUPT ON WRONG LEVEL ERROR
 000026                     89 LI     EQU   38          6        2   LOST INTERRUPT
 000027                     90 CS     EQU   39          7        1   CYCLE STATUS IN PROGRESS
 000028                     91 CE     EQU   40          8        8   CYCLE STEAL STATUS INTERRUPT ERROR
 000029                     92 GI     EQU   41          9        4   GOOD INTERRUPT RECEIVED (EXPECTED ER)
 00002A                     93 PE     EQU   42          10       2   PROBABLE ERROR EXPECTED
 00002B                     94 NI     EQU   43          11       1   NO INTR. EXPECTED UNPREPED DEV.
 000014  0000               95 $IOIN  DC    A(*-*)                I/O AND INTR CONDITION CODES
 000016  0000               96 $ISB   DC    A(*-*)                R7, INTR STATUS BYTE & DEV ADRS
 000018  0000               97 LSTIO  DC    A(*-*)                ADRS OF LAST I/O + 4 BYTES
 00001A  00000000           98 $DATA  DC    2(*-*)                DEVICE DEPENDENT DATA
 00001E  0000               99 DEV3   DC    A(*-*)                DEPENDENT DATA DEV3
 000020  0000              100 DEV4   DC    A(*-*)                DEPENDENT DATA DEV4
 000022  0000              101 DCBUF  DC    A(*-*)                LAST DCB TABLE, CONTROL WORD
 000024  0000              102 DCB2   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000026  0000              103 DCB3   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000028  0000              104 DCB4   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002A  0000              105 DCB5   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002C  0000              106 DCB6   DC    A(*-*)                LAST DCB TABLE, CHAIN ADRS
 00002E  0000              107 DCB7   DC    A(*-*)                LAST DCB TABLE, BYTE COUNT
 000030  0000              108 DCB8   DC    A(*-*)                LAST DCB TABLE, BUFFER ADDRESS
 000032                    109 CSBUF  EQU   *                     CYCLE STEAL DATA BUFFER
 000032  0000              110 CSTL1  DC    A(*-*)                CYCLE STEAL BUFFER, RESIDUAL ADRS
 000034  0000              111 CSTL2  DC    A(*-*)                CYCLE STEAL WD 2, DEVICE DEPEND
 000036  0000              112 CSTL3  DC    A(*-*)                CYCLE STEAL WD 3, DEVICE DEPEND
 000038  0000              113 CSTL4  DC    A(*-*)                CYCLE STEAL WD 4, DEVICE DEPEND
 00003A  0000              114 CSTL5  DC    A(*-*)                CYCLE STEAL WD 5, DEVICE DEPEND
 00003C  0000              115 CSTL6  DC    A(*-*)                CYCLE STEAL WD 6, DEVICE DEPEND
 00003E  0000              116 CSTL7  DC    A(*-*)                CYCLE STEAL WD 7, DEVICE DEPEND
 000040  0000              117 CSTL8  DC    A(*-*)                CYCLE STEAL WD 8, DEVICE DEPEND
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
 000042  00000000          120 PCTR  DC    2A(*-*)               PASS COUNTER
 000046  00000000          121 ECTR  DC    2A(*-*)               ERROR COUNTER
 00004A  0005              122 ERNUM DC    X'0005'               NUM OF ERRORS PROG CAN HAVE
 00004C  00E9              123 $DVAD DC    X'00E9'               DEVICE ADDRESS BEING TESTED
 00004E  0000000000000000  124         DC    XL8'00'
 000056  0000000000000000  125         DC    XL10'00'                 ''    ''    ''    ''
 000060  0000000000000000  126         DC    XL10'00'                 ''    ''    ''    ''
 00006A  0000000000000000  127         DC    XL10'00'                 ''    ''    ''    ''
 000074  0000000000000000  128         DC    XL10'00'                 ''    ''    ''    ''
 00007E  0000000000000000  129         DC    XL10'00'                 ''    ''    ''    ''
 000088  0000000000000000  130         DC    XL10'00'                 ''    ''    ''    ''
 000092  0000000000000000  131         DC    XL10'00'                 ''    ''    ''    ''
 00009C  0011              132 $INTL DC    X'0011'               INTERRUPT LEVEL REQUESTED
 00009E  200E              133 $DVID DC    X'200E'               DEVICE IDENTIFICATION
 0000A0  0005              134 $MXSL DC    A(5)                  MAXIMUM SELECTABLE ROUTINES
 0000A2  0000              135 H0000 DC    X'0000'               CONSTANT
 0000A4  0001              136 H0001 DC    X'0001'               HEX WORD CONSTANT
 0000A6  2300              137 TYPE23 DC   X'2300'                CONSTANT TO CHECK PROCESSOR AGAINST
 0000A8  0000000000000000  138 $DVUT DC    XL10'00'              DEVICE ADDRESS UNDER TEST
                           140 ************************************************************************
                           141 *                                                                      *
                           142 *             PROGRAM CONTROL FUNCTIONS                                *
                           143 *                                                                      *
                           144 ************************************************************************
 0000B2  4020 04E6 043C    145 $PENT MVA   XIOER,IOERR           RESTORE ERROR ADDRESS
 0000B8  A82A 00A2 0042    146       AD    H0000,PCTR            ADVANCE PASS COUNTER BY 1
 0000BE  4020 009C 0011    147       MVWI  X'0011',$INTL         INIT INTERRUPT LEVEL
 0000C4  4020 05CE 0056    148       MVA   $DVAD+10,WORK1        SAVE NEXT DEVICE ADDRESS TO TEST
 0000CA  4724 000A         149       MVWI  10,R7                 INIT R7 WITH COUNT
 0000CE  4524 004C         150       MVA   $DVAD,R5              LOAD R5 WITH FROM ADDRESS
 0000D2  4324 00A8         151       MVA   $DVUT,R3              LOAD R3 WITH TO ADDRESS
 0000D6  2D64              152       MVFN  (R5),(R3)             MOVE ENTRY
 0000D8  C825 000A         153 $PEN1 MVWZ  $RTNE,R6              CLEAR OLD ROUTINE NUMBER
 0000DC  4424 000E         154 $PUPD MVA   OPTN1,R4              R4 MUST BE SET TO 'OPTN1'
 0000E0  4C03              155 $PUP2 TBT   (R4,TM)               IS TERMINATE PGM REQUESTED
 0000E2  1026              156       JZ    $PUP8                 * NO, CONTINUE CHECKING
                           157 *
                           158 *             TERMINATE CONTROL BIT FOUND ON
                           159 *
 0000E4  4C8D              160 $TERM TBTR  (R4,QUES)             TURN OFF QUES INDICATOR
 0000E6  4C4F              161       TBTS  (R4,DIR)              TURN ON RETURN VIA 6 INDICATOR
 0000E8  4020 05D0 00F6    162       MVA   $TER3,WORK2           LOAD RETURN ADDRESS
 0000EE  4624 012E         163       MVA   $TER2,R6              LOAD ENDING ADDRESS
 0000F2  6802 057C         164       B     SUPD                  BRANCH TO START THINGS OFF
 0000F6  4020 04E6 0102    165 $TER3 MVA   $RETI,IOERR           INIT ERROR ADDRESS
 0000FC  4724 04E4         166       MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
 000100  6008              167       SVC   RESET                 ISSUE SVC
 000102  4020 04E6 011A    168 $RETI MVA   $TER1,IOERR           INIT ERROR ADDRESS
 000108  8828 009C 04E8    169       MVW   $INTL,IODCB           LOAD CURRENT INTERRUPT LEVEL
 00010E  4724 04E4         170       MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
 000112  402D 04E8 0001    171       RBTWI X'0001',IODCB         TURN OF PREPARE 'I' BIT
 000118  600C              172       SVC   PREP                  ISSUE SVC
 00011A  C720 004C         173 $TER1 MVB   $DVAD,R7              LOAD CURRENT DEV ADDRESS
 00011E  7FF4 FF00         174       RBTWI X'FF00',R7            ZERO HIGH ORDER BYTE
 000122  6013              175       SVC   RICB                  ISSUE SVC
 000124  4020 05D0 00F6    176       MVA   $TER3,WORK2           LOAD RETURN ADDRESS
 00012A  6802 0572         177       B     SUPDA                 BRANCH TO SET UP D.A.
 00012E  6007              178 $TER2 SVC   TERM                  ISSUE SVC
                           180 *
 000130  A828 00A4 000A    181 $PUP8 AW    H0001,$RTNE           ADVANCE ROUTINE NUMBER
 000136  882B 00A0 000A    182       CW    $MXSL,$RTNE           CHECK FOR LAST AUTOMATIC ROUTINE
 00013C  10BA              183       JE    $PENT                 * BCH AND START WITH RTN 1
                           184 *
                           185 *             GET RTN NUMBER AND BCH TO THAT RTN
                           186 *
 00013E  6E08 000A         187 $PSEL MVW   $RTNE,R6              MOVE RTN NUMBER IN REG
 000142  CD25 000C         188       MVWZ  $CKPT,R5              ZERO CHECKPOINT
 000146  CD25 001A         189       MVWZ  $DATA,R5              ZERO ALL FOUR WORDS OF DEV
 00014A  CD25 001C         190       MVWZ  $DATA+2,R5            * DEPENDENT DATA
 00014E  CD25 001E         191       MVWZ  DEV3,R5               *  -------------
 000152  CD25 0020         192       MVWZ  DEV3+2,R5             *  -------------
 000156  3609              193       SLL   1,R6                  DOUBLE FOR BRANCH TABLE
 000158  68D2 015C         194       B     (R6,$RTAD)*           BCH VIA RTN TABLE
                           195 *
                           196 *             TABLE OF ROUTINE ADDRESSES
                           197 *
 00015C  00B2              198 $RTAD DC    A($PENT)              NO RTN SELECTED
 00015E  0166              199       DC    A(RT01)               ROUTINE ADDRESS
 000160  0228              200       DC    A(RT02)                  ''      ''
 000162  0256              201       DC    A(RT03)                  ''      ''
 000164  02D4              202       DC    A(RT04)                  ''      ''
                           204 ************************************************************************
                           205 *     CHANNEL INTERFACE TEST                                           *
                           206 *                                                                      *
                           207 *     TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS      *
                           208 *     THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO  *
                           209 *     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS  *
                           210 *     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS       *
                           211 *     EXCEPT LEVEL THREE. THE CHECKSUM IS THEN READ AND CHECKED.       *
                           212 ************************************************************************
 000166  6E03 04F8         213 RT01  BAL   $CONR,R6               CLEAR AND CONNECT I/O BLK
 00016A  6A08 009C         214       MVW   $INTL,R2              SAVE SELECTED INTERRUPT
 00016E  4020 009C FFF1    215       MVWI  X'FFF1',$INTL         SET UP INTERRUPT LEVEL FOR PREP
 000174  4029 009C 0010    216 ITST4 AWI   X'10',$INTL           ADV INTR LEVEL, STARTING AT 0
 00017A  6E03 0502         217       BAL   $CONC,R6              GO PREPARE ON NEW LEVEL
 00017E  4724 04E4         218       MVA   IOBLK,R7              SET UP POINTER TO CONTROL BLOCK
 000182  6008              219       SVC   RESET                 CALL SUPVR TO ISSUE RESET
 000184  4724 04E4         220       MVA   IOBLK,R7              SET UP POINTER TO CONTROL BLOCK
 000188  6009              221       SVC   RID                   CALL SUPVR TO ISSUE READ ID
 00018A  6908 04EE         222       MVW   IORSP,R1              LOAD RECEIVED DEVICE ID
 00018E  7924 0300         223       RBTWI X'0300',R1            RESET UNKNOWN BITS
 000192  C924 009E         224       CW    $DVID,R1              IS ID RECEIVED THE SAME
 000196  1008              225       JE    ITST5                 * YES, CONTINUE
 000198  8828 04EE 001E    226       MVW   IORSP,DEV3            LOAD RECEIVED ID INTO DEV3
 00019E  8828 009E 0020    227       MVW   $DVID,DEV3+2          LOAD EXPECTED ID INTO DEV4
 0001A4  6802 0532         228       B     $PRNT                 BRANCH TO PRINT ERROR
 0001A8  6E03 03A0         229 ITST5 BAL   XIODR,R6              EXEC NO-OP TO GET AN INTR
 0001AC  4029 000C 0001    230       AWI   1,$CKPT               BUMP CHECKPOINT
 0001B2  402F 009C 0021    231       CWI   X'21',$INTL           HAS INTR LEVEL COME DOWN TO 2
 0001B8  18DD              232       JNE   ITST4                 * NO, BCH AND CONTINUE TEST
 0001BA  6A0D 009C         233       MVW   R2,$INTL              RESTORE SELECTED INTR LEVEL
 0001BE  6E03 0502         234       BAL   $CONC,R6              SET UP FOR START IO ON CORRECT LEV.
 0001C2  402B 00B0 0080    235       TWI   X'0080',$DVUT+8       IS DTR JUMPERED ON
 0001C8  1202              236       JON   ITSTA                 BRANCH YES
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976

0001CA  6E03 03B8            237         BAL   XIODS,R6                BRANCH TO ISSUE DISABLE
0001CE  6E03 0384            238 ITSTA   BAL   XIODG,R6                SET UP FOR START IO
0001D2  4224 05DE            239 ITSTC   MVA   DRBUF,R2                SET UP TO CHECK CHECKSUM
0001D6  6908 05DE            240         MVW   DRBUF,R1                SET UP TO CHECK CHECKSUM VALUE
0001DA  690B 05E0            241         XW    DRBUF+2,R1              * AGAINST SHOULD BE
0001DE  7921 0001            242         AWI   1,R1                    CHECK FOR A VALID CHECKSUM
0001E2  1005                 243         JZ    ITST9                   BCH IF OKAY
0001E4  9028 05DE 001E       244         MVD   DRBUF,DEV3              MOVE ERRORED CHECKSUM VALUE
0001EA  6802 0532            245         B     $PRNT                   BRANCH TO PRINT ERROR
0001EE  6908 05E2            246 ITST9   MVW   DRBUF+4,R1              SET UP TO CHECK CHECKSUM VALUE
0001F2  690B 05E4            247         XW    DRBUF+6,R1              * AGAINST SHOULD BE
0001F6  7921 0001            248         AWI   1,R1                    CHECK FOR A VALID CHECKSUM
0001FA  1005                 249         JZ    ITST8                   BCH IF OKAY
0001FC  9028 05E2 001E       250         MVD   DRBUF+4,DEV3            MOVE ERRORED CHECKSUM VALUE
000202  6802 0532            251         B     $PRNT                   BRANCH TO PRINT ERROR
000206  6908 05E6            252 ITST8   MVW   DRBUF+8,R1              SET UP TO CHECK CHECKSUM VALUE
00020A  690B 05E8            253         XW    DRBUF+10,R1             * AGAINST SHOULD BE
00020E  7921 0001            254         AWI   1,R1                    CHECK FOR A VALID CHECKSUM
000212  1005                 255         JZ    ITST7                   BCH IF OKAY
000214  9028 05E6 001E       256         MVD   DRBUF+8,DEV3            MOVE ERRORED CHECKSUM VALUE
00021A  6802 0532            257         B     $PRNT                   BRANCH TO PRINT ERROR
00021E  4020 05D0 013E       258 ITST7   MVA   $PSEL,WORK2              STORE RETURN ADDRESS
000224  6802 0572            259         B     SUPDA                   BRANCH TO CONTINUE
                             261 ********************************************************************
                             262 *     CYCLE STEAL STATUS                                           *
                             263 *     THIS TEST WILL VERIFY THAT THE ATTACHMENT WILL SEND BACK THE *
                             264 *     ADDRESS OF THE LAST CYCLE STEAL ADDRESS.                     *
                             265 *                                                                  *
                             266 ********************************************************************
000228  6E03 0502            267 RT02    BAL   $CONC,R6                PREPARE DEVICE ON CORRECT LEVEL
00022C  4124 0331            268         MVA   DRDCB+15,R1             LAST CYCLE ADRS USED
000230  4029 000C 0001       269         AWI   1,$CKPT                 BUMP CHECKPOINT
000236  6E03 03A0            270         BAL   XIODR,R6                BRANCH TO ISSUE DTR
00023A  6E03 03CA            271         BAL   XIOCS,R6                GO GET STATUS FROM LAST I/O
00023E  C924 0032            272         CW    CSBUF,R1                COMPARE LAST STG LOCATION USED
000242  1004                 273         JE    CSST4                   BRANCH IF GOOD ADDRESS
000244  690D 0020            274         MVW   R1,DEV3+2               LOAD EXPECTED ADDRESS INTO DEV4
000248  6802 0532            275         B     $PRNT                   BRANCH TO PRINT ERROR
00024C  4020 05D0 013E       276 CSST4   MVA   $PSEL,WORK2              STORE RETURN ADDRESS
000252  6802 0572            277         B     SUPDA                   BRANCH TO CONTINUE
                             279 ********************************************************************
                             280 *     DIAGNOSTIC MODE                                              *
                             281 *     CHECK ALL POSSIBLE FUNCTION OF DIAGNOSTIC MODE               *
                             282 *                                                                  *
                             283 *     ISSUE A DIAG MODE TWO COMMAND THEN INSPECT THE RECEIVED DATA *
                             284 *     WORD 4 THRU 17 AGAINST SHOULD BE VALUES.                     *
                             285 ********************************************************************
000256  6E03 0502            286 RT03    BAL   $CONC,R6                PREPARE DEVICE ON CORRECT LEVEL
00025A  4029 000C 0001       287         AWI   1,$CKPT                 BUMP CHECKPOINT
000260  6E03 0384            288         BAL   XIODG,R6                BRANCH TO ISSUE DIAG. COM.
000264  402B 00B0 8000       289 RT035   TWI   X'8000',$DVUT+8         IS CARRIER DETECT JUMPER INSTALLED
00026A  1005                 290         JOFF  RT036                   BRANCH NO
00026C  402B 05EA 1000       291         TWI   X'1000',DRBUF+12        DOES HARDWARE VERIFY
000272  1228                 292         JON   RT03E                   BRANCH IF NO
000274  5004                 293         J     RT031                   BRANCH
000276  402B 05EA 1000       294 RT036   TWI   X'1000',DRBUF+12        DOES HARDWARE VERIFY
00027C  1023                 295         JOFF  RT03E                   BRANCH IF NO
00027E  402B 00B0 0080       296 RT031   TWI   X'0080',$DVUT+8         IS DTR JUMPER INSTALLED
000284  1005                 297         JOFF  RT037                   BRANCH NO
000286  402B 05EA 4000       298         TWI   X'4000',DRBUF+12        DOES HARDWARE VERIFY
00028C  121B                 299         JON   RT03E                   BRANCH NO
00028E  5004                 300         J     RT032                   BRANCH
000290  402B 05EA 4000       301 RT037   TWI   X'4000',DRBUF+12        DOES HARDWARE VERIFY
000296  1016                 302         JOFF  RT03E                   BRANCH IF NO
000298  402B 00B0 0040       303 RT032   TWI   X'0040',$DVUT+8         REQ TO SEND JUMPERED ON
00029E  1005                 304         JOFF  RT038                   BRANCH NO
0002A0  402B 05EA 2000       305         TWI   X'2000',DRBUF+12        DOES HARDWARE VERIFY
0002A6  120E                 306         JON   RT03E                   BRANCH NO
0002A8  5004                 307         J     RT033                   BRANCH
0002AA  402B 05EA 2000       308 RT038   TWI   X'2000',DRBUF+12        DOES HARDWARE VERIFY
0002B0  1009                 309         JOFF  RT03E                   BRANCH IF NO
0002B2  402B 05EA 0008       310 RT033   TWI   X'0008',DRBUF+12        RING FROM MODEM ON
0002B8  1205                 311         JON   RT03E                   ERROR IF YES - BRANCH
0002BA  4020 05D0 013E       312         MVA   $PSEL,WORK2             STORE RETURN ADDRESS
0002C0  6802 0572            313         B     SUPDA                   BRANCH TO CONTINUE
0002C4  8828 05EA 001A       314 RT03E   MVW   DRBUF+12,$DATA          MOVE 7/TH WORD
0002CA  8828 00B0 0020       315         MVW   $DVUT+8,DEV4            MOVE CONFIG WORD
0002D0  6802 0532            316         B     $PRNT                   BRANCH TO PRINT ERROR
                             318 ********************************************************************
                             319 *     DIAGNOSTIC MODE                                              *
                             320 *     CHECK ERROR RETURNS                                          *
                             321 *                                                                  *
                             322 *     ISSUE THE DCB'S NECESSARY TO OBTAIN A COMMAND REJECT THEN    *
                             323 *     A DCB SPEC. CHECK.                                           *
                             324 ********************************************************************
0002D4  6E03 0502            325 RT04    BAL   $CONC,R6                PREPARE DEVICE ON CORRECT LEVEL
0002D8  4C60                 326         TBTS  (R4,XE)                 SET EXPECTED ERROR BIT
0002DA  4029 000C 0001       327         AWI   1,$CKPT                 BUMP CHECKPOINT
0002E0  6E03 03A8            328         BAL   XIOE1,R6                BRANCH TO TEST ERROR
0002E4  402B 0016 1000       329         TWI   X'1000',$ISB            IS ISB EQU TO 10XX
0002EA  1208                 330         JON   RT041                   BRANCH YES
0002EC  4020 0020 1000       331         MVWI  X'1000',DEV4            DEV4 EQUALS EXPECTED DATA
0002F2  8028 00A8 0021       332 RT043   MVB   $DVUT,DEV4+1           LOAD DEV ADDRESS
0002F8  6802 0532            333         B     $PRNT                   BRANCH TO PRINT ERROR
0002FC  4C60                 334 RT041   TBTS  (R4,XE)                 SET EXPECTED ERROR BIT
0002FE  4029 000C 0001       335         AWI   1,$CKPT                 BUMP CHECKPOINT
000304  6E03 03B0            336         BAL   XIOE2,R6                BRANCH TO TEST ERROR
000308  402B 0016 4000       337         TWI   X'4000',$ISB            IS ISB EQUAL TO 40XX
00030E  1204                 338         JON   RT042                   BRANCH YES
000310  4020 0020 4000       339         MVWI  X'4000',DEV4            DEV4 EQUALS EXPECTED DATA
000316  50ED                 340         J     RT043                   BRANCH
000318  4020 05D0 013E       341 RT042   MVA   $PSEL,WORK2             STORE RETURN ADDRESS
00031E  6802 0572            342         B     SUPDA                   BRANCH TO CONTINUE
                             344 *
                             345 *                    DTR CONTROL BLOCK
                             346 *
000322                       347 DRDCB   EQU   *                         USE FOR DCB REFERENCE ONLY
000322  000D                 348 DRCTL   DC    X'000D'                   CONTROL WORD
000324  0716                 349 DRFMS   DC    X'0716'
000326  3D40                 350 DRSKP   DC    X'3D40'
000328  761F                 351         DC    X'761F'
00032A  1C7C                 352         DC    X'1C7C'
00032C  0000                 353 DRCHN   DC    A(*-*)                    CHAIN ADRS
00032E  0000                 354 DRBCT   DC    A(*-*)                    BYTE COUNT
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976

000330  05DE                 355 DRADR   DC    A(DRBUF)                  BUFFER ADRS
                             356 *
                             357 *              CYCLE STEAL DATA CONTROL BLOCK
                             358 *
000332                       359 CSDCB   EQU   *                         USE FOR DCB REFERENCE ONLY
000332  2000                 360 CSCTL   DC    X'2000'                   CONTROL WORD
000334  0000                 361 CSFMS   DC    X'0000'                   NOT USED
000336  0000                 362 CSSKP   DC    X'0000'                   NOT USED
000338  0000                 363         DC    X'0000'
00033A  0000                 364         DC    X'0000'
00033C  0000                 365 CSCHN   DC    A(0000)                   CHAIN ADRS, NOT USED
00033E  0006                 366 CSBCT   DC    X'0006'                   BYTE COUNT
000340  0032                 367 CSADR   DC    A(CSBUF)                  BUFFER ADRS
                             368 *
                             369 *              DIAGNOSTIC  DATA CONTROL BLOCK
                             370 *
000342                       371 DGDCB   EQU   *                         USED FOR DCB REFERENCE ONLY
000342  200D                 372 DGCTL   DC    X'200D'                   CONTROL WORD
000344  7FFE                 373 DGDC2   DC    X'7FFE'                   N.U.
000346  DCBA                 374 DGDC3   DC    X'DCBA'
000348  9876                 375 DGDC4   DC    X'9876'
00034A  5432                 376 DGDC5   DC    X'5432'
00034C  0000                 377 DGCHN   DC    A(0000)                   CHAIN ADDRESS
00034E  0010                 378 DGBCT   DC    X'0010'                   BYTE COUNT
000350  05DE                 379 DGADR   DC    A(DRBUF)                  BUFFER ADDRESS
                             381 *
                             382 *              DISABLE DTR CONTROL BLOCK
                             383 *
000352                       384 DSDCB   EQU   *                         USED FOR DCB REFERENCE ONLY
000352  000C                 385 DSCTL   DC    X'000C'                   CONTROL WORD
000354  0000                 386 DSDC2   DC    X'0000'                   N.U.
000356  0000                 387 DSDC3   DC    X'0000'
000358  0000                 388 DSDC4   DC    X'0000'
00035A  0000                 389 DSDC5   DC    X'0000'
00035C  0000                 390 DSCHN   DC    X'0000'                   CHAIN ADDRESS
00035E  0000                 391 DSBCT   DC    X'0000'                   BYTE COUNT
000360  05DE                 392 DSADR   DC    A(DRBUF)                  BUFFER ADDRESS
                             393 *
                             394 *              ERROR ONE DATA CONTROL BLOCK
                             395 *
000362                       396 E1DCB   EQU   *                         USED FOR DCB REFERENCE ONLY
000362  8008                 397 E1CTL   DC    X'8008'                   CONTROL WORD
000364  0000                 398 E1DC2   DC    X'0000'                   N.U.
000366  0003                 399 E1DC3   DC    X'0003'
000368  0333                 400 E1DC4   DC    X'0333'
00036A  0000                 401 E1DC5   DC    X'0000'
00036C  0373                 402 E1CHN   DC    A(E2DCB)                  CHAIN ADDRESS
00036E  0000                 403 E1BCT   DC    X'0000'                   BYTE COUNT
000370  05DE                 404 E1ADR   DC    A(DRBUF)                  BUFFER ADDRESS
                             405 *
                             406 *              ERROR FOUR DATA CONTROL BLOCK
                             407 *
000372  00                   408         DC    X'00'
000373                       409 E2DCB   EQU   *                         USED FOR DCB REFERENCE ONLY
000373  0000                 410 E2CTL   DC    X'0000'                   CONTROL WORD
000375  0000                 411 E2DC2   DC    X'0000'                   N.U.
000377  0000                 412 E2DC3   DC    X'0000'
000379  0000                 413 E2DC4   DC    X'0000'
00037B  0000                 414 E2DC5   DC    X'0000'
00037D  0000                 415 E2CHN   DC    X'0000'                   CHAIN ADDRESS
00037F  0000                 416 E2BCT   DC    X'0000'                   BYTE COUNT
000381  0000                 417 E2ADR   DC    X'0000'                   BUFFER ADDRESS
000383  00                   418         ALIGN WORD
                             420 ********************************************************************
                             421 *     ISSUE ALL I/O COMMANDS FROM A COMMON SUBROUTINE.             *
                             422 *     TO DISPLAY INSTRUCTIONS AND OPERATING PROCEDURES TO THE OPERATOR*
                             423 *     AND SET UP ANY REQUIREMENTS FOR OTHER I/O COMMANDS           *
                             424 *                                                                  *
                             425 * --> BAL   XIODG,R6                    XEQ DIAG. MOD = D COMMAND  *
                             426 * --> BAL   XIODR,R6                    XEQ DTR COMMAND            *
                             427 * --> BAL   XIOE1,R6                    XEQ ERROR ONE COMMAND      *
                             428 * --> BAL   XIOE2,R6                    XEQ ERROR TWO COMMAND      *
                             429 *                                                                  *
                             430 ********************************************************************
000384  4020 04E8 0342       431 XIODG   MVA   DGDCB,IODCB               SET UP CONTROL BLOCK FOR SVC CALL
00038A  4020 04EA 000D       432         MVWI  X'0D',IOMOD               MOVE MODIFIER INTO CONTROL BLOCK
000390  402B 00B0 0004       433         TWI   X'0004',$DVUT+8           HIGH SPEED JUMPER INSTALLED
000396  1223                 434         JON   XIO1                      BRANCH YES
000398  402D 0344 F000       435         RBTWI X'F000',DGDCB+2           INDICATE LOW SPEED WITHIN DCB
00039E  501F                 436         J     XIO1                      BRANCH
0003A0  4020 04E8 0322       437 XIODR   MVA   DRDCB,IODCB               SET UP CONTROL BLOCK FOR SVC CALL
0003A6  500C                 438         J     XIO                       BRANCH
0003A8  4020 04E8 0362       439 XIOE1   MVA   E1DCB,IODCB               SET UP CONTROL BLOCK FOR SVC CALL
0003AE  5008                 440         J     XIO                       BRANCH
0003B0  4020 04E8 0373       441 XIOE2   MVA   E2DCB,IODCB               SET UP CONTROL BLOCK FOR SVC CALL
0003B6  5004                 442         J     XIO                       BRANCH
0003B8  4020 04E8 0352       443 XIODS   MVA   DSDCB,IODCB               SET UP CONTROL BLOCK FOR SVC CALL
0003BE  5000                 444         J     XIO                       BRANCH
                             446 ********************************************************************
                             447 *                                                                  *
                             448 * SOUBROUTINE                                                      *
                             449 *                                                                  *
                             450 *     EXECUTE INPUT AND OUTPUT COMMANDS                            *
                             451 *                                                                  *
                             452 * PURPOSE                                                          *
                             453 *                                                                  *
                             454 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.             *
                             455 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:             *
                             456 *                                                                  *
                             457 *     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED *
                             458 *        THE I/O COMMAND.                                          *
                             459 *     2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS *
                             460 *        ISSUED BY THIS SUBROUTINE.                                *
                             461 *     3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE       *
                             462 *        START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.         *
                             463 *     4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT *
                             464 *        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND, *
                             465 *        MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.                *
                             466 *     5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE *
                             467 *        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'. *
                             468 *     6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING *
                             469 *        STARTS TO DETERMINE A LOST INTERRUPT.                     *
                             470 *     7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF *
                             471 *        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.    *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           472 *     8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.                *
                           473 *     9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.    *
                           474 *    10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.      *
                           475 *    11. CHECK IS A CYCLE STEAL OPERATION WAS IN PROGRESS THAT HAS  *
                           476 *        ISSUED BY THIS SUBROUTINE.                                 *
                           477 *    12. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A    *
                           478 *        CYCLE STEAL STATUS COMMAND. CHECK FOF ANY OTHER BIT BEING ON,*
                           479 *        COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.*
                           480 *                                                                   *
                           481 * CALLING SEQUENCE                                                *
                           482 *                                                                   *
                           483 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                       *
                           484 *                                                                   *
                           485 * --> B     XIO                    XEQ ANY CYCLE STEAL COMMAND, MOD=0  *
                           486 * --> BAL   XIOCS,R6               XEQ START CYCLE STEAL STATUS, MOD=F *
                           487 *                                                                   *
                           488 * RETURN CONTROL                                                  *
                           489 *                                                                   *
                           490 *     BXS   (R6)                   RETURN TO USER NO ERROR          *
                           491 *********************************************************************
0003C0  CB25 04EA          493 XIO   MVWZ  IOMOD,R3             SET MOF OF 0 FOR CYCLE STEAL OP
0003C4  500C               494       J     XIO1                 CS I/O'S ARE NOT RETRIED
0003C6  4CA8               495       TBTR  (R4,CE)              RESET CS STATUS INTER ERROR INDICAT.
0003C8  4C67               496       TBTS  (R4,CS)              SET 'CYCLE STEAL STATUS' IN PROGRESS
0003CA  4020 04E8 0332     497 XIOCS MVA   CSDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
0003D0  4020 04EA 000F     498       MVWI  X'000F',IOMOD        SET CYCLE STEAL MODIFIER
0003D6  4C27               499       TBT   (R4,CS)              IS CS IN PROGRESS? ERROR CONDITION
0003D8  1216               500       JON   XIO2                 * YES, BYPASS SAVING I/O ADRS
0003DA  4C23               501       TBT   (R4,IN)              TEST FOR INTERRUPT
0003DC  125F               502       JON   XIOCK               BRANCH IF YES
0003DE  6E0D 0018          503 XIO1  MVW   R6,LSTIO            SAVE IAR FOR RETRY IF REQUESTED
0003E2  402E 0018 0004     504       SWI   4,LSTIO              DECREMENT FOR LAS INSTRUCTION
0003E8  4324 0000          505       MVA   $PID,R3              LOAD ADDRESS OF PROGRAM START
0003EC  CB2F 0018          506       SW    R3,LSTIO             SUB TO OBTAIN LISTING ADDRESS
0003F0  4324 0022          507       MVA   DCB,R3               SET UP TO ADRS TO MOVE DCB TABLE
0003F4  6D08 04E8          508       MVW   IODCB,R5             * AND THE FROM ADRS, ALONG WITH
0003F8  0F10               509       MVBI  16,R7                * THE NUMBER OF MOVES
0003FA  2D64               510       MVFN  (R5),(R3)            MOVE 1 STATUS WORD AND ADJUST
0003FC  0BFF               511       MVBI  255,R3               CLEAR CYCLE STATUS BUFFER
0003FE  4524 0032          512       MVA   CSBUF,R5             *  TO ALL ONES  *
000402  0F10               513       MVBI  16,R7                *               *
000404  2BAC               514       MFN   R3,(R5)              *               *
000406  4CA3               515 XIO2  TBTR  (R4,IN)             CLEAR INTERRUPT RECEIVED CNTL BIT
000408  1249               516       JON   XIOCK                BRANCH IF ON
00040A  4724 04E4          517       MVA   IOBLK,R7             SET UP CONTROL BLOCK FOR SUPVR
00040E  802B 0232 00A6     518       CB    CPUTYPE,TYPE23       CHECK FOR PROCESSOR 23
000414  1803               519       JNE   XIO5                 BRANCH NOT EQUAL
000416  4524 0000          520       MVWI  X'0000',R5           LOAD LOOP COUNT
00041A  5001               521       J     XIO6                 BRANCH
00041C  75AA               522 XIO5  SW    R5,R5                LOAD LOOP COUNT
00041E  4C62               523 XIO6  TBTS  (R4,XI)             SET EXPECTED INTR CONTROL BIT
000420  600A               524       SVC   START                CALL SUPVR FOR I/O COMMAND
000422  6002               525 XIO8  SVC   IDLE                 ALLOW OTHER PROG TIME
000424  4C03               526       TBT   (R4,TM)              IS TERMINATE BIT ON
000426  6A00 00E4          527       BON   $TERM                BRANCH IF ON
00042A  4CA3               528       TBTR  (R4,IN)              HAS INTERRUPT BEEN RECEIVED
00042C  1237               529       JON   XIOCK               * YES, CHECK IF ALL WAS SATISFACTORY
00042E  7DA1 0001          530       AWI   1,R5                 ADVANCE TIME OUT COUNT
000432  18F7               531       JNZ   XIO8                 BCH IF TIME OUT NOT REACHED
000434  4C61               532       TBTS  (R4,ER)              SET ON ERROR CONTROL BIT
000436  4C66               533       TBTS  (R4,LI)              SET LOST INTERRUPT CONTROL BIT
000438  6802 0532          534       B     $PRNT                * BCH TO FINISH ERROR SEQUENCE
                           535 *********************************************************************
                           536 *                                                                   *
                           537 * SUBROUTINE                                                      *
                           538 *                                                                   *
                           539 *     I/O EXECUTE ERROR HANDLING ROUTINE                            *
                           540 *                                                                   *
                           541 * PURPOSE                                                         *
                           542 *                                                                   *
                           543 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE   *
                           544 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE *
                           545 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                           *
                           546 *                                                                   *
                           547 * CALLING SEQUENCE                                                *
                           548 *                                                                   *
                           549 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND        *
                           550 *                                                                   *
                           551 * RETURN CONTROL                                                  *
                           552 *                                                                   *
                           553 *     B     $PRNT                  DUMP STATUS BEFORE TERMINATION   *
                           554 *                                                                   *
                           555 *********************************************************************
                           556 *********************************************************************
00043C  706E               557 XIOER CPLSR R3                   SAVE CONDITION CODE ON I/O ERROR
00043E  336A               558       SRL   3,R3                 POSITION CC CODE TO BITS 13-15
000440  C328 0014          559       MVB   R3,$IOIN             * PUT IN LOG OUT AREA
000444  6802 0532          560       B     $PRNT                BRANCH TO PRINT ERROR
                           561 *********************************************************************
                           562 *                                                                   *
                           563 * SOUBROUTINE                                                     *
                           564 *                                                                   *
                           565 *     ERROR INTERRUPT              RUNS ON INTERRUPT LEVEL '$INTL'  *
                           566 *                                                                   *
                           567 * PURPOSE                                                         *
                           568 *                                                                   *
                           569 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR  *
                           570 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE    *
                           571 *     EXPECTED CODE.                                                *
                           572 *                                                                   *
                           573 * CALLING SEQUENCE                                                *
                           574 *                                                                   *
                           575 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT      *
                           576 *                                                                   *
                           577 * RETURN CONTROL                                                  *
                           578 *                                                                   *
                           579 *     SVC   EXIT                   RETURN TO USER VIA SUPVR         *
                           580 *                                                                   *
                           581 *********************************************************************
000448  706E               582 INTER CPLSR R3                   SAVE INDICATORS
00044A  336A               583       SRL   3,R3                 POSITION INDICATORS IN R3
00044C  4424 000E          584       MVA   OPTN1,R4             SET UP BASE ADRS
000450  4C27               585       TBT   (R4,CS)              IS CS IN PROGRESS
000452  1006               586       JOFF  INTET                * NO
000454  4C68               587       TBTS  (R4,CE)              TURN ON CYCLE STEAL INTER ERROR
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
000456  6F0D 0040          589       MVW   R7,CSTL8             SAVE CS ERR ISB VALUE, BITS 0-7
00045A  C328 0041          590       MVB   R3,CSTL8+1           * AND THE COND CODE
00045E  5009               591       J     INTR1                BRANCH
000460  4C61               592 INTET TBTS  (R4,ER)             SET ERROR ON I/O COMMAND CNTL BIT
000462  5007               593       J     INTR1                BRANCH
                           595 *********************************************************************
                           596 *                                                                   *
                           597 * SOUBROUTINE                                                     *
                           598 *                                                                   *
                           599 *     OKAY  INTERRUPT              RUNS ON INTERRUPT LEVEL '$INTL'  *
                           600 *                                                                   *
                           601 * PURPOSE                                                         *
                           602 *                                                                   *
                           603 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                  *
                           604 *                                                                   *
                           605 * CALLING SEQUENCE                                                *
                           606 *                                                                   *
                           607 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED        *
                           608 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE       *
                           609 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE            *
                           610 *     COMMON SECTION IS HANDLED HERE.                               *
                           611 *                                                                   *
                           612 * RETURN CONTROL                                                  *
                           613 *                                                                   *
                           614 *     SVC   EXIT                   RETURN TO USER VIA SUPVR         *
                           615 *                                                                   *
                           616 *********************************************************************
000464  706E               617 INTOK CPLSR R3                   SAVE INDICATORS
000466  336A               618       SRL   3,R3                 POSITION INDICATORS IN R3
000468  4424 000E          619       MVA   OPTN1,R4             SET UP BASE ADRS
00046C  4C24               620       TBT   (R4,XE)              TEST EXPECTED ERROR BIT
00046E  1001               621       JOFF  INTR1                BRANCH IF OFF
000470  4C69               622       TBTS  (R4,GI)              SET GOOD INTERRUPT BIT
000472  4C63               623       TBTS  (R4,IN)              SET   INTERRUPT RECEIVED
000474  4C27               624       TBT   (R4,CS)              IS 'CS IN PROGRESS' ON
000476  1204               625       JON   INTR2                * YES, BCH AROUND UPDATE
000478  C328 0015          626       MVB   R3,$IOIN+1           SAVE INTERRUPTING CC CODE
00047C  6F0D 0016          627       MVW   R7,$ISB              SAVE INTR STATUS AND DEV ADRS
000480  78B9               628 INTR2 CPCL  R5                   COPY INTERRUPT LEVEL TO CHECK
000482  3521               629       SLL   4,R5                 POSITION INTR LEVEL AND PUT
000484  0501               630       ABI   1,R5                 * IN 'I' BIT
000486  CD24 009C          631       CW    $INTL,R5             IS THIS THE CORRECT INTR LEVEL
00048A  1004               632       JE    INTR3                * YES, GO EXIT THIS LEVEL
00048C  3521               633       SLL   4,R5                 POSITION RECEIVED LEVEL
00048E  6D0D 0020          634       MVW   R5,DEV3+2            STORE INTO DEV4
000492  4C65               635       TBTS  (R4,LE)              SET INTR LEVEL ERROR CONTROL BIT
000494  4CA2               636 INTR3 TBTR  (R4,XI)              WAS INTERRUPT EXPECTED
000496  1201               637       JON   INTRX                * YES,  EXIT OFF THIS INTR LEVEL
000498  4C60               638       TBTS  (R4,MI)              * NO, SET MYSTERY INTR CONTROL BIT
00049A  6006               639 INTRX SVC   EXIT                 EXIT THIS LEVEL VIA SUPVR TO PGM
                           641 *********************************************************************
                           642 *                                                                   *
                           643 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT    *
                           644 *     HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN  *
                           645 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS. *
                           646 *                                                                   *
                           647 *********************************************************************
00049C  4C20               648 XIOCK TBT   (R4,MI)              WAS THERE AN UNEXPECTED INTERRUPT
00049E  1214               649       JON   XIOCU                BRANCH IF YES
0004A0  4C25               650       TBT   (R4,LE)              WAS AN INTR LEVEL ERROR FOUND
0004A2  1002               651       JOFF  XIOCM                * NO, CONTINUE CHECKING
0004A4  4C61               652       TBTS  (R4,ER)              SET ERROR CONTROL BIT ON
0004A6  5010               653       J     XIOCU                BRANCH
0004A8  4CAA               654 XIOCM TBTR  (R4,PE)              WAS A PROBABLE ERROR EXPECTED
0004AA  6AC0 0000          655       BON   (R6)                 BRANCH YES
0004AE  4C24               656       TBT   (R4,XE)              WAS AN ERROR EXPECTED
0004B0  1211               657       JN    XIOGI                * YES, BRANCH
0004B2  4C27               658       TBT   (R4,CS)              WAS AUTO CS IN PROGRESS
0004B4  1005               659       JOFF  XIOCV                * NO, CONTINUE CHECKING
0004B6  4C28               660       TBT   (R4,CE)              IS CS IN AN ERR CONDITION
0004B8  6800 04DC          661       BOFF  CSRTN                * NO  BCH
0004BC  6802 0532          662       B     $PRNT                GO LOG CS ERROR
0004C0  4C21               663 XIOCV TBT   (R4,ER)              WAS ERROR INTR CONTROL BIT ON
0004C2  1004               664       JOFF  XIOCX                * NO, EXIT THIS ROUTINE
0004C4  6802 03C6          665 XIOCQ B     XIOCS-4              * AVAILABLE, GO AND GET IT
0004C8  6802 0532          666 XIOCU B     $PRNT                PRINT ERROR
0004CC  CB25 0012          667 XIOCX MVWZ  OPTN3,R3             CLEAR OUT OPTION 3 CNTL BITS
0004D0  68C2 0000          668       B     (R6)                 RETURN TO USER VIA REG 6
0004D4  4C29               669 XIOGI TBT   (R4,GI)              WAS A GOOD INTERRUPT RECEIVED
0004D6  12F8               670       JON   XIOCU                YES BRANCH
0004D8  68C2 0000          671       B     (R6)                 RETURN
0004DC  4C21               672 CSRTN TBT   (R4,ER)              TEST FOR ERROR
0004DE  6A00 0532          673       BON   $PRNT                BRANCH IF YES
0004E2  5600               674       BXS   (R6)                 RETURN
                           675 *
                           676 *              I/O   PARAMETER LIST
                           677 *
0004E4  00A8               678 IOBLK DC    A($DVUT)             ADRS OF DEVICE ADRS
0004E6  043C               679 IOERR DC    A(XIOER)             ERROR ROUTINE ADRS
0004E8  0000               680 IODCB DC    A(*-*)               DCB ADRS OR LEVEL & INTR
0004EA  0000               681 IOMOD DC    A(*-*)               MODIFIER
0004EC  0000               682       DC    A(*-*)               ADRS OF LAST SVC CALL
0004EE  0000               683 IORSP DC    A(*-*)               SECOND WORD OF LAST IDCB
                           684 *
                           685 *              INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                           686 *
0004F0  00A8               687 INTBL DC    A($DVUT)             ADRS OF DEVICE ADRS
0004F2  0464               688 INT01 DC    A(INTOK)             INTERRUPT OK RETURN ADRS
0004F4  0448               689 INT02 DC    A(INTER)             INTERRUPT ERROR ADRS
0004F6  0003               690 INTCC DC    X'0003'              INTERRUPT CODE EXPECTED
                           692 *********************************************************************
                           693 * SUBROUTINE                                                      *
                           694 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE              *
                           695 * PURPOSE                                                         *
                           696 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND     *
                           697 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE*
                           698 *     TO INTERRUPT.                                                 *
                           699 * CALLING SEQUENCE                                                *
                           700 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                    *
                           701 * --> BAL   $CONC,R6               CLEAR DEV DEP STG AND CONNECT I/O BLK
                           702 * --> BAL   $CONR,R6               BCH TO CONNECT                  *
                           703 * --> BAL   $CONP,R6               PREPARE DEVICE ONLY             *
                           704 * RETURN CONTROL                                                  *
                           705 *     BXS   (R6)                   RETURN TO USER VIA REG 6        *
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           706 ********************************************************************************
0004F8                     707 $CONR EQU   *
0004F8 4724 04F0           708       MVA   INTBL,R7                 SET R7 TO CONTROL BLOCK AND
0004FC 6014                709       SVC   CICB                     * CONNECT IT TO THIS DEVICE
0004FE 68C2 0000           710       B     (R6)                     RETURN
000502                     711 $CONC EQU   *
000502 CB25 0012           712       MVWZ  OPTN3,R3                 CLEAR OLD CONTROLS FOR NEW ROUTINE
000506 8828 009C 04E8      713 $CONP MVW   $INTL,IODCB              PUT IN LEVEL & INTR PARAMETER
00050C 4724 04E4           714       MVA   IOBLK,R7                 SET R7 TO CONTROL BLOCK TO PREPARE
000510 4020 0014 07FF      715       MVWI  X'07FF',$IOIN            INITIALIZE CONDITION CODE STORAGE
000516 CB25 0016           716       MVWZ  $ISB,R3                  * AND CLEAR OLD ISB VALUE
00051A 680D 0018           717       MVW   R6,LSTIO                 SET UP ADDRESS THAT STARTED LAST I/O
00051E 402B 0018 0004      718       SWI   4,LSTIO                  DECREMENT TO POINT AT INSTRUCTION
000524 4324 0000           719       MVA   $PID,R3                  LOAD ADDRESS OF START OF PROG
000528 CB2F 0018           720       SW    R3,LSTIO                 SUB TO OBTAIN LISTING ADDRESS
00052C 600C                721       SVC   PREP                     * AND CALL ON SUPVR
00052E 68C2 0000           722       B     (R6)                     RETURN
                           724 ********************************************************************************
                           725 *                  COMMON PRINT ERROR INTERFACE ROUTINE                        *
                           726 *                                                                              *
                           727 * ----> R6        LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE        *
                           728 *                  BRANCH IS TAKEN TO PRINT THE ERROR                          *
                           729 * ----> R4        LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE        *
                           730 *                  BRANCH IS TAKEN TO PRINT THE ERROR                          *
                           731 * ----> R3        LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE             *
                           732 *                  BRANCH IS TAKEN TO PRINT THE ERROR                          *
                           733 * ----> PRNTRTN THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST )          *
                           734 *                  POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE      *
                           735 *                  WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN            *
                           736 *                                                                              *
                           737 ********************************************************************************
000532 4624 0012           738 $PRNT MVA   OPTN3,R6                 LOAD ADDRESS OF OPTION WORD THREE
000536 6D08 181E           739       MVW   PRNTRTN,R5               LOAD ADDRESS OF COMMON PRNT ROUTINE
00053A 4424 0000           740       MVA   $PID,R4                  LOAD ADDRESS OF START OF PROG
00053E 4324 0042           741       MVA   PCTR,R3                  LOAD ADDRESS OF PASS COUNTER
000542 6FA3 0000           742       BAL   (R5),R7                  BRANCH TO COMMON PRINT ROUTINE
000546 CE25 0012           743       MVWZ  OPTN3,R6                 ZERO OUT ALL FLAGS
00054A 4424 000E           744       MVA   OPTN1,R4                 LOAD BASE ADDRESS FOR INDICATORS
00054E 802B 0232 00A6      745       CB    CPUTYPE,TYPE23           IS THIS A TYPE 23 PROCESSOR
000554 1803                746       JNE   $PRN2                    BRANCH IF NO
000556 4524 E000           747       MVWI  X'E000',R5               INIT LOOP COUNTER
00055A 5002                748       J     $PRN1                    BRANCH
00055C 4524 8000           749 $PRN2 MVWI  X'8000',R5               INIT LOOP COUNTER
000560 6002                750 $PRN1 SVC   IDLE                     DELAY
000562 4C03                751       TBT   (R4,TM)                  SHOULD PROG TERMINATE
000564 6A00 00E4           752       BON   $TERM                    BRANCH YES
000568 7DA1 0001           753       AWI   1,R5                     INCREMENT LOOP COUNTER
00056C 18F9                754       JNZ   $PRN1                    BRANCH NOT ZERO
00056E 6802 00B2           755       B     $PENT                    BRANCH TO RESTART FROM BEGINING
                           757 ********************************************************************************
                           758 *                                                                              *
                           759 *                  ROUTINE TO CHANGE DEVICE ADDRESS ON MULTILINE CARDS         *
                           760 *                                                                              *
                           761 ********************************************************************************
000572 402B 00AA 4000      762 SUPDA TWI   X'4000',$DVUT+2          IS THE CHAIN BIT ON
000578 1204                763       JON   SUP1                     BRANCH NO
00057A 4C4D                764       TBTS  (R4,QUES)                INDICATE THAT IT IS RESTORED
00057C 4020 05CE 004C      765 SUPD  MVA   $DVAD,WORK1              RESTORE TO FIRST ENTRY
000582 6D08 05CE           766 SUP1  MVW   WORK1,R5                 LOAD ADDRESS INTO R5
000586 4324 00A8           767       MVA   $DVUT,R3                 LOAD ADDRESS INTO R3
00058A 4724 000A           768       MVWI  10,R7                    INIT COUNT
00058E 2D64                769       MVFN  (R5),(R3)                MOVE ENTRY
000590 4029 05CE 000A      770       AWI   10,WORK1                 INCREMENT R1 TO NEXT ENTRY
000596 C320 00AB           771       MVB   $DVUT+3,R3               LOAD VALID ENTRY BYTE
00059A 7B06 001F           772       CWI   X'001F',R3               IS THIS A VALID ENTRY
00059E 10E9                773       JE    SUPDA                    BRANCH NO
0005A0 4C8D                774       TBTR  (R4,QUES)                IS THIS AFTER A RESTORE
0005A2 1204                775       JON   SUPRT                    BRANCH YES
0005A4 CD25 05D0           776       MVWZ  WORK2,R5                 LOAD RETURN ADDRESS
0005A8 68A1 000C           777       BNZ   (R5)                     BRANCH IF VALID RETURN ADDRESS
0005AC 4C8F                778 SUPRT TBTR  (R4,DIR)                 SHOULD RETURN BE VIA R6
0005AE 1202                779       JON   SUPTV                    BRANCH YES
0005B0 6802 00DC           780       B     $PUPD                    BRANCH YES
0005B4 4C8D                781 SUPTV TBTR  (R4,QUES)                RESET BIT
0005B6 4724 000A           782       MVWI  10,R7                    INIT R7 TO COUNT
0005BA 4524 05D2           783       MVA   WORK3,R5                 INIT FROM ADDRESS
0005BE 4324 00A8           784       MVA   $DVUT,R3                 INIT TO ADDRESS
0005C2 2D64                785       MVFN  (R5),(R3)                MOVE DEV TABLE
0005C4 8828 05DC 05CE      786       MVW   WORK4,WORK1              RESTORE WORK1
0005CA 68C2 0000           787       B     (R6)                     RETURN TO CONTINUE
                           789 ********************************************************************************
                           790 ********************************************************************************
0005CE 0000                791 WORK1 DC    A(*-*)                   DEV TABLE POINTER
0005D0 0000                792 WORK2 DC    A(*-*)                   RETURN POINTER FOR ROUTINE SUPDA
0005D2 00000000000000000   793 WORK3 DC    XL10'00'                 TEMP SAVE AREA FOR DEV TAB
0005DC 0000                794 WORK4 DC    A(*-*)                   TEMP SAVE AREA FOR WORK1
0005DE 4040404040404040404 796 DRBUF DC    CL40' '                  MAXIMUM WRITE BUFFER
000606                     797 TSTEN EQU   *
                           798 ********************************************************************************
0000B2                     799       END   $PENT
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CROSS-REFERENCE LISTING — COPYRIGHT IBM CORP 1976

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
       0  .R1.      ABSOLUTE. HEX VALUE(00000001)
                    222   223   224   240   241   242   246   247   248
                    252   253   254   268   272   274
       0  .R2.      ABSOLUTE. HEX VALUE(00000002)
                    214   233   239
       0  .R3.      ABSOLUTE. HEX VALUE(00000003)
                    151   152   493   505   506   507   510   511   514
                    557   558   559   583   584   590   617   618   626
                    667   712   716   719   720   741   767   769   771
                    772   784   785
       0  .R4.      ABSOLUTE. HEX VALUE(00000004)
                    154   155   160   161   326   334   495   496   499
                    501   515   523   526   528   532   533   585   586
                    588   592   619   620   622   623   624   635   636
                    638   648   650   652   654   656   658   660   663
                    669   672   740   744   751   764   774   778   781
       0  .R5.      ABSOLUTE. HEX VALUE(00000005)
                    150   152   188   189   190   191   192   508   510
                    512   514   520   521   522   530   628   629   630
                    631   633   634   739   742   747   749   753   766
                    769   776   777   783   785
       0  .R6.      ABSOLUTE. HEX VALUE(00000006)
                    153   163   187   193   194   213   217   229   234
                    237   238   267   270   271   286   288   325   328
                    336   503   655   668   671   674   710   717   722
                    738   743   787
       0  .R7.      ABSOLUTE. HEX VALUE(00000007)
                    149   166   170   173   174   218   220   509   513
                    517   589   627   708   714   742   768   782
      60  $CKPT     ADDRESS. HEX LOCATION(0000000C) IN CSECT(EE9E0   ) LENGTH(2)
                    188   230   269   287   327   335
     711  $CONC     ADDRESS. HEX LOCATION(00000502) IN CSECT(EE9E0   ) LENGTH(1)
                    217   234   267   286   325
     707  $CONR     ADDRESS. HEX LOCATION(000004F8) IN CSECT(EE9E0   ) LENGTH(1)
                    213
     100  $DATA     ADDRESS. HEX LOCATION(0000001A) IN CSECT(EE9E0   ) LENGTH(2)
                    189   190   314
     123  $DVAD     ADDRESS. HEX LOCATION(0000004C) IN CSECT(EE9E0   ) LENGTH(2)
                     58   148   150   173   765
     133  $DVID     ADDRESS. HEX LOCATION(0000009E) IN CSECT(EE9E0   ) LENGTH(2)
                    224   227
     138  $DVUT     ADDRESS. HEX LOCATION(000000A8) IN CSECT(EE9E0   ) LENGTH(10)
                    151   235   289   296   303   315   332   433   678
                    687   762   767   771   784
     132  $INTL     ADDRESS. HEX LOCATION(0000009C) IN CSECT(EE9E0   ) LENGTH(2)
                    147   169   214   215   216   231   233   631   713
      97  $IOIN     ADDRESS. HEX LOCATION(00000014) IN CSECT(EE9E0   ) LENGTH(2)
                    559   626   715
      98  $ISB      ADDRESS. HEX LOCATION(00000016) IN CSECT(EE9E0   ) LENGTH(2)
                    329   337   627   716
     134  $MXSL     ADDRESS. HEX LOCATION(000000A0) IN CSECT(EE9E0   ) LENGTH(2)
                    182
     145  $PENT     ADDRESS. HEX LOCATION(000000B2) IN CSECT(EE9E0   ) LENGTH(6)
                     57   183   198   755   799
      55  $PID      ADDRESS. HEX LOCATION(00000000) IN CSECT(EE9E0   ) LENGTH(4)
                    505   719   740
     738  $PRNT     ADDRESS. HEX LOCATION(00000532) IN CSECT(EE9E0   ) LENGTH(4)
                    228   245   251   257   275   316   333   534   560
                    662   666   673
     750  $PRN1     ADDRESS. HEX LOCATION(00000560) IN CSECT(EE9E0   ) LENGTH(2)
                    748   754
     749  $PRN2     ADDRESS. HEX LOCATION(0000055C) IN CSECT(EE9E0   ) LENGTH(4)
                    746
     187  $PSEL     ADDRESS. HEX LOCATION(0000013E) IN CSECT(EE9E0   ) LENGTH(4)
                    258   276   312   341
     154  $PUPD     ADDRESS. HEX LOCATION(000000DC) IN CSECT(EE9E0   ) LENGTH(4)
                    780
     181  $PUP8     ADDRESS. HEX LOCATION(00000130) IN CSECT(EE9E0   ) LENGTH(6)
                    156
     168  $RETI     ADDRESS. HEX LOCATION(00000102) IN CSECT(EE9E0   ) LENGTH(6)
                    165
     198  $RTAD     ADDRESS. HEX LOCATION(0000015C) IN CSECT(EE9E0   ) LENGTH(2)
                    194
      59  $RTNE     ADDRESS. HEX LOCATION(0000000A) IN CSECT(EE9E0   ) LENGTH(2)
                    153   181   182   187
     160  $TERM     ADDRESS. HEX LOCATION(000000E4) IN CSECT(EE9E0   ) LENGTH(2)
                    527   752
     173  $TER1     ADDRESS. HEX LOCATION(0000011A) IN CSECT(EE9E0   ) LENGTH(4)
                    168
     178  $TER2     ADDRESS. HEX LOCATION(0000012E) IN CSECT(EE9E0   ) LENGTH(2)
                    163
     165  $TER3     ADDRESS. HEX LOCATION(000000F6) IN CSECT(EE9E0   ) LENGTH(6)
                    162   176
      92  CE        ABSOLUTE. HEX VALUE(00000028)
                    495   588   660
      38  CICB      ABSOLUTE. HEX VALUE(00000014)
                    709
      51  CPUTYPE   ABSOLUTE. HEX VALUE(00000232)
                    518   745
      91  CS        ABSOLUTE. HEX VALUE(00000027)
                    496   499   586   624   658
     111  CSBUF     ADDRESS. HEX LOCATION(00000032) IN CSECT(EE9E0   ) LENGTH(1)
                    272   367   512
     359  CSDCB     ADDRESS. HEX LOCATION(00000332) IN CSECT(EE9E0   ) LENGTH(1)
                    497
     672  CSRTN     ADDRESS. HEX LOCATION(000004DC) IN CSECT(EE9E0   ) LENGTH(2)
                    661
     276  CSST4     ADDRESS. HEX LOCATION(0000024C) IN CSECT(EE9E0   ) LENGTH(6)
                    273
     119  CSTL8     ADDRESS. HEX LOCATION(00000040) IN CSECT(EE9E0   ) LENGTH(2)
                    589   590
     103  DCBUF     ADDRESS. HEX LOCATION(00000022) IN CSECT(EE9E0   ) LENGTH(2)
                    507
     101  DEV3      ADDRESS. HEX LOCATION(0000001E) IN CSECT(EE9E0   ) LENGTH(2)
                    191   192   226   227   244   250   256   274   634
     102  DEV4      ADDRESS. HEX LOCATION(00000020) IN CSECT(EE9E0   ) LENGTH(2)
                    315   331   332   339
     371  DGDCB     ADDRESS. HEX LOCATION(00000342) IN CSECT(EE9E0   ) LENGTH(1)
                    431   435
      69  DIR       ABSOLUTE. HEX VALUE(0000000F)
                    161   778
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
   796    DRBUF       ADDRESS. HEX LOCATION(000005DE) IN CSECT(EE9E0   ) LENGTH(40)
                      239   240   241   244   246   247   250   252   253
                      256   291   294   298   301   305   308   310   314
                      355   379   392   404
   347    DRDCB       ADDRESS. HEX LOCATION(00000322) IN CSECT(EE9E0   ) LENGTH(1)
                      268   437
   384    DSDCB       ADDRESS. HEX LOCATION(00000352) IN CSECT(EE9E0   ) LENGTH(1)
                      443
    36    EE9E0       CSECT. START(00000000) LENGTH(1542) ESDID(0)
                       36
    85    ER          ABSOLUTE. HEX VALUE(00000021)
                      532   592   652   663   672
    41    EXIT        ABSOLUTE. HEX VALUE(00000006)
                      639
   396    E1DCB       ADDRESS. HEX LOCATION(00000362) IN CSECT(EE9E0   ) LENGTH(1)
                      439
   409    E2DCB       ADDRESS. HEX LOCATION(00000373) IN CSECT(EE9E0   ) LENGTH(1)
                      402   441
    93    GI          ABSOLUTE. HEX VALUE(00000029)
                      622   669
   135    H0000       ADDRESS. HEX LOCATION(000000A2) IN CSECT(EE9E0   ) LENGTH(2)
                      146
   136    H0001       ADDRESS. HEX LOCATION(000000A4) IN CSECT(EE9E0   ) LENGTH(2)
                      181
    42    IDLE        ABSOLUTE. HEX VALUE(00000002)
                      525   750
    87    IN          ABSOLUTE. HEX VALUE(00000023)
                      501   515   528   623
   687    INTBL       ADDRESS. HEX LOCATION(000004F0) IN CSECT(EE9E0   ) LENGTH(2)
                      708
   583    INTER       ADDRESS. HEX LOCATION(00000448) IN CSECT(EE9E0   ) LENGTH(2)
                      689
   592    INTET       ADDRESS. HEX LOCATION(00000460) IN CSECT(EE9E0   ) LENGTH(2)
                      587
   617    INTOK       ADDRESS. HEX LOCATION(00000464) IN CSECT(EE9E0   ) LENGTH(2)
                      688
   639    INTRX       ADDRESS. HEX LOCATION(0000049A) IN CSECT(EE9E0   ) LENGTH(2)
                      637
   623    INTR1       ADDRESS. HEX LOCATION(00000472) IN CSECT(EE9E0   ) LENGTH(2)
                      591   593   621
   628    INTR2       ADDRESS. HEX LOCATION(00000480) IN CSECT(EE9E0   ) LENGTH(2)
                      625
   636    INTR3       ADDRESS. HEX LOCATION(00000494) IN CSECT(EE9E0   ) LENGTH(2)
                      632
   678    IOBLK       ADDRESS. HEX LOCATION(000004E4) IN CSECT(EE9E0   ) LENGTH(2)
                      166   170   218   220   517   714
   680    IODCB       ADDRESS. HEX LOCATION(000004E8) IN CSECT(EE9E0   ) LENGTH(2)
                      169   171   431   437   439   441   443   497   508
                      713
   679    IOERR       ADDRESS. HEX LOCATION(000004E6) IN CSECT(EE9E0   ) LENGTH(2)
                      145   165   168
   681    IOMOD       ADDRESS. HEX LOCATION(000004EA) IN CSECT(EE9E0   ) LENGTH(2)
                      432   493   498
   683    IORSP       ADDRESS. HEX LOCATION(000004EE) IN CSECT(EE9E0   ) LENGTH(2)
                      222   226
   238    ITSTA       ADDRESS. HEX LOCATION(000001CE) IN CSECT(EE9E0   ) LENGTH(4)
                      236
   216    ITST4       ADDRESS. HEX LOCATION(00000174) IN CSECT(EE9E0   ) LENGTH(6)
                      232
   229    ITST5       ADDRESS. HEX LOCATION(000001A8) IN CSECT(EE9E0   ) LENGTH(4)
                      225
   258    ITST7       ADDRESS. HEX LOCATION(0000021E) IN CSECT(EE9E0   ) LENGTH(6)
                      255
   252    ITST8       ADDRESS. HEX LOCATION(00000206) IN CSECT(EE9E0   ) LENGTH(4)
                      249
   246    ITST9       ADDRESS. HEX LOCATION(000001EE) IN CSECT(EE9E0   ) LENGTH(4)
                      243
    89    LE          ABSOLUTE. HEX VALUE(00000025)
                      635   650
    90    LI          ABSOLUTE. HEX VALUE(00000026)
                      533
    99    LSTIO       ADDRESS. HEX LOCATION(00000018) IN CSECT(EE9E0   ) LENGTH(2)
                      503   504   506   717   718   720
    84    MI          ABSOLUTE. HEX VALUE(00000020)
                      638   648
    62    OPTN1       ADDRESS. HEX LOCATION(0000000E) IN CSECT(EE9E0   ) LENGTH(2)
                      154   585   619   744
    72    OPTN3       ADDRESS. HEX LOCATION(00000012) IN CSECT(EE9E0   ) LENGTH(2)
                      667   712   738   743
   120    PCTR        ADDRESS. HEX LOCATION(00000042) IN CSECT(EE9E0   ) LENGTH(2)
                      146   741
    94    PE          ABSOLUTE. HEX VALUE(0000002A)
                      654
    43    PREP        ABSOLUTE. HEX VALUE(0000000C)
                      172   721
    50    PRNTRTN     ABSOLUTE. HEX VALUE(0000181E)
                      739
    67    QUES        ABSOLUTE. HEX VALUE(0000000D)
                      160   764   774   781
    47    RESET       ABSOLUTE. HEX VALUE(00000008)
                      167   219
    44    RICB        ABSOLUTE. HEX VALUE(00000013)
                      175
    48    RID         ABSOLUTE. HEX VALUE(00000009)
                      221
   213    RT01        ADDRESS. HEX LOCATION(00000166) IN CSECT(EE9E0   ) LENGTH(4)
                      199
   267    RT02        ADDRESS. HEX LOCATION(00000228) IN CSECT(EE9E0   ) LENGTH(4)
                      200
   286    RT03        ADDRESS. HEX LOCATION(00000256) IN CSECT(EE9E0   ) LENGTH(4)
                      201
   314    RT03E       ADDRESS. HEX LOCATION(000002C4) IN CSECT(EE9E0   ) LENGTH(6)
                      292   295   299   302   306   309   311
   296    RT031       ADDRESS. HEX LOCATION(0000027E) IN CSECT(EE9E0   ) LENGTH(6)
                      293
   303    RT032       ADDRESS. HEX LOCATION(00000298) IN CSECT(EE9E0   ) LENGTH(6)
                      300
   310    RT033       ADDRESS. HEX LOCATION(000002B2) IN CSECT(EE9E0   ) LENGTH(6)
                      307
   294    RT036       ADDRESS. HEX LOCATION(00000276) IN CSECT(EE9E0   ) LENGTH(6)
                      290
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
   301    RT037       ADDRESS. HEX LOCATION(00000290) IN CSECT(EE9E0   ) LENGTH(6)
                      297
   308    RT038       ADDRESS. HEX LOCATION(000002AA) IN CSECT(EE9E0   ) LENGTH(6)
                      304
   325    RT04        ADDRESS. HEX LOCATION(000002D4) IN CSECT(EE9E0   ) LENGTH(4)
                      202
   334    RT041       ADDRESS. HEX LOCATION(000002FC) IN CSECT(EE9E0   ) LENGTH(2)
                      330
   341    RT042       ADDRESS. HEX LOCATION(00000318) IN CSECT(EE9E0   ) LENGTH(6)
                      338
   332    RT043       ADDRESS. HEX LOCATION(000002F2) IN CSECT(EE9E0   ) LENGTH(6)
                      340
    45    START       ABSOLUTE. HEX VALUE(0000000A)
                      524
   765    SUPD        ADDRESS. HEX LOCATION(0000057C) IN CSECT(EE9E0   ) LENGTH(6)
                      164
   762    SUPDA       ADDRESS. HEX LOCATION(00000572) IN CSECT(EE9E0   ) LENGTH(6)
                      177   259   277   313   342   773
   778    SUPRT       ADDRESS. HEX LOCATION(000005AC) IN CSECT(EE9E0   ) LENGTH(2)
                      775
   781    SUPTV       ADDRESS. HEX LOCATION(000005B4) IN CSECT(EE9E0   ) LENGTH(2)
                      779
   766    SUP1        ADDRESS. HEX LOCATION(00000582) IN CSECT(EE9E0   ) LENGTH(4)
                      763
    46    TERM        ABSOLUTE. HEX VALUE(00000007)
                      178
    66    TM          ABSOLUTE. HEX VALUE(00000003)
                      155   526   751
   137    TYPE23      ADDRESS. HEX LOCATION(000000A6) IN CSECT(EE9E0   ) LENGTH(2)
                      518   745
   791    WORK1       ADDRESS. HEX LOCATION(000005CE) IN CSECT(EE9E0   ) LENGTH(2)
                      148   765   766   770   786
   792    WORK2       ADDRESS. HEX LOCATION(000005D0) IN CSECT(EE9E0   ) LENGTH(2)
                      162   176   258   276   312   341   776
   793    WORK3       ADDRESS. HEX LOCATION(000005D2) IN CSECT(EE9E0   ) LENGTH(10)
                      783
   794    WORK4       ADDRESS. HEX LOCATION(000005DC) IN CSECT(EE9E0   ) LENGTH(2)
                      786
    88    XE          ABSOLUTE. HEX VALUE(00000024)
                      326   334   620   656
    86    XI          ABSOLUTE. HEX VALUE(00000022)
                      523   636
   493    XIO         ADDRESS. HEX LOCATION(000003C0) IN CSECT(EE9E0   ) LENGTH(4)
                      438   440   442   444
   648    XIOCK       ADDRESS. HEX LOCATION(0000049C) IN CSECT(EE9E0   ) LENGTH(2)
                      502   516   529
   654    XIOCM       ADDRESS. HEX LOCATION(000004A8) IN CSECT(EE9E0   ) LENGTH(2)
                      651
   497    XIOCS       ADDRESS. HEX LOCATION(000003CA) IN CSECT(EE9E0   ) LENGTH(6)
                      271   665
   666    XIOCU       ADDRESS. HEX LOCATION(000004C8) IN CSECT(EE9E0   ) LENGTH(4)
                      649   653   670
   663    XIOCV       ADDRESS. HEX LOCATION(000004C0) IN CSECT(EE9E0   ) LENGTH(2)
                      659
   667    XIOCX       ADDRESS. HEX LOCATION(000004CC) IN CSECT(EE9E0   ) LENGTH(4)
                      664
   431    XIODG       ADDRESS. HEX LOCATION(00000384) IN CSECT(EE9E0   ) LENGTH(6)
                      238   288
   437    XIODR       ADDRESS. HEX LOCATION(000003A0) IN CSECT(EE9E0   ) LENGTH(6)
                      229   270
   443    XIODS       ADDRESS. HEX LOCATION(000003B8) IN CSECT(EE9E0   ) LENGTH(6)
                      237
   557    XIOER       ADDRESS. HEX LOCATION(0000043C) IN CSECT(EE9E0   ) LENGTH(2)
                      145   679
   439    XIOE1       ADDRESS. HEX LOCATION(000003A8) IN CSECT(EE9E0   ) LENGTH(6)
                      328
   441    XIOE2       ADDRESS. HEX LOCATION(000003B0) IN CSECT(EE9E0   ) LENGTH(6)
                      336
   669    XIOGI       ADDRESS. HEX LOCATION(000004D4) IN CSECT(EE9E0   ) LENGTH(2)
                      657
   503    XIO1        ADDRESS. HEX LOCATION(000003DE) IN CSECT(EE9E0   ) LENGTH(4)
                      434   436   494
   515    XIO2        ADDRESS. HEX LOCATION(00000406) IN CSECT(EE9E0   ) LENGTH(2)
                      500
   522    XIO5        ADDRESS. HEX LOCATION(0000041C) IN CSECT(EE9E0   ) LENGTH(2)
                      519
   523    XIO6        ADDRESS. HEX LOCATION(0000041E) IN CSECT(EE9E0   ) LENGTH(2)
                      521
   525    XIO8        ADDRESS. HEX LOCATION(00000422) IN CSECT(EE9E0   ) LENGTH(2)
                      531
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                             3 ************************************************************************
                             4 *                                                                      *
                             5 *                    ***       PREREQUISITES        ***               *
                             6 *                                NONE                                  *
                             7 *                                                                      *
                             8 ************************************************************************
                             9 *                                                                      *
                            10 *                    ***       MODIFICATIONS        ***               *
                            11 *                                                                      *
                            12 *                     IMPROVEMENTS MADE TO RESPONSE TIME               *
                            13 *                                                                      *
                            14 ************************************************************************
                            15 *                                                                      *
                            16 *                    ***     REA'S INCORPORATED     ***               *
                            17 *                                                                      *
                            18 *                                27-11576                              *
                            19 *                                                                      *
                            20 ************************************************************************
                            21 *                                                                      *
                            22 *                    ***    SPECIAL INSTRUCTIONS    ***               *
                            23 *                                NONE                                  *
                            24 *                                                                      *
                            25 ************************************************************************
                            26 *                                                                      *
                            27 *                    ***       E. C. HISTORY        ***               *
                            28 *                                                                      *
                            29 *          DATE 06MAY77  DATE 15SEP77  DATE          DATE              *
                            30 *          E.C. 578756   E.C. 754882   E.C.          E.C.              *
                            31 *                                                                      *
                            32 ************************************************************************
 000000                     33 EF0E0 START X'0000'
                            34 *                SUPERVISOR EQUATES
 000014                     35 CICB   EQU   20                    CONNECT INTERRUPT CONTROL BLOCK
 000001                     36 OUTIN  EQU   1                     OUT MESSAGE WITH EXPECTED RESPONCE
 00001A                     37 HTOE   EQU   26                    CHANGE HEX DATA TO EBCDIC DATA
 000006                     38 EXIT   EQU   6                     EXIT INTERRUPT LEVEL
 000002                     39 IDLE   EQU   2                     SHARE PROGRAM TIME WITH OTHER PGMS
 00000C                     40 PREP   EQU   12                    PREPARE DEVICE
 000013                     41 RICB   EQU   19                    RELEASE INTERRUPT CONTROL BLOCK
 00000A                     42 START  EQU   10                    START CYCLE STEAL COMMAND
 000007                     43 TERM   EQU   7                     TERMINATE THIS PROGRAM
 000008                     44 RESET  EQU   8                     DEVICE RESET
 000009                     45 RID    EQU   9                     DEVICE READ ID
 000000                     46 REG    EQUR  0                     WORK REGISTER
 00181E                     47 PRNTRTN EQU  X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
 000232                     48 CPUTYPE EQU  X'0232'               ADDRESS OF PROCESSOR TYPE
                            49 *
                            50 *            PROGRAM HEADING AND CONTROL WORDS
                            51 *
 000000  C6F0F0F0           52 $PID   DC    C'F000'               PROGRAM IDENTIFICATION
 000004  0000               53        DC    XL2'0000'             CURRENT LEVEL OF PROGRAM
 000006  0062               54        DC    A($PENT)              -> TO START EXEC ADDRESS
 000008  004C               55        DC    A($DVAD)              -> TO DEVICE TABLE
 00000A  0000               56 $RTNE  DC    A(*-*)                ROUTINE NUMBER BEING RUN
 00000C  0000               57 $CKPT  DC    A(*-*)                LAST CHECK POINT PASSED
 00000E  0000               58 OPTN1  DC    X'0000'               PROGRAM OPTION CONTROL WORD 1
                            59 *
                            60 * BIT FUNCTION
                            61 *
 000003                     62 TM     EQU   3                     TERMINATE PROGRAM
 00000D                     63 QUES   EQU   13                    QUESTION HAS BEEN ASKED
 00000E                     64 IND    EQU   14                    INDICATOR
 00000F                     65 DIR    EQU   15                    SEEK DIRECTION INDICATOR
                            66 *
 000010  0000               67 OPTN2  DC    X'0000'               PROGRAM OPTION CONTROL WORD 2
 000012  0000               68 OPTN3  DC    X'0000'               PROGRAM OPTION CONTROL WORD 3
                            69 *
                            70 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                            71 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                            72 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                            73 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                            74 *
                            75 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                            76 *  5  WRONG INTR LEVEL      LE       13  N.U.
                            77 *  6  LOAS INTERRUPT        LI       14  N.U.
                            78 *  7  CS STATUS IN  PROGR   CS       15  N.U.
                            79 *                   BIT     HEX
 000020                     80 MI     EQU   32      0       8     MYSTERY INTERRUPT HAPPENED
 000021                     81 ER     EQU   33      1       4     ERROR RECEIVED ON INTERRUPT
 000022                     82 XI     EQU   34      2       2     EXPECTED INTERRUPT CONTROL BIT
 000023                     83 IN     EQU   35      3       1     INTERRUPT RECEIVED CONTROL BIT
 000024                     84 XE     EQU   36      4       8     EXPECTED ERROR RESPONSE
 000025                     85 LE     EQU   37      5       4     INTERRUPT ON WRONG LEVEL ERROR
 000026                     86 LI     EQU   38      6       2     LOST INTERRUPT
 000027                     87 CS     EQU   39      7       1     CYCLE STATUS IN PROGRESS
 000028                     88 CE     EQU   40      8       8     CYCLE STEAL STATUS INERRRUPT ERROR
 000029                     89 GI     EQU   41      9       4     GOOD INTERRUPT RECEIVED (EXPECTED ER)
 00002A                     90 PE     EQU   42      10      2     PROBABLE ERROR EXPECTED
 00002B                     91 NI     EQU   43      11      1     NO INTR. EXPECTED (UNPEPPED DEV.
 000014  0000               92 $IOIN  DC    A(*-*)                I/O AND INTR CONDITION CODES
 000016  0000               93 $ISB   DC    A(*-*)                R7, INTR STATUS BYTE & DEV ADRS
 000018  0000               94 LSTIO  DC    A(*-*)                ADRS OF LAST I/O + 4 BYTES
 00001A  00000000           95 $DATA  DC    2A(*-*)               DEVICE DEPENDENT DATA
 00001E  0000               96 DEV3   DC    A(*-*)                DEPENDENT DATA DEV3
 000020  0000               97 DEV4   DC    A(*-*)                DEPENDENT DATA DEV4
 000022  0000               98 DCBUF  DC    A(*-*)                LAST DCB TABLE, CONTROL WORD
 000024  0000               99 DCB2   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000026  0000              100 DCB3   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000028  0000              101 DCB4   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002A  0000              102 DCB5   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002C  0000              103 DCB6   DC    A(*-*)                LAST DCB TABLE, CHAIN ADRS
 00002E  0000              104 DCB7   DC    A(*-*)                LAST DCB TABLE, BYTE COUNT
 000030  0000              105 DCB8   DC    A(*-*)                LAST DCB TABLE, BUFFER ADDRESS
 000032                    106 CSBUF  EQU   *                     CYCLE STEAL DATA BUFFER
 000032  0000              107 CSTL1  DC    A(*-*)                CYCLE STEAL BUFFER, RESIDUAL ADRS
 000034  0000              108 CSTL2  DC    A(*-*)                CYCLE STEAL WD 2, DEVICE DEPEND
 000036  0000              109 CSTL3  DC    A(*-*)                CYCLE STEAL WD 3, DEVICE DEPEND
 000038  0000              110 CSTL4  DC    A(*-*)                CYCLE STEAL WD 4, DEVICE DEPEND
 00003A  0000              111 CSTL5  DC    A(*-*)                CYCLE STEAL WD 5, DEVICE DEPEND
 00003C  0000              112 CSTL6  DC    A(*-*)                CYCLE STEAL WD 6, DEVICE DEPEND
 00003E  0000              113 CSTL7  DC    A(*-*)                CYCLE STEAL WD 7, DEVICE DEPEND
 000040  0000              114 CSTL8  DC    A(*-*)                CYCLE STEAL WD 8, DEVICE DEPEND
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
 000042  00000000          115 PCTR   DC    2A(*-*)               PASS COUNTER
 000046  00000000          116 ECTR   DC    2A(*-*)               ERROR COUNTER
 00004A  0005               117 ERNUM  DC    X'0005'               NUM OF ERRORS PROG CAN HAVE
 00004C  0F0D               118 $DVAD  DC    X'00F0'               DEVICE ADDRESS BEING TESTED
 00004E  0000000000000000   119         DC    XL8'00'
 000056  0011               120 $INTL  DC    X'0011'               INTERRUPT LEVEL REQUESTED
 000058  1006               121 $DVID  DC    X'1006'               DEVICE IDENTIFICATION
 00005A  0005               122 $MXSL  DC    A(5)                  MAXIMUM SELECTABLE ROUTINES
 00005C  0000               123 H0000  DC    X'0000'               CONSTANT
 00005E  0001               124 H0001  DC    X'0001'               HEX WORD CONSTANT
 000060  2300               125 TYPE23 DC    X'2300'               CONSTANT TO CHECK PROCESSOR AGAINST
                            126 ************************************************************************
                            127 *                                                                      *
                            128 *            PROGRAM CONTROL FUNCTIONS                                 *
                            129 *                                                                      *
                            130 ************************************************************************
 000062  4020 03DA 0330     131 $PENT  MVA   XIOER,IOERR           RESTORE ERROR ADDRESS
 000068  A82A 005C 0042     132        AD    H0000,PCTR            ADVANCE PASS COUNTER BY 1
 00006E  4020 0056 0011     133        MVWI  X'0011',$INTL         INIT INTERRUPT LEVEL
 000074  CE25 000A          134 $PEN1  MVWZ  $RTNE,R6              CLEAR OLD ROUTINE NUMBER
 000078  4424 000E          135 $PUPD  MVA   OPTN1,R4              R4 MUST BE SET TO 'OPTN1'
 00007C  4C03               136 $PUP2  TBT   (R4,TM)               IS TERMINATE PGM REQUESTED
 00007E  1018               137        JZ    $PUP8                 * NO, CONTINUE CHECKING
                            138 *
                            139 *            TERMINATE CONTROL BIT FOUND ON
                            140 *
 000080  4020 03DA 008C     141 $TERM  MVA   $RETI,IOERR           INIT ERROR ADDRESS
 000086  4724 03D8          142        MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
 00008A  6008               143        SVC   RESET                 ISSUE SVC
 00008C  4020 03DA 00A4     144 $RETI  MVA   $TER1,IOERR           INIT ERROR ADDRESS
 000092  8828 0056 03DC     145        MVW   $INTL,IODCB           LOAD CURRENT INTERRUPT LEVEL
 000098  4724 03D8          146        MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
 00009C  4020 03DC 0001     147        RBTWI X'0001',IODCB         TURN OF PREPARE 'I' BIT
 0000A2  600C               148        SVC   PREP                  ISSUE SVC
 0000A4  C720 004C          149 $TER1  MVB   $DVAD,R7              LOAD CURRENT DEV ADDRESS
 0000A8  7FE4 FF00          150        RBTWI X'FF00',R7            ZERO HIGH ORDER BYTE
 0000AC  6013               151        SVC   RICB                  ISSUE SVC
 0000AE  6007               152        SVC   TERM                  ISSUE SVC
                            153 *
 0000B0  A828 005E 000A     154 $PUP8  AW    H0001,$RTNE           ADVANCE ROUTINE NUMBER
 0000B6  882B 005A 000A     155        CW    $MXSL,$RTNE           CHECK FOR LAST AUTOMATIC ROUTINE
 0000BC  10D2               156        JE    $PENT                 * BCH AND START WITH RTN 1
                            157 *
                            158 *            GET RTN NUMBER AND BCH TO THAT RTN
                            159 *
 0000BE  6E08 000A          160 $PSEL  MVW   $RTNE,R6              MOVE RTN NUMBER IN REG
 0000C2  CD25 000C          161        MVWZ  $CKPT,R5              ZERO CHECKPOINT
 0000C6  CD25 001A          162        MVWZ  $DATA,R5              ZERO ALL FOUR WORDS OF DEV
 0000CA  CD25 001C          163        MVWZ  $DATA+2,R5            * DEPENDENT DATA
 0000CE  CD25 001E          164        MVWZ  DEV3,R5               *  -------------
 0000D2  CD25 0020          165        MVWZ  DEV3+2,R5             *  -------------
 0000D6  3609               166        SLL   1,R6                  DOUBLE FOR BRANCH TABLE
 0000D8  68D2 00DC          167        B     (R6,$RTAD)*           BCH VIA RTN TABLE
                            168 *
                            169 *            TABLE OF ROUTINE ADDRESSES
                            170 *
 0000DC  0062               171 $RTAD  DC    A($PENT)              NO RTN SELECTED
 0000DE  0086               172        DC    A(RT01)               ROUTINE ADDRESS
 0000E0  0184               173        DC    A(RT02)                     ''      ''
 0000E2  01A8               174        DC    A(RT03)                     ''      ''
 0000E4  01DC               175        DC    A(RT04)                     ''      ''
                            176 ************************************************************************
                            177 *     CHANNEL INTERFACE TEST                                           *
                            178 *                                                                      *
                            179 *     TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS      *
                            180 *     THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO  *
                            181 *     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS  *
                            182 *     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS       *
                            183 *     EXCEPT LEVEL THREE. THEN A DIAG. READ IS PREFORMED AND THE       *
                            184 *     RECEIVED CHECKSUM VALUES ARE CHECKED.                            *
                            185 ************************************************************************
 0000E6  6E03 03EC          186 RT01   BAL   $CONR,R6              CLEAR AND CONNECT I/O BLK
 0000EA  6A08 0056          187        MVW   $INTL,R2              SAVE SELECTED INTERRUPT
 0000EE  4020 0056 FFF1     188        MVWI  X'FFF1',$INTL         SET UP INTERRUPT LEVEL FOR PREP
 0000F4  4029 0056 0010     189 ITST4  AWI   X'10',$INTL           ADV INTR LEVEL, STARTING AT 0
 0000FA  6E03 03F6          190        BAL   $CONC,R6              GO PREPARE ON NEW LEVEL
 0000FE  4724 03D8          191        MVA   IOBLK,R7              SET UP POINTER TO CONTROL BLOCK
 000102  6008               192        SVC   RESET                 CALL SUPVR TO ISSUE RESET
 000104  4724 03D8          193        MVA   IOBLK,R7              SET UP POINTER TO CONTROL BLOCK
 000108  6009               194        SVC   RID                   CALL SUPVR TO ISSUE READ ID
 00010A  882B 03E2 0058     195        CW    IORSP,$DVID           IS ID RECEIVED THE SAME
 000110  1008               196        JE    ITST5                 * YES, CONTINUE
 000112  8828 03E2 001E     197        MVW   IORSP,DEV3            LOAD RECEIVED ID INTO DEV3
 000118  8828 0058 0020     198        MVW   $DVID,DEV3+2          LOAD EXPECTED ID INTO DEV4
 00011E  6802 0426          199        B     $PRNT                 BRANCH TO PRINT ERROR
 000122  6E03 0294          200 ITST5  BAL   XIOAS,R6              EXEC NO-OP TO GET AN INTR
 000126  402F 0056 0001     201        AWI   1,$CKPT               BUMP CHECKPOINT
 00012C  402P 0056 0021     202        CWI   X'21',$INTL           HAS INTR LEVEL COME DOWN TO 2
 000132  18E0               203        JNE   ITST4                 * NO, BCH AND CONTINUE TEST
 000134  6A0D 0056          204        MVW   R2,$INTL              RESTORE SELECTED INTR LEVEL
 000138  6E03 03F6          205        BAL   $CONC,R6              SET UP FOR START IO ON CORRECT LEV.
 00013C  402B 0052 8000     206        TWI   X'8000',$DVAD+6       IS DTR JUMPERED ON
 000142  1202               207        JON   ITSTA                 BRANCH YES
 000144  6E03 02AC          208        BAL   XIODS,R6              BRANCH TO DISABLE DTR
 000148  6E03 0286          209 ITSTA  BAL   XIODG,R6              SET UP FOR START IO
 00014C  4224 0466          210 ITSTC  MVA   DRBUF,R2              SET UP TO CHECK CHECKSUM
 000150  6908 0466          211        MVW   DRBUF,R1              SET UP TO CHECK CHECKSUM VALUE
 000154  690B 0468          212        XW    DRBUF+2,R1            * AGAINST SHOULD BE
 000158  7921 0001          213        AWI   1,R1                  CHECK FOR A VALID CHECKSUM
 00015C  1005               214        JZ    ITST9                 BCH IF OKAY
 00015E  9028 0466 001E     215        MVD   DRBUF,DEV3            MOVE ERRORED CHECKSUM VALUE
 000164  6802 0426          216        B     $PRNT                 BRANCH TO PRINT ERROR
 000168  6908 046A          217 ITST9  MVW   DRBUF+4,R1            SET UP TO CHECK CHECKSUM VALUE
 00016C  690B 046C          218        XW    DRBUF+6,R1            * AGAINST SHOULD BE
 000170  7921 0001          219        AWI   1,R1                  CHECK FOR A VALID CHECKSUM
 000174  1005               220        JZ    ITST7                 BCH IF OKAY
 000176  9028 046A 001E     221        MVD   DRBUF+4,DEV3          MOVE ERRORED CHECKSUM VALUE
 00017C  6802 0426          222        B     $PRNT                 BRANCH TO PRINT ERROR
 000180  6802 0078          223 ITST7  B     $PUPD                 BRANCH TO CONTINUE
                            224 ************************************************************************
                            225 *     CYCLE STEAL STATUS                                               *
                            226 *     THIS TEST WILL VERIFY THAT THE ATTACHMENT WILL SEND BACK THE     *
                            227 *     ADDRESS OF THE LAST CYCLE STEAL ADDRESS.                         *
                            228 *                                                                      *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           238 ************************************************************
000184  6E03 03F6          239 RT02  BAL   $CONC,R6                 PREPARE DEVICE ON CORRECT LEVEL
000188  4124 046D          240       MVA   DRBUF+7,R1               LAST CYCLE ADRS USED
00018C  4029 000C 0001     241       AWI   1,$CKPT                  BUMP CHECKPOINT
000192  6E03 02BE          242       BAL   XIOCS,R6                 GO GET STATUS FROM LAST I/O
000196  C924 0032          243       CW    CSBUF,R1                 COMPARE LAST STG LOCATION USED
                           244       JE    CSST4                    BRANCH IF GOOD ADDRESS
00019C  690D 0020          245       MVW   R1,DEV3+2                LOAD EXPECTED ADDRESS INTO DEV4
0001A0  6802 0426          246       B     $PRNT                    BRANCH TO PRINT ERROR
0001A4  6802 0078          247 CSST4 B     $PUPD                    BRANCH TO CONTINUE
                           248 ************************************************************
                           249 *                                                          *
                           250 *     DIAGNOSTIC MODE                                      *
                           251 *     CHECK ALL STATUS WORDS                               *
                           252 *                                                          *
                           253 *     A CYCLE STEEL STATUS IS PREFORMED AND WORDS 2 AND 3 ARE *
                           254 *     CHECKED FOR VALIDITY.                                *
                           255 ************************************************************
0001A8  6E03 03F6          256 RT03  BAL   $CONC,R6                 PREPARE DEVICE ON CORRECT LEVEL
0001AC  4029 000C 0001     257       AWI   1,$CKPT                  BUMP CHECKPOINT
0001B2  6E03 02BE          258       BAL   XIOCS,R6                 BRANCH TO ISSUE DIAG. COM.
0001B6  D120 0034          259       MVD   CSTL2,R1                 LOAD STATUS INFORMATION
0001BA  7924 F800          260       RBTWI X'F800',R1               RESET ALL UNKNOWN BITS
0001BE  7A44 5FFF          261       RBTWI X'5FFF',R2               RESET ALL UNKNOWN BITS
0001C2  C924 0050          262       CW    $DVAD+4,R1               TEST FIRST WORD
0001C6  1005               263       JE    RT032                    BRANCH IF EQUAL
0001C8  9028 0050 001E     264 RT031 MVD   $DVAD+4,DEV3             LOAD BOTH WORDS INTO OUTPUT AREA
0001CE  6802 0426          265       B     $PRNT                    BRANCH TO PRINT
0001D2  CA24 0052          266 RT032 CW    $DVAD+6,R2               COMPARE SECOND WORD
0001D6  18F8               267       JNE   RT031                    BRANCH IF NOT EQUAL
0001D8  6802 0078          268       B     $PUPD                    BRANCH TO CONTINUE
                           269 ************************************************************
                           270 *                                                          *
                           271 *     DIAGNOSTIC MODE                                      *
                           272 *     CHECK ERROR CONDITIONS.                              *
                           273 *                                                          *
                           274 *     ERRORED DCB'S ARE ISSUED TO INSURE A COMMAND REJECT AND *
                           275 *     A DCB SPEC. CHECK ERROR TO BE RETURNED FROM THE ATTACHMENT CARD.*
                           276 ************************************************************
0001DC  6E03 03F6          277 RT04  BAL   $CONC,R6                 PREPARE DEVICE ON CORRECT LEVEL
0001E0  4C64               278       TBTS  (R4,XE)                  SET EXPECTED ERROR BIT
0001E2  4029 000C 0001     279       AWI   1,$CKPT                  BUMP CHECKPOINT
0001E8  6E03 029C          280       BAL   XIOE1,R6                 BRANCH TO TEST ERROR
0001EC  402B 0016 1000     281       TWI   X'1000',$ISB             IS ISB EQU TO 10XX
0001F2  1208               282       JON   RT041                    BRANCH YES
0001F4  4020 0020 1000     283       MVWI  X'1000',DEV4             DEV4 EQUALS EXPECTED DATA
0001FA  8028 004C 0021     284 RT043 MVB   $DVAD,DEV4+1             LOAD DEV ADDRESS
000200  6802 0426          285       B     $PRNT                    BRANCH TO PRINT ERROR
000204  4C64               286 RT041 TBTS  (R4,XE)                  SET EXPECTED ERROR BIT
000206  4029 000C 0001     287       AWI   1,$CKPT                  BUMP CHECKPOINT
00020C  6E03 02A4          288       BAL   XIOE2,R6                 BRANCH TO TEST ERROR
000210  402B 0016 4000     289       TWI   X'4000',$ISB             IS ISB EQUAL TO 40XX
000216  1204               290       JON   RT042                    BRANCH YES
000218  4020 0020 4000     291       MVWI  X'4000',DEV4             DEV4 EQUALS EXPECTED DATA
00021E  50ED               292       J     RT043                    BRANCH
000220  6802 0078          293 RT042 B     $PUPD                    BRANCH TO CONTINUE
                           294 *
                           295 *                ASCIE CONTROL BLOCK
                           296 *
000224                     297 ASDCB EQU   *                        USE FOR DCB REFEPENCE ONLY
000224  0040               298       DC    X'0040'                  CONTROL WORD
000226  0000               299       DC    X'0000'
000228  0000               300       DC    X'0000'
00022A  0000               301       DC    X'0000'
00022C  0000               302       DC    X'0000'
00022E  0000               303       DC    X'0000'
000230  0000               304 ASCHN DC    A(*-*)                   CHAIN ADRS
000232  0466               305 ASBCT DC    A(*-*)                   BYTE COUNT
                           306 ASADR DC    A(DRBUF)                 BUFFER ADRS
                           307 *
                           308 *           CYCLE STEAL DATA CONTROL BLOCK
                           309 *
000234                     310 CSDCB EQU   *                        USE FOR DCB REFERENCE ONLY
000234  2000               311 CSCTL DC    X'2000'                  CONTROL WORD
000236  0000               312 CSFMS DC    X'0000'                  NOT USED
000238  0000               313 CSSKP DC    X'0000'                  NOT USED
00023A  0000               314       DC    X'0000'
00023C  0000               315       DC    X'0000'
00023E  0000               316 CSCHN DC    A(0000)                  CHAIN ADRS, NOT USED
000240  0006               317 CSBCT DC    X'0006'                  BYTE COUNT
000242  0032               318 CSADR DC    A(CSBUF)                 BUFFER ADRS
                           319 *
                           320 *           DIAGNOSTIC  DATA CONTROL BLOCK
                           321 *
000244                     322 DGDCB EQU   *                        USED FOR DCB REFERENCE ONLY
000244  2000               323 DGCTL DC    X'2000'                  CONTROL WORD
000246  0000               324 DGDC2 DC    X'0000'                  N.U.
000248  0000               325 DGDC3 DC    X'0000'
00024A  0000               326 DGDC4 DC    X'0000'
00024C  0000               327 DGDC5 DC    X'0000'
00024E  0000               328 DGCHN DC    A(0000)                  CHAIN ADDRESS
000250  0008               329 DGBCT DC    X'0008'                  BYTE COUNT
000252  0466               330 DGADR DC    A(DRBUF)                 BUFFER ADDRESS
                           331 *
                           332 *           DISABLE DTR CONTROL BLOCK
                           333 *
000254                     334 DSDCB EQU   *                        USED FOR DCB REFERENCE ONLY
000254  0010               335 DSCTL DC    X'0010'                  CONTROL WORD
000256  0000               336 DSDC2 DC    X'0000'                  N.U.
000258  0000               337 DSDC3 DC    X'0000'
00025A  0000               338 DSDC4 DC    X'0000'
00025C  0000               339 DSDC5 DC    X'0000'
00025E  0000               340 DSCHN DC    X'0000'                  CHAIN ADDRESS
000260  0000               341 DSBCT DC    X'0000'                  BYTE COUNT
000262  0466               342 DSADR DC    A(DRBUF)                 BUFFER ADDRESS
                           343 *
                           344 *           ERROR ONE DATA CONTROL BLOCK
                           345 *
000264                     346 E1DCB EQU   *                        USED FOR DCB REFERENCE ONLY
000264  8002               347 E1CTL DC    X'8002'                  CONTROL WORD
000266  0000               348 E1DC2 DC    X'0000'                  N.U.
000268  0000               349 E1DC3 DC    X'0000'
00026A  0000               350 E1DC4 DC    X'0000'
00026C  0000               351 E1DC5 DC    X'0000'
00026E  0275               352 E1CHN DC    A(E2DCB)                 CHAIN ADDRESS
000270  0000               353 E1BCT DC    X'0000'                  BYTE COUNT
000272  0466               354 E1ADR DC    A(DRBUF)                 BUFFER ADDRESS
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           356 *
                           357 *           ERROR FOUR DATA CONTROL BLOCK
                           358 *
000274  00                 359       DC    X'00'
000275                     360 E2DCB EQU   *                        USED FOR DCB REFERENCE ONLY
000275  0000               361 E2CTL DC    X'0000'                  CONTROL WORD
000277  0000               362 E2DC2 DC    X'0000'                  N.U.
000279  0000               363 E2DC3 DC    X'0000'
00027B  0000               364 E2DC4 DC    X'0000'
00027D  0000               365 E2DC5 DC    X'0000'
00027F  0000               366 E2CHN DC    X'0000'                  CHAIN ADDRESS
000281  0000               367 E2BCT DC    X'0000'                  BYTE COUNT
000283  0000               368 E2ADR DC    X'0000'                  BUFFER ADDRESS
000285  00                 369       ALIGN WORD
                           370 ************************************************************
                           371 *                                                          *
                           372 *     ISSUE ALL I/O COMMANDS FROM A COMMON SUBROUTINE      *
                           373 *     TO DISPLAY INSTRUCTIONS AND OPERATING PROCEDURES TO THE OPERATOR*
                           374 *     AND SET UP ANY REQUIREMENTS FOR OTHER I/O COMMANDS   *
                           375 *                                                          *
                           376 * --> BAL   XIODG,R6                 XEQ DIAG. MOD = D COMMAND *
                           377 * --> BAL   XIOAS,R6                 XEQ DTR COMMAND          *
                           378 * --> BAL   XIOE1,R6                 XEQ ERROR ONE COMMAND    *
                           379 * --> BAL   XIOE2,R6                 XEQ ERROR TWO COMMAND    *
                           380 *                                                          *
                           381 ************************************************************
000286  4020 03DC 0244     382 XIODG MVA   DGDCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
00028C  4020 03DE 000D     383       MVWI  X'0D',IOMOD              MOVE MODIFIER INTO CONTROL BLOCK
000292  501F               384       J     XIO1                     BRANCH
000294  4020 03DC 0224     385 XIOAS MVA   ASDCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
00029A  500C               386       J     XIO                      BRANCH
00029C  4020 03DC 0264     387 XIOE1 MVA   E1DCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0002A2  5008               388       J     XIO                      BRANCH
0002A4  4020 03DC 0275     389 XIOE2 MVA   E2DCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0002AA  5004               390       J     XIO                      BRANCH
0002AC  4020 03DC 0254     391 XIODS MVA   DSDCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0002B2  5000               392       J     XIO                      BRANCH
                           393 ************************************************************
                           394 *                                                          *
                           395 * SOUBROUTINE                                              *
                           396 *                                                          *
                           397 *     EXECUTE INPUT AND OUTPUT COMMANDS                    *
                           398 *                                                          *
                           399 * PURPOSE                                                  *
                           400 *                                                          *
                           401 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.     *
                           402 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:     *
                           403 *                                                          *
                           404 *     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED *
                           405 *        THE I/O COMMAND.                                  *
                           406 *     2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS *
                           407 *        ISSUED BY THIS SUBROUTINE.                        *
                           408 *     3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE *
                           409 *        START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE. *
                           410 *     4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT *
                           411 *        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND, *
                           412 *        MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.        *
                           413 *     5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE *
                           414 *        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'. *
                           415 *     6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING *
                           416 *        STARTS TO DETERMINE A LOST INTERRUPT.             *
                           417 *     7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF *
                           418 *        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL. *
                           419 *     8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.       *
                           420 *     9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN. *
                           421 *    10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN. *
                           422 *    11. CHECK IS A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS *
                           423 *        ISSUED BY THIS SUBROUTINE.                        *
                           424 *    12. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A *
                           425 *        CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON, *
                           426 *        COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED. *
                           427 *                                                          *
                           428 * CALLING SEQUENCE                                        *
                           429 *                                                          *
                           430 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:              *
                           431 *                                                          *
                           432 * --> B     XIO                      XEQ ANY CYCLE STEAL COMMAND, MOD=0 *
                           433 * --> BAL   XIOCS,R6                 XEQ START CYCLE STEAL STATUS, MOD=F *
                           434 *                                                          *
                           435 * RETURN CONTROL                                          *
                           436 *                                                          *
                           437 *     BXS   (R6)                     RETURN TO USER NO ERROR *
                           438 ************************************************************
0002B4  CB25 03DE          439 XIO   MVWZ  IOMOD,R3                 SET MOF OF 0 FOR CYCLE STEAL OP
0002B8  500C               440       J     XIO1                     CS I/O'S ARE NOT RETRIED
0002BA  4C67               441       TBTR  (R4,CE)                  RESET CS STATUS INTER ERROR INDICAT.
0002BC  4C67               442       TBTS  (R4,CS)                  SET 'CYCLE STEAL STATUS' IN PROGRESS
0002BE  4020 03DC 0234     443 XIOCS MVA   CSDCB,IODCB              SET UP CONTROL BLOCK FOR SVC CALL
0002C4  4020 03DE 000F     444       MVWI  X'000F',IOMOD            SET CYCLE STEAL MODIFIER
0002CA  4C27               445       TBT   (R4,CS)                  IS CS IN PROGRESS, ERROR CONDITION
0002CC  1216               446       JON   XIO2                     * YES, BYPASS SAVING I/O ADRS
0002CE  4C23               447       TBT   (R4,IN)                  TEST FOR INTERRUPT
0002D0  125F               448       JON   XIOCK                    BRANCH IF YES
0002D2  6E0D 0018          449 XIO1  MVW   R6,LSTIO                 SAVE IAR FOR RETRY IF REQUESTED
0002D6  402E 0018 0004     450       SWI   4,LSTIO                  DECREMENT FOR LAS INSTRUCTION
0002DC  4324 0000          451       MVA   $PID,R3                  LOAD ADDRESS OF PROGRAM START
0002E0  CB2F 0018          452       SW    R3,LSTIO                 SUB TO OBTAIN LISTING ADDRESS
0002E4  4324 0022          453       MVA   DCBUF,R3                 SET UP TO ADRS TO MOVE DCB TABLE
0002E8  6D08 03DC          454       MVW   IODCB,R5                 * AND THE FROM ADRS, ALONG WITH
0002EC  0F10               455       MVBI  16,R7                    * THE NUMBER OF MOVES
0002EE  2D64               456       MVFN  (R5),(R3)                MVE 1 STATUS WORD AND ADJUST
0002F0  0BFF               457       MVBI  255,R3                   CLEAR CYCLE STATUS BUFFER
0002F2  4524 0032          458       MVA   CSBUF,R5                 *  TO ALL ONES  *
0002F6  0F10               459       MVBI  16,R7                    *
0002F8  2BAC               460       FFN   R3,(R5)                  *
0002FA  4CA3               461 XIO2  TBTR  (R4,IN)                  CLEAR INTERRUPT RECEIVED CNTL BIT
0002FC  1249               462       JON   XIOCK                    BRANCH IF ON
0002FE  4724 03D8          463       MVA   IOBLK,R7                 SET UP CONTROL BLOCK FOR SUPVR
000302  802B 0232 0060     464       CB    CPUTYPE,TYPE23           CHECK FOR PROCESSOR 23
000308  1803               465       JNE   XIO5                     BRANCH NOT EQUAL
00030A  4524 0000          466       MVWI  X'0000',R5               LOAD LOOP COUNT
00030E  5001               467       J     XIO6                     BRANCH
000310  75AA               468 XIO5  SW    R5,R5                    LOAD LOOP COUNT
000312  4C62               469 XIO6  TBTS  (R4,XI)                  SET EXPECTED INTR CONTROL BIT
000314  600A               470       SVC   START                    CALL SUPVR FOR I/O COMMAND
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000316  6002               473 XIO8  SVC   IDLE                  ALLOW OTHER PROG TIME
000318  4C03               474       TBT   (R4,TM)               IS TERMINATE BIT ON
00031A  6A00 0080          475       BON   $TERM                 BRANCH IF ON
00031E  4CA3               476       TBTR  (R4,IN)               HAS INTERRUPT BEEN RECEIVED
000320  1237               477       JON   XIOCK                * YES, CHECK IF ALL WAS SATISFACTORY
000322  7DA1 0001          478       AWI   1,R5                  ADVANCE TIME OUT COUNT
000326  18F7               479       JNZ   XIO8                  BCH IF TIME OUT NOT REACHED
000328  4C61               480       TBTS  (R4,ER)               SET ON ERROR CONTROL BIT
00032A  4C66               481       TBTS  (R4,LI)               SET LOST INTERRUPT CONTROL BIT
00032C  6802 0426          482       B     $PRNT                 * BCH TO FINISH ERROR SEQUENCE
                           484 ********************************************************************
                           485 *                                                                  *
                           486 * SUBROUTINE                                                       *
                           487 *                                                                  *
                           488 *     I/O EXECUTE ERROR HANDLING ROUTINE                           *
                           489 *                                                                  *
                           490 * PURPOSE                                                          *
                           491 *                                                                  *
                           492 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE   *
                           493 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE *
                           494 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                          *
                           495 *                                                                  *
                           496 * CALLING SEQUENCE                                                 *
                           497 *                                                                  *
                           498 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND       *
                           499 *                                                                  *
                           500 * RETURN CONTROL                                                   *
                           501 *                                                                  *
                           502 *     B     $PRNT                 DUMP STATUS BEFORE TERMINATION   *
                           503 *                                                                  *
                           504 ********************************************************************
000330  706E               505 XIOER CPLSR R3                    SAVE CONDITION CODE ON I/O ERROR
000332  336A               506       SRL   13,R3                 POSITION CC CODE TO BITS 13-15
000334  C328 0014          507       MVB   R3,$IOIN              * PUT IN LOG OUT AREA
000338  6802 0426          508       B     $PRNT                 BRANCH TO PRINT ERROR
                           510 ********************************************************************
                           511 *                                                                  *
                           512 * SOUBROUTINE                                                      *
                           513 *                                                                  *
                           514 *     ERROR INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'  *
                           515 *                                                                  *
                           516 * PURPOSE                                                          *
                           517 *                                                                  *
                           518 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR *
                           519 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE    *
                           520 *     EXPECTED CODE.                                               *
                           521 *                                                                  *
                           522 * CALLING SEQUENCE                                                 *
                           523 *                                                                  *
                           524 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT     *
                           525 *                                                                  *
                           526 * RETURN CONTROL                                                   *
                           527 *                                                                  *
                           528 *     SVC   EXIT                  RETURN TO USER VIA SUPVR         *
                           529 *                                                                  *
                           530 ********************************************************************
00033C  706E               531 INTER CPLSR R3                    SAVE INDICATORS
00033E  336A               532       SRL   13,R3                 POSITION INDICATORS IN R3
000340  4424 000E          533       MVA   OPTN1,R4              SET UP BASE ADRS
000344  4C27               534       TBT   (R4,CS)               IS CS IN PROGRESS
000346  1006               535       JOFF  INTET                 * NO
000348  4C68               536       TBTS  (R4,CE)               TURN ON CYCLE STEAL INTER ERROR
00034A  6F0D 0040          537       MVW   R7,CSTL8              SAVE CS ERR ISB VALUE, BITS 0-7
00034E  C328 0041          538       MVB   R3,CSTL8+1            * AND THE COND CODE
000352  5009               539       J     INTR1                 BRANCH
000354  4C61               540 INTET TBTS  (R4,ER)               SET ERROR ON I/O COMMAND CNTL BIT
000356  5007               541       J     INTR1                 BRANCH
                           543 ********************************************************************
                           544 *                                                                  *
                           545 * SOUBROUTINE                                                      *
                           546 *                                                                  *
                           547 *     OKAY  INTERRUPT             RUNS ON INTERRUPT LEVEL '$INTL'  *
                           548 *                                                                  *
                           549 * PURPOSE                                                          *
                           550 *                                                                  *
                           551 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                 *
                           552 *                                                                  *
                           553 * CALLING SEQUENCE                                                 *
                           554 *                                                                  *
                           555 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED       *
                           556 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE      *
                           557 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE           *
                           558 *     COMMON SECTION IS HANDLED HERE.                              *
                           559 *                                                                  *
                           560 * RETURN CONTROL                                                   *
                           561 *                                                                  *
                           562 *     SVC   EXIT                  RETURN TO USER VIA SUPVR         *
                           563 *                                                                  *
                           564 ********************************************************************
000358  706E               565 INTOK CPLSR R3                    SAVE INDICATORS
00035A  336A               566       SRL   13,R3                 POSITION INDICATORS IN R3
00035C  4424 000E          567       MVA   OPTN1,R4              SET UP BASE ADRS
000360  4C24               568       TBT   (R4,XE)               TEST EXPECTED ERROR BIT
000362  1001               569       JOFF  INTR1                 BRANCH IF OFF
000364  4C69               570       TBTS  (R4,GI)               SET GOOD INTERRUPT BIT
000366  4C63               571 INTR1 TBTS  (R4,IN)               SET   INTERRUPT RECEIVED
000368  4C27               572       TBT   (R4,CS)               IS 'CS IN PROGRESS' ON
00036A  1204               573       JON   INTR2                 * YES, BCH AROUND UPDATE
00036C  C328 0015          574       MVB   R3,$IOIN+1            SAVE INTERRUPTING CC CODE
000370  6F0D 0016          575       MVW   R7,$ISB               SAVE INTR STATUS AND DEV ADRS
000374  78B9               576 INTR2 CPCL  R5                    COPY INTERRUPT LEVEL TO CHECK
000376  3521               577       SLL   4,R5                  POSITION INTR LEVEL AND PUT
000378  0501               578       ABI   1,R5                  * IN 'I' BIT
00037A  CD24 0056          579       CW    $INTL,R5              IS THIS THE CORRECT INTR LEVEL
00037E  1004               580       JE    INTR3                 * YES, GO EXIT THIS LEVEL
000380  3521               581       SLL   4,R5                  POSITION RECEIVED LEVEL
000382  6D0D 0020          582       MVW   R5,DEV3+2             STORE INTO DEV4
000386  4C65               583       TBTS  (R4,LE)               SET INTE LEVEL ERROR CONTROL BIT
000388  4CA2               584 INTR3 TBTR  (R4,XI)               WAS INTERRUPT EXPECTED
00038A  1201               585       JON   INTRX                 * YES, EXIT OFF THIS INTR LEVEL
00038C  4C60               586       TBTS  (R4,MI)               * NO, SET MYSTERY INTR CONTROL BIT
00038E  6006               587 INTRX SVC   EXIT                  EXIT THIS LEVEL VIA SUPVR TO PGM
                           589 ********************************************************************
                           590 *
```



```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                           591 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                           592 *     HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN
                           593 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
                           594 *
                           595 ********************************************************************
000390  4C20               596 XIOCK TBT   (R4,MI)               WAS THERE AN UNEXPECTED INTERRUPT
000392  1214               597       JON   XIOCU                 BRANCH IF YES
000394  4C25               598       TBT   (R4,LE)               WAS AN INTR LEVEL ERROR FOUND
000396  1002               599       JOFF  XIOCM                 * NO, CONTINUE CHECKING
000398  4C61               600       TBTS  (R4,ER)               SET ERROR CONTROL BIT ON
00039A  5010               601       J     XIOCU                 BRANCH
00039C  4CAA               602 XIOCM TBTR  (R4,PE)               WAS A PROBABLE ERROR EXPECTED
00039E  6AC0 0000          603       BON   (R6)                  BRANCH YES
0003A2  4C24               604       TBT   (R4,XE)               WAS AN ERROR EXPECTED
0003A4  1211               605       JN    XIOGI                 * YES, BRANCH
0003A6  4C27               606       TBT   (R4,CS)               WAS AUTO CS IN PROGRESS
0003A8  1005               607       JOFF  XIOCV                 * NO, CONTINUE CHECKING
0003AA  4C28               608       TBT   (R4,CE)               IS CS IN AN ERR CONDITION
0003AC  6800 03D0          609       BOFF  CSRTN                 * NO, BCH
0003B0  6802 0426          610       B     $PRNT                 GO LOG CS ERROR
0003B4  4C21               611 XIOCV TBT   (R4,ER)               WAS ERROR INTR CONTROL BIT ON
0003B6  1004               612       JOFF  XIOCX                 * NO, EXIT THIS ROUTINE
0003B8  6802 02BA          613 XIOCQ B     XIOCS-4               * AVAILABLE, GO AND GET IT
0003BC  6802 0426          614 XIOCU B     $PRNT                 PRINT ERROR
0003C0  CB25 0012          615 XIOCX MVWZ  OPTN3,R3              CLEAR OUT OPTION 3 CNTL BITS
0003C4  68C2 0000          616       B     (R6)                  RETURN TO USER VIA REG 6
0003C8  4C29               617 XIOGI TBT   (R4,GI)               WAS A GOOD INTERRUPT RECEIVED
0003CA  12F8               618       JON   XIOCU                 YES BRANCH
0003CC  68C2 0000          619       B     (R6)                  RETURN
0003D0  4C21               620 CSRTN TBT   (R4,ER)               TEST FOR ERROR
0003D2  6A00 0426          621       BON   $PRNT                 BRANCH IF YES
0003D6  5600               622       BXS   (R6)                  RETURN
                           623 *
                           624 *          I/O   PARAMETER LIST
                           625 *
0003D8  004C               626 IOBLK DC    A($DVAD)              ADRS OF DEVICE ADRS
0003DA  0330               627 IOERR DC    A(XIOER)              ERROR ROUTINE ADRS
0003DC  0000               628 IODCB DC    A(*-*)                DCB ADRS OR LEVEL & INTR
0003DE  0000               629 IOMOD DC    A(*-*)                MODIFIER
0003E0  0000               630       DC    A(*-*)                ADRS OF LAST SVC CALL
0003E2  0000               631 IORSP DC    A(*-*)                SECOND WORD OF LAST IDCB
                           632 *
                           633 *          INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                           634 *
0003E4  004C               635 INTBL DC    A($DVAD)              ADRS OF DEVICE ADRS
0003E6  0358               636 INT01 DC    A(INTOK)              INTERRUPT OK RETURN ADRS
0003E8  033C               637 INT02 DC    A(INTER)              INTERRUPT ERROR ADRS
0003EA  0003               638 INTCC DC    X'0003'               INTERRUPT CODE EXPECTED
                           640 ********************************************************************
                           641 *                                                                  *
                           642 * SUBROUTINE                                                       *
                           643 *                                                                  *
                           644 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE             *
                           645 *                                                                  *
                           646 * PURPOSE                                                          *
                           647 *                                                                  *
                           648 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND     *
                           649 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE *
                           650 *     TO INTERRUPT.                                                *
                           651 *                                                                  *
                           652 * CALLING SEQUENCE                                                 *
                           653 *                                                                  *
                           654 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                   *
                           655 *                                                                  *
                           656 * --> BAL   $CONC,R6              CLEAR DEV DEP STG AND CONNECT I/O BLK
                           657 * --> BAL   $CONR,R6              BCH TO CONNECT                   *
                           658 * --> BAL   $CONP,R6              PREPARE DEVICE ONLY              *
                           659 *                                                                  *
                           660 * RETURN CONTROL                                                   *
                           661 *                                                                  *
                           662 *     BXS   (R6)                  RETURN TO USER VIA REG 6         *
                           663 *                                                                  *
                           664 ********************************************************************
0003EC                     665 $CONR EQU   *
0003EC  4724 03E4          666       MVA   INTBL,R7              SET R7 TO CONTROL BLOCK AND
0003F0  6014               667       SVC   CICB                  * CONNECT IT TO THIS DEVICE
0003F2  68C2 0000          668       B     (R6)                  RETURN
0003F6                     669 $CONC EQU   *
0003F6  CB25 0012          670       MVWZ  OPTN3,R3              CLEAR OLD CONTROLS FOR NEW ROUTINE
0003FA  8828 0056 03DC     671 $CONP MVW   $INTL,IODCB           PUT IN LEVEL & INTR PARAMETER
000400  4724 03D8          672       MVA   IOBLK,R7              SET R7 TO CONTROL BLOCK TO PREPARE
000404  4020 0014 07FF     673       MVWI  X'07FF',$IOIN         INITIALIZE CONDITION CODE STORAGE
00040A  CB25 0016          674       MVWZ  $ISB,R3               * AND CLEAR OLD ISB VALUE
00040E  6E0D 0018          675       MVW   R6,LSTIO              SET UP ADDRESS THAT STARTED LAST I/O
000412  402E 0018 0004     676       SWI   4,LSTIO               DECREMENT TO POINT AT INSTRUCTION
000418  4C24               677       MVA   $PID,R3               LOAD ADDRESS OF START OF PROG
00041C  CB2F 0018          678       SW    R3,LSTIO              SUB TO OBTAIN LISTING ADDRESS
000420  600C               679       SVC   PREP                  * AND CALL ON SUPVR
000422  68C2 0000          680       B     (R6)                  RETURN
                           682 ********************************************************************
                           683 *                COMMON PRINT ERROR INTERFACE ROUTINE              *
                           684 *                                                                  *
                           685 * ----> R6      LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE *
                           686 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                           687 * ----> R4      LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE *
                           688 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                           689 * ----> R3      LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE    *
                           690 *                BRANCH IS TAKEN TO PRINT THE ERROR                *
                           691 * ----> PRNTRTN THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST ) *
                           692 *                POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                           693 *                WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN *
                           694 *                                                                  *
                           695 ********************************************************************
000426  4624 0012          696 $PRNT MVA   OPTN3,R6              LOAD ADDRESS OF OPTION WORD THREE
00042A  6D08 181E          697       MVW   PRNTRTN,R5            LOAD ADDRESS OF COMMON PRNT ROUTINE
00042E  4424 0000          698       MVA   $PID,R4               LOAD ADDRESS OF START OF PROG
000432  4324 0042          699       MVA   PCTR,R3               LOAD ADDRESS OF PASS COUNTER
000436  6FA3 0000          700       BAL   (R5),R7               BRANCH TO COMMON PRINT ROUTINE
00043A  CE25 0012          701       MVWZ  OPTN3,R6              ZERO OUT ALL FLAGS
00043E  4424 000E          702       MVA   OPTN1,R4              LOAD BASE ADDRESS FOR INDICATORS
000442  802B 0232 0060     703       CB    CPUTYPE,TYPE23        IS THIS A TYPE 23 PROCESSOR
000448  1803               704       JNE   $PRN2                 BRANCH IF NO
00044A  4524 E000          705       MVWI  X'E000',R5            INIT LOOP COUNTER
00044E  5002               706       J     $PRN1                 BRANCH
```

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 LOCTR   OBJECT TEXT          STMT SOURCE.STATEMENT                    COPYRIGHT IBM CORP 1976

000450  4524 8000             707 $PRN2  MVWI  X'8000',R5             INIT LOOP COUNTER
000454  6002                  708 $PRN1  SVC   IDLE                    DELAY
000456  4C03                  709        TBT   (R4,TM)                SHOULD PROG TERMINATE
000458  6A00 0080             710        BON   $TERM                   BRANCH YES
00045C  7DA1 0001             711        AWI   1,R5                    INCREMENT LOOP COUNTER
000460  18F9                  712        JNZ   $PRN1                   BRANCH NOT ZERO
000462  6802 0062             713        B     $PENT                   BRANCH TO RESTART FROM BEGINING
                              714 ********************************************************************************
                              715 ********************************************************************************
000466  40404040404040404    716 DRBUF  DC    CL16' '                 MAXIMUM WRITE BUFFER
000476                        717 TSTEN  EQU   *
                              718 ********************************************************************************
000062                        719        END   $PENT
```


CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
       0  .R1.      ABSOLUTE. HEX VALUE(00000001)
                    219   220   221   225   226   227   240   243   245
                    259   260   262
       0  .R2.      ABSOLUTE. HEX VALUE(00000002)
                    195   212   218   261   266
       0  .R3.      ABSOLUTE. HEX VALUE(00000003)
                    441   453   454   455   458   459   462   505   506
                    507   531   532   538   565   566   574   615   670
                    674   677   678   699
       0  .R4.      ABSOLUTE. HEX VALUE(00000004)
                    141   142   278   286   443   444   447   449   463
                    471   474   476   480   481   533   534   536   540
                    567   568   570   571   572   583   584   586   596
                    598   600   602   604   606   608   611   617   620
                    698   702   709
       0  .R5.      ABSOLUTE. HEX VALUE(00000005)
                    168   169   170   171   172   456   458   460   462
                    468   470   470   478   576   577   578   579   581
                    582   697   700   705   707   711
       0  .R6.      ABSOLUTE. HEX VALUE(00000006)
                    140   167   173   174   194   198   208   213   216
                    217   239   242   256   258   277   280   288   451
                    603   616   619   622   668   675   680   696   701
       0  .R7.      ABSOLUTE. HEX VALUE(00000007)
                    148   152   155   156   199   201   457   461   465
                    537   575   666   672   700
      60  $CKPT     ADDRESS. HEX LOCATION(0000000C) IN CSECT(EF0E0   ) LENGTH(2)
                    168   209   241   257   279   287
     669  $CONC     ADDRESS. HEX LOCATION(000003F6) IN CSECT(EF0E0   ) LENGTH(1)
                    198   213   239   256   277
     665  $CONR     ADDRESS. HEX LOCATION(000003EC) IN CSECT(EF0E0   ) LENGTH(1)
                    194
     100  $DATA     ADDRESS. HEX LOCATION(0000001A) IN CSECT(EF0E0   ) LENGTH(2)
                    169   170
     123  $DVAD     ADDRESS. HEX LOCATION(0000004C) IN CSECT(EF0E0   ) LENGTH(2)
                     58   155   214   262   264   266   284   626   635
     126  $DVID     ADDRESS. HEX LOCATION(00000058) IN CSECT(EF0E0   ) LENGTH(2)
                    203   206
     125  $INTL     ADDRESS. HEX LOCATION(00000056) IN CSECT(EF0E0   ) LENGTH(2)
                    139   151   195   196   197   210   212   579   671
      97  $IOIN     ADDRESS. HEX LOCATION(00000014) IN CSECT(EF0E0   ) LENGTH(2)
                    507   574   673
      98  $ISB      ADDRESS. HEX LOCATION(00000016) IN CSECT(EF0E0   ) LENGTH(2)
                    281   289   575   674
     127  $MXSL     ADDRESS. HEX LOCATION(0000005A) IN CSECT(EF0E0   ) LENGTH(2)
                    162
     137  $PENT     ADDRESS. HEX LOCATION(00000062) IN CSECT(EF0E0   ) LENGTH(6)
                     57   163   178   713   719
      55  $PID      ADDRESS. HEX LOCATION(00000000) IN CSECT(EF0E0   ) LENGTH(4)
                    453   677   698
     696  $PRNT     ADDRESS. HEX LOCATION(00000426) IN CSECT(EF0E0   ) LENGTH(4)
                    207   224   230   246   265   285   482   508   610
                    614   621
     708  $PRN1     ADDRESS. HEX LOCATION(00000454) IN CSECT(EF0E0   ) LENGTH(2)
                    706   712
     707  $PRN2     ADDRESS. HEX LOCATION(00000450) IN CSECT(EF0E0   ) LENGTH(4)
                    704
     141  $PUPD     ADDRESS. HEX LOCATION(00000078) IN CSECT(EF0E0   ) LENGTH(4)
                    231   247   268   293
     161  $PUP8     ADDRESS. HEX LOCATION(000000B0) IN CSECT(EF0E0   ) LENGTH(6)
                    143
     150  $RETI     ADDRESS. HEX LOCATION(0000008C) IN CSECT(EF0E0   ) LENGTH(6)
                    147
     178  $RTAD     ADDRESS. HEX LOCATION(000000DC) IN CSECT(EF0E0   ) LENGTH(2)
                    174
      59  $RTNE     ADDRESS. HEX LOCATION(0000000A) IN CSECT(EF0E0   ) LENGTH(2)
                    140   161   162   167
     147  $TERM     ADDRESS. HEX LOCATION(00000080) IN CSECT(EF0E0   ) LENGTH(6)
                    475   710
     155  $TER1     ADDRESS. HEX LOCATION(000000A4) IN CSECT(EF0E0   ) LENGTH(4)
                    150
     298  ASDCB     ADDRESS. HEX LOCATION(00000224) IN CSECT(EF0E0   ) LENGTH(1)
                    385
      92  CE        ABSOLUTE. HEX VALUE(00000028)
                    443   536   608
      38  CICB      ABSOLUTE. HEX VALUE(00000014)
                    667
      51  CPUTYPE   ABSOLUTE. HEX VALUE(00000232)
                    466   703
      91  CS        ABSOLUTE. HEX VALUE(00000027)
                    444   447   534   572   606
     111  CSBUF     ADDRESS. HEX LOCATION(00000032) IN CSECT(EF0E0   ) LENGTH(1)
                    243   318   460
     310  CSDCB     ADDRESS. HEX LOCATION(00000234) IN CSECT(EF0E0   ) LENGTH(1)
                    445
     620  CSRTN     ADDRESS. HEX LOCATION(000003D0) IN CSECT(EF0E0   ) LENGTH(2)
                    609
     247  CSST4     ADDRESS. HEX LOCATION(000001A4) IN CSECT(EF0E0   ) LENGTH(4)
                    244
     113  CSTL2     ADDRESS. HEX LOCATION(00000034) IN CSECT(EF0E0   ) LENGTH(2)
                    259
     119  CSTL8     ADDRESS. HEX LOCATION(00000040) IN CSECT(EF0E0   ) LENGTH(2)
                    537   538
     103  DCBUF     ADDRESS. HEX LOCATION(00000022) IN CSECT(EF0E0   ) LENGTH(2)
                    455
     101  DEV3      ADDRESS. HEX LOCATION(0000001E) IN CSECT(EF0E0   ) LENGTH(2)
                    171   172   205   206   223   229   245   264   582
     102  DEV4      ADDRESS. HEX LOCATION(00000020) IN CSECT(EF0E0   ) LENGTH(2)
                    283   284   291
     322  DGDCB     ADDRESS. HEX LOCATION(00000244) IN CSECT(EF0E0   ) LENGTH(1)
                    382
     716  DRBUF     ADDRESS. HEX LOCATION(00000466) IN CSECT(EF0E0   ) LENGTH(16)
                    218   219   220   223   225   226   229   240   306
                    330   343   355
     335  DSDCB     ADDRESS. HEX LOCATION(00000254) IN CSECT(EF0E0   ) LENGTH(1)
                    391
      36  EF0E0     CSECT. START(00000000) LENGTH(1142) ESDID(0)
                     36
      85  ER        ABSOLUTE. HEX VALUE(00000021)
                    480   540   600   611   620
      41  EXIT      ABSOLUTE. HEX VALUE(00000006)
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		587
347	E1DCB	ADDRESS. HEX LOCATION(00000264) IN CSECT(EF0E0) LENGTH(1)
		387
360	E2DCB	ADDRESS. HEX LOCATION(00000275) IN CSECT(EF0E0) LENGTH(1)
		353 389
93	GI	ABSOLUTE. HEX VALUE(00000029)
		570 617
128	H0000	ADDRESS. HEX LOCATION(0000005C) IN CSECT(EF0E0) LENGTH(2)
		138
129	H0001	ADDRESS. HEX LOCATION(0000005E) IN CSECT(EF0E0) LENGTH(2)
		161
42	IDLE	ABSOLUTE. HEX VALUE(00000002)
		473 708
87	IN	ABSOLUTE. HEX VALUE(00000023)
		449 463 476 571
635	INTBL	ADDRESS. HEX LOCATION(000003E4) IN CSECT(EF0E0) LENGTH(2)
		666
531	INTER	ADDRESS. HEX LOCATION(0000033C) IN CSECT(EF0E0) LENGTH(2)
		637
540	INTET	ADDRESS. HEX LOCATION(00000354) IN CSECT(EF0E0) LENGTH(2)
		535
565	INTOK	ADDRESS. HEX LOCATION(00000358) IN CSECT(EF0E0) LENGTH(2)
		636
587	INTRX	ADDRESS. HEX LOCATION(0000038E) IN CSECT(EF0E0) LENGTH(2)
		585
571	INTR1	ADDRESS. HEX LOCATION(00000366) IN CSECT(EF0E0) LENGTH(2)
		539 541 569
576	INTR2	ADDRESS. HEX LOCATION(00000374) IN CSECT(EF0E0) LENGTH(2)
		573
584	INTR3	ADDRESS. HEX LOCATION(00000388) IN CSECT(EF0E0) LENGTH(2)
		580
626	IOBLK	ADDRESS. HEX LOCATION(000003D8) IN CSECT(EF0E0) LENGTH(2)
		148 152 199 201 465 672
628	IODCB	ADDRESS. HEX LOCATION(000003DC) IN CSECT(EF0E0) LENGTH(2)
		151 153 382 385 387 389 391 445 456
		671
627	IOERR	ADDRESS. HEX LOCATION(000003DA) IN CSECT(EF0E0) LENGTH(2)
		137 147 150
629	IOMOD	ADDRESS. HEX LOCATION(000003DE) IN CSECT(EF0E0) LENGTH(2)
		383 441 446
631	IORSP	ADDRESS. HEX LOCATION(000003E2) IN CSECT(EF0E0) LENGTH(2)
		203 205
217	ITSTA	ADDRESS. HEX LOCATION(00000148) IN CSECT(EF0E0) LENGTH(4)
		215
197	ITST4	ADDRESS. HEX LOCATION(000000F4) IN CSECT(EF0E0) LENGTH(6)
		211
208	ITST5	ADDRESS. HEX LOCATION(00000122) IN CSECT(EF0E0) LENGTH(4)
		204
231	ITST7	ADDRESS. HEX LOCATION(00000180) IN CSECT(EF0E0) LENGTH(4)
		228
225	ITST9	ADDRESS. HEX LOCATION(00000168) IN CSECT(EF0E0) LENGTH(4)
		222
89	LE	ABSOLUTE. HEX VALUE(00000025)
		583 598
90	LI	ABSOLUTE. HEX VALUE(00000026)
		481
99	LSTIO	ADDRESS. HEX LOCATION(00000018) IN CSECT(EF0E0) LENGTH(2)
		451 452 454 675 676 678
84	MI	ABSOLUTE. HEX VALUE(00000020)
		586 596
62	OPTN1	ADDRESS. HEX LOCATION(0000000E) IN CSECT(EF0E0) LENGTH(2)
		141 533 567 702
72	OPTN3	ADDRESS. HEX LOCATION(00000012) IN CSECT(EF0E0) LENGTH(2)
		615 670 696 701
120	PCTR	ADDRESS. HEX LOCATION(00000042) IN CSECT(EF0E0) LENGTH(2)
		138 699
94	PE	ABSOLUTE. HEX VALUE(0000002A)
		602
43	PREP	ABSOLUTE. HEX VALUE(0000000C)
		154 679
50	PRNTRTN	ABSOLUTE. HEX VALUE(0000181E)
		697
47	RESET	ABSOLUTE. HEX VALUE(00000008)
		149 200
44	RICB	ABSOLUTE. HEX VALUE(00000013)
		157
48	RID	ABSOLUTE. HEX VALUE(00000009)
		202
194	RT01	ADDRESS. HEX LOCATION(000000E6) IN CSECT(EF0E0) LENGTH(4)
		179
239	RT02	ADDRESS. HEX LOCATION(00000184) IN CSECT(EF0E0) LENGTH(4)
		180
256	RT03	ADDRESS. HEX LOCATION(000001A8) IN CSECT(EF0E0) LENGTH(4)
		181
264	RT031	ADDRESS. HEX LOCATION(000001C8) IN CSECT(EF0E0) LENGTH(6)
		267
266	RT032	ADDRESS. HEX LOCATION(000001D2) IN CSECT(EF0E0) LENGTH(4)
		263
277	RT04	ADDRESS. HEX LOCATION(000001DC) IN CSECT(EF0E0) LENGTH(4)
		182
286	RT041	ADDRESS. HEX LOCATION(00000204) IN CSECT(EF0E0) LENGTH(2)
		282
293	RT042	ADDRESS. HEX LOCATION(00000220) IN CSECT(EF0E0) LENGTH(4)
		290
284	RT043	ADDRESS. HEX LOCATION(000001FA) IN CSECT(EF0E0) LENGTH(6)
		292
45	START	ABSOLUTE. HEX VALUE(0000000A)
		472
46	TERM	ABSOLUTE. HEX VALUE(00000007)
		158
66	TM	ABSOLUTE. HEX VALUE(00000003)
		142 474 709
130	TYPE23	ADDRESS. HEX LOCATION(00000060) IN CSECT(EF0E0) LENGTH(2)
		466 703
88	XE	ABSOLUTE. HEX VALUE(00000024)
		278 286 568 604
86	XI	ABSOLUTE. HEX VALUE(00000022)
		471 584
441	XIO	ADDRESS. HEX LOCATION(000002B4) IN CSECT(EF0E0) LENGTH(4)
		386 388 390 392
385	XIOAS	ADDRESS. HEX LOCATION(00000294) IN CSECT(EF0E0) LENGTH(6)

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		208
596	XIOCK	ADDRESS. HEX LOCATION(00000390) IN CSECT(EF0E0) LENGTH(2)
		450 464 477
602	XIOCM	ADDRESS. HEX LOCATION(0000039C) IN CSECT(EF0E0) LENGTH(2)
		599
445	XIOCS	ADDRESS. HEX LOCATION(000002BE) IN CSECT(EF0E0) LENGTH(6)
		242 258 613
614	XIOCU	ADDRESS. HEX LOCATION(000003BC) IN CSECT(EF0E0) LENGTH(4)
		597 601 618
611	XIOCV	ADDRESS. HEX LOCATION(000003B4) IN CSECT(EF0E0) LENGTH(2)
		607
615	XIOCX	ADDRESS. HEX LOCATION(000003C0) IN CSECT(EF0E0) LENGTH(4)
		612
382	XIODG	ADDRESS. HEX LOCATION(00000286) IN CSECT(EF0E0) LENGTH(6)
		217
391	XIODS	ADDRESS. HEX LOCATION(000002AC) IN CSECT(EF0E0) LENGTH(6)
		216
505	XIOER	ADDRESS. HEX LOCATION(00000330) IN CSECT(EF0E0) LENGTH(2)
		137 627
387	XIOF1	ADDRESS. HEX LOCATION(0000029C) IN CSECT(EF0E0) LENGTH(6)
		280
389	XIOE2	ADDRESS. HEX LOCATION(000002A4) IN CSECT(EF0E0) LENGTH(6)
		288
617	XIOGI	ADDRESS. HEX LOCATION(000003C8) IN CSECT(EF0E0) LENGTH(2)
		605
451	XIO1	ADDRESS. HEX LOCATION(000002D2) IN CSECT(EF0E0) LENGTH(4)
		384 442
463	XIO2	ADDRESS. HEX LOCATION(000002FA) IN CSECT(EF0E0) LENGTH(2)
		448
470	XIO5	ADDRESS. HEX LOCATION(00000310) IN CSECT(EF0E0) LENGTH(2)
		467
471	XIO6	ADDRESS. HEX LOCATION(00000312) IN CSECT(EF0E0) LENGTH(2)
		469
473	XIO8	ADDRESS. HEX LOCATION(00000316) IN CSECT(EF0E0) LENGTH(2)
		479

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                    COPYRIGHT IBM CORP 1976
                              3 ************************************************************************
                              4 *                                                                      *
                              5 *                    ***       PREREQUISITES        ***               *
                              6 *                                                                      *
                              7 *                              NONE                                    *
                              8 *                                                                      *
                              9 ************************************************************************
                             10 *                                                                      *
                             11 *                    ***       MODIFICATIONS        ***               *
                             12 *                                                                      *
                             13 *                     CHANGES MADE TO CORRECTLY IDENTIFY               *
                             14 *                     DEVICE ADDRESS NOT BEING USED.                   *
                             15 *                                                                      *
                             16 ************************************************************************
                             17 *                                                                      *
                             18 *                    ***     REA'S INCORPORATED      ***               *
                             19 *                                                                      *
                             20 *                              NONE                                    *
                             21 *                                                                      *
                             22 ************************************************************************
                             23 *                                                                      *
                             24 *                    ***    SPECIAL INSTRUCTIONS     ***               *
                             25 *                                                                      *
                             26 *                              NONE                                    *
                             27 *                                                                      *
                             28 ************************************************************************
                             29 *                                                                      *
                             30 *                    ***       E. C. HISTORY        ***               *
                             31 *                                                                      *
                             32 *          DATE 06MAY77   DATE 15SEP77   DATE 09DEC77   DATE           *
                             33 *          E.C. 578756    E.C. 754882    E.C. 755104    E.C.            *
                             34 *                                                                      *
                             35 ************************************************************************
000000                       37 EF1E0 START X'0000'
                             38 *             SUPERVISOR EQUATES
000014                       39 CICB   EQU   20                    CONNECT INTERRUPT CONTROL BLOCK
000001                       40 OUTIN  EQU   1                     OUT MESSAGE WITH EXPECTED RESPONCE
00001A                       41 HTOE   EQU   26                    CHANGE HEX DATA TO EBCDIC DATA
000006                       42 EXIT   EQU   6                     EXIT INTERRUPT LEVEL
000002                       43 IDLE   EQU   2                     SHARE PROGRAM TIME WITH OTHER PGMS
00000C                       44 PREP   EQU   12                    PREPARE DEVICE
000013                       45 RICB   EQU   19                    RELEASE INTERRUPT CONTROL BLOCK
00000A                       46 SPART  EQU   10                    START CYCLE STEAL COMMAND
000007                       47 TERM   EQU   7                     TERMINATE THIS PROGRAM
000008                       48 RESET  EQU   8                     DEVICE RESET
000009                       49 RID    EQU   9                     DEVICE READ ID
000000                       50 REG    EQUR  0                     WORK RFGISTER
00181E                       51 PRNTRTN EQU  X'181E'              COMMON PRINT ROUTINE ADDRESS LOCATION
000232                       52 CPUTYPE EQU  X'0232'              ADDRESS OF PROCESSOR TYPE
                             53 *
                             54 *             PROGRAM HEADING AND CONTROL WORDS
                             55 *
000000  C6F1F0F0             56 $PID   DC    C'F100'             PROGRAM IDENTIFICATION
000004  0000                 57        DC    XL2'0000'           CURRENT LEVEL OF PROGRAM
000006  00B2                 58        DC    A($PENT)            -> TO START EXEC ADDRESS
000008  004C                 59        DC    A($DVAD)            -> TO DEVICE TABLE
00000A  0000                 60 $RTNE  DC    A(*-*)              ROUTINE NUMBER BEING RUN
00000C  0000                 61 $CKPT  DC    A(*-*)              LAST CHECK POINT PASSED
00000E  0000                 63 OPTN1  DC    X'0000'             PROGRAM OPTION CONTROL WORD 1
                             64 *
                             65 * BIT FUNCTION
                             66 *
000003                       67 TM     EQU   3                   TERMINATE PROGRAM
00000D                       68 QUES   EQU   13                  QUESTION HAS BEEN ASKED
00000E                       69 IND    EQU   14                  INDICATOR
00000F                       70 DIR    EQU   15                  SEEK DIRECTION INDICATOR
                             71 *
000010  0000                 72 OPTN2  DC    X'0000'             PROGRAM OPTION CONTROL WORD 2
000012  0000                 73 OPTN3  DC    X'0000'             PROGRAM OPTION CONTROL WORD 3
                             74 *
                             75 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                             76 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                             77 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                             78 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                             79 *
                             80 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                             81 *  5  WRONG INTR LEVEL      LE       13  N.U.
                             82 *  6  LOAS INTERRUPT        LI       14  N.U.
                             83 *  7  CS STATUS IN PROGR    CS       15  N.U.
                             84 *                          BIT     HEX
000020                       85 MI     EQU   32      0       8   MYSTERY INTERRUPT HAPPENED
000021                       86 ER     EQU   33      1       4   ERROR RECEIVED ON INTERRUPT
000022                       87 XI     EQU   34      2       2   EXPECTED INTERRUPT CONTROL BIT
000023                       88 IN     EQU   35      3       1   INTERRUPT RECEIVED CONTROL BIT
000024                       89 XE     EQU   36      4       8   EXPECTED ERROR RESPONSE
000025                       90 LE     EQU   37      5       4   INTERRUPT ON WRONG LEVEL ERROP
000026                       91 LI     EQU   38      6       2   LOST INTERRUPT
000027                       92 CS     EQU   39      7       1   CYCLE STATUS IN PROGRESS
000028                       93 CE     EQU   40      8       8   CYCLE STEAL STATUS INERRRUPT ERROR
000029                       94 GI     EQU   41      9       4   GOOD INTERRUPT RECEIVED (EXPECTED ER)
00002A                       95 PE     EQU   42      10      2   PROBABLE ERROR EXPECTED
00002B                       96 NI     EQU   43      11      1   NO INTR. EXPECTED UNPREPED DEV.
000014  0000                 98 $IOIN  DC    A(*-*)              I/O AND INTR CONDITION CODES
000016  0000                 99 $ISB   DC    A(*-*)              R7, INTR STATUS BYTE & DEV ADRS
000018  0000                100 LSTIO  DC    A(*-*)              ADRS OF LAST I/O + 4 BYTES
00001A  00000000            101 $DATA  DC    2A(*-*)             DEVICE DEPENDENT DATA
00001E  0000                102 DEV3   DC    A(*-*)              DEPENDENT DATA DEV3
000020  0000                103 DEV4   DC    A(*-*)              DEPENDENT DATA DEV4
000022  0000                104 DCBUF  DC    A(*-*)              LAST DCB TABLE, CONTROL WORD
000024  0000                105 DCB2   DC    A(*-*)              LAST DCB TABLE, DEV DEP WORD
000026  0000                106 DCB3   DC    A(*-*)              LAST DCB TABLE, DEV DEP WORD
000028  0000                107 DCB4   DC    A(*-*)              LAST DCB TABLE, DEV DEP WORD
00002A  0000                108 DCB5   DC    A(*-*)              LAST DCB TABLE, DEV DEP WORD
00002C  0000                109 DCB6   DC    A(*-*)              LAST DCB TABLE, CHAIN ADRS
00002E  0000                110 DCB7   DC    A(*-*)              LAST DCB TABLE, BYTE COUNT
000030  0000                111 DCB8   DC    A(*-*)              LAST DCB TABLE, BUFFER ADDRESS
000032                      112 CSBUF  EQU   *                   CYCLE STEAL DATA BUFFER
000032  0000                113 CSTL1  DC    A(*-*)              CYCLE STEAL BUFFER, RESIDUAL ADRS
000034  0000                114 CSTL2  DC    A(*-*)              CYCLE STEAL WD 2, DEVICE DEPEND
000036  0000                115 CSTL3  DC    A(*-*)              CYCLE STEAL WD 3, DEVICE DEPEND
000039  0000                116 CSTL4  DC    A(*-*)              CYCLE STEAL WD 4, DEVICE DEPEND
00003A  0000                117 CSTL5  DC    A(*-*)              CYCLE STEAL WD 5, DEVICE DEPEND
00003C  0000                118 CSTL6  DC    A(*-*)              CYCLE STEAL WD 6, DEVICE DEPEND
00003E  0000                119 CSTL7  DC    A(*-*)              CYCLE STEAL WD 7, DEVICE DEPEND
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                    COPYRIGHT IBM CORP 1976
000040  0000                120 CSTL8  DC    A(*-*)              CYCLE STEAL WD 8, DEVICE DEPEND
000042  00000000            121 PCTR   DC    2A(*-*)             PASS COUNTER
000046  00000000            122 ECTR   DC    2A(*-*)             ERROR COUNTER
00004A  0005                123 ERNUM  DC    X'0005'             NUM OF ERRORS PROG CAN HAVE
00004C  00F1                124 $DVAD  DC    X'00F1'             DEVICE ADDRESS BEING TESTED
00004E  00000000000000000   125        DC    XL8'00'
000056  00000000000000000   126        DC    XL10'00'                 ''   ''   ''   ''
000060  00000000000000000   127        DC    XL10'00'                 ''   ''   ''   ''
00006A  00000000000000000   128        DC    XL10'00'                 ''   ''   ''   ''
000074  00000000000000000   129        DC    XL10'00'                 ''   ''   ''   ''
00007E  00000000000000000   130        DC    XL10'00'                 ''   ''   ''   ''
000088  00000000000000000   131        DC    XL10'00'                 ''   ''   ''   ''
000092  00000000000000000   132        DC    XL10'00'                 ''   ''   ''   ''
00009C  0011                133 $INTL  DC    X'0011'             INTERRUPT LEVEL REQUESTED
00009E  2006                134 $DVID  DC    X'2006'             DEVICE IDENTIFICATION
0000A0  0005                135 $MXSL  DC    A(5)                MAXIMUM SELECTABLE ROUTINES
0000A2  0000                136 H0000  DC    X'0000'             CONSTANT
0000A4  0001                137 H0001  DC    X'0001'             HEX WORD CONSTANT
0000A6  2300                138 TYPE23 DC    X'2300'             CONSTANT TO CHECK PROCESSOR AGAINST
0000A8  00000000000000000   139 $DVUT  DC    XL10'00'            DEVICE ADDRESS UNDER TEST
                            141 ************************************************************************
                            142 *                                                                      *
                            143 *          PROGRAM CONTROL FUNCTIONS                                   *
                            144 *                                                                      *
                            145 ************************************************************************
0000B2  4020 0492 03E8      146 $PENT  MVA   XIOER,IOERR          RESTORE ERROR ADDRESS
0000B8  A82A 00A2 0042      147        AD    H0000,PCTR           ADVANCE PASS COUNTER BY 1
0000BE  4020 009C 0011      148        MVI   X'0011',$INTL        INIT INTERRUPT LEVEL
0000C4  4020 057E 0056      149        MVA   $DVAD+10,WORK1       SAVE NEXT DEVICE ADDRESS TO TEST
0000CA  4724 000A           150        MVI   10,R7                INIT R7 WITH COUNT
0000CE  4524 004C           151        MVA   $DVAD,R5             LOAD R5 WITH FROM ADDRESS
0000D2  4324 00A8           152        MVA   $DVUT,R3             LOAD R3 WITH TO ADDRESS
0000D6  2D64                153        MVFN  (R5),(R3)            MOVE ENTRY
0000D8  CE25 000A           154 $PEN1  MVWZ  $RTNE,R6             CLEAR OLD ROUTINE NUMBER
0000DC  4424 000E           155 $PUPD  MVA   OPTN1,R4             R4 MUST BE SET TO 'OPTN1'
0000E0  4C03                156 $PUP2  TBT   (R4,TM)              IS TERMINATE PGM REQUESTED
0000E2  1026                157        JZ    $PUP8                * NO, CONTINUE CHECKING
                            158 *
                            159 *          TERMINATE CONTROL BIT FOUND ON
                            160 *
0000E4  4C8D                161 $TERM  TBTR  (R4,QUES)            TURN OFF QUES INDICATOR
0000E6  4C4F                162        TBTS  (R4,DIR)             TURN ON RETURN VIA 6 INDICATOR
0000E8  4020 0580 00F6      163        MVA   $TER3,WORK2          LOAD RETURN ADDRESS
0000EE  4624 012E           164        MVA   $TER2,R6             LOAD ENDING ADDRESS
0000F2  6802 0528           165        B     SUPD                 BRANCH TO START THINGS OFF
0000F6  4020 0492 0102      166 $TER3  MVA   $RETI,IOERR          INIT ERROR ADDRESS
0000FC  4724 0490           167        MVA   IOBLK,R7             LOAD ADDRESS OF CONTROL BLOCK
000100  6008                168        SVC   RESET                ISSUE SVC
000102  4020 0492 011A      169 $RETI  MVA   $TER1,IOERR          INIT ERROR ADDRESS
000108  8828 009C 0494      170        MVW   $INTL,IODCB          LOAD CURRENT INTERRUPT LEVEL
00010E  4724 0490           171        MVA   IOBLK,R7             LOAD ADDRESS OF CONTROL BLOCK
000112  402D 0494 0001      172        RBTWI X'0001',IODCB        TURN OF PREPARE 'I' BIT
000118  600C                173        SVC   PREP                 ISSUE SVC
00011A  4C24 004C           174 $TER1  MVA   $DVAD,R7             LOAD CURRENT DEV ADDRESS
00011E  7FE4 FF00           175        RBTWI X'FF00',R7           ZERO HIGH ORDER BYTE
000122  6013                176        SVC   RICB                 ISSUE SVC
000124  4020 0580 00F6      177        MVA   $TER3,WORK2          LOAD RETURN ADDRESS
00012A  6802 051E           178        B     SUPDA                BRANCH TO SET UP D.A.
00012E  6007                179 $TER2  SVC   TERM                 ISSUE SVC
                            181 *
000130  A828 00A4 000A      182 $PUP8  AW    H0001,$RTNE          ADVANCE ROUTINE NUMBER
000136  882B 00A0 000A      183        CW    $MXSL,$RTNE          CHECK FOR LAST AUTOMATIC ROUTINE
00013C  10BA                184        JE    $PENT                * BCH AND START WITH RTN 1
                            185 *
                            186 *          GET RTN NUMBER AND BCH TO THAT RTN
                            187 *
00013E  6E08 000A           188 $PSEL  MVW   $RTNE,R6             MOVE RTN NUMBER IN REG
000142  CD25 000C           189        MVWZ  $CKPT,R5             ZERO CHECKPOINT
000146  CD25 001A           190        MVWZ  $DATA,R5             ZERO ALL FOUR WORDS OF DEV
00014A  CD25 001C           191        MVWZ  $DATA+2,R5           * DEPENDENT DATA
00014E  CD25 001E           192        MVWZ  DEV3,R5              *  -------------
000152  CD25 0020           193        MVWZ  DEV3+2,R5            *  -------------
000156  3609                194        SLL   1,R6                 DOUBLE FOR BRANCH TABLE
000158  68D2 015C           195        B     (R6,$RTAD)*          BCH VIA RTN TABLE
                            196 *
                            197 *          TABLE OF ROUTINE ADDRESSES
                            198 *
00015C  00B2                199 $RTAD  DC    A($PENT)             NO RTN SELECTED
00015E  0166                200        DC    A(RT01)              ROUTINE ADDRESS
000160  0228                201        DC    A(RT02)                   ''
000162  0252                202        DC    A(RT03)                   ''
000164  028C                203        DC    A(RT04)                   ''
                            205 ************************************************************************
                            206 *          CHANNEL INTERFACE TEST                                      *
                            207 *                                                                      *
                            208 *     TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS      *
                            209 *     THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO  *
                            210 *     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS  *
                            211 *     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS       *
                            212 *     EXCEPT LEVEL THREE. THEN A DIAG. READ IS PREFORMED AND THE       *
                            213 *     RECEIVED CHECKSUM VALUES ARE CHECKED.                            *
                            214 ************************************************************************
000166  6E03 04A4           215 RT01   BAL   $CONR,R6             CLEAR AND CONNECT I/O BLK
00016A  6A08 009C           216        MVW   $INTL,R2             SAVE SELECTED INTERRUPT
00016E  4020 009C FFF1      217        MVWI  X'FFF1',$INTL        SET UP INTERRUPT LEVEL FOR PREP
000174  4029 009C 0010      218 ITST4  AWI   X'10',$INTL          ADV INTR LEVEL, STARTING AT 0
00017A  6E03 04AE           219        BAL   $CONC,R6             GO PREPARE ON NEW LEVEL
00017E  4724 0490           220        MVA   IOBLK,R7             SET UP POINTER TO CONTROL BLOCK
000182  6008                221        SVC   RESET                CALL SUPVR TO ISSUE RESET
000184  4724 0490           222        MVA   IOBLK,R7             SET UP POINTER TO CONTROL BLOCK
000188  6009                223        SVC   RID                  CALL SUPVR TO ISSUE READ ID
00018A  6908 049A           224        MVW   IORSP,R1             LOAD RECEIVED DEVICE ID
00018E  7924 0300           225        RBTWI X'0300',R1           RESET UNKNOWN BITS
000192  C924 009E           226        CW    $DVID,R1             IS ID RECEIVED THE SAME
000196  1008                227        JE    ITST5                * YES, CONTINUE
000198  8828 049A 001E      228        MVW   IORSP,DEV3           LOAD RECEIVED ID INTO DEV3
00019E  8828 009E 0020      229        MVW   $DVID,DEV3+2         LOAD EXPECTED ID INTO DEV4
0001A4  6802 04DE           230        B     $PRNT                BRANCH TO PRINT ERROR
0001A8  6E03 034A           231 ITST5  BAL   XIOAS,R6             EXEC NO-OP TO GET AN INTR
0001AC  4029 000C 0001      232        AWI   1,$CKPT              BUMP CHECKPOINT
0001B2  402P 009C 0021      233        CWI   X'21',$INTL          HAS INTR LEVEL COME DOWN TO 2
0001B6  180D                234        JNE   ITST4                * NO, BCH AND CONTINUE TEST
0001BA  6A0D 009C           235        MVW   R2,$INTL             RESTORE SELECTED INTR LEVEL
0001BE  6E03 04AE           236        BAL   $CONC,R6             SET UP FOR START IO ON CORRECT LEV.
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0001C2 402B 0052 8000       237        TWI   X'8000',$DVAD+6       IS DTR JUMPERED ON
0001C8 1202                 238        JON   ITSTA                  BRANCH YES
0001CA 6E03 0362            239        BAL   XIODS,R6               BRANCH TO DISABLE
0001CE 6E03 033C            240 ITSTA  BAL   XIODG,R6               SET UP FOR START IO
0001D2 4224 058E            241 ITSTC  MVA   DRBUF,R2               SET UP TO CHECK CHECKSUM
0001D6 6908 058E            242        MVW   DRBUF,R1               SET UP TO CHECK CHECKSUM VALUE
0001DA 690B 0590            243        XW    DRBUF+2,R1             * AGAINST SHOULD BE
0001DE 7921 0001            244        AWI   1,R1                   CHECK FOR A VALID CHECKSUM
0001E2 1005                 245        JZ    ITST9                  BCH IF OKAY
0001E4 9028 058E 001E       246        MVD   DRBUF,DEV3             MOVE ERRORED CHECKSUM VALUE
0001EA 6802 04DE            247        B     $PRNT                  BRANCH TO PRINT ERROR
0001EE 6908 0592            248 ITST9  MVW   DRBUF+4,R1             SET UP TO CHECK CHECKSUM VALUE
0001F2 690B 0594            249        XW    DRBUF+6,R1             * AGAINST SHOULD BE
0001F6 7921 0001            250        AWI   1,R1                   CHECK FOR A VALID CHECKSUM
0001FA 1005                 251        JZ    ITST8                  BCH IF OKAY
0001FC 9028 0592 001E       252        MVD   DRBUF+4,DEV3           MOVE ERRORED CHECKSUM VALUE
000202 6802 04DE            253        B     $PRNT                  BRANCH TO PRINT ERROR
000206 6908 0596            254 ITST8  MVW   DRBUF+8,R1             SET UP TO CHECK CHECKSUM VALUE
00020A 690B 0598            255        XW    DRBUF+10,R1            * AGAINST SHOULD BE
00020E 7921 0001            256        AWI   1,R1                   CHECK FOR A VALID CHECKSUM
000212 1005                 257        JZ    ITST7                  BCH IF OKAY
000214 9028 0596 001E       258        MVD   DRBUF+8,DEV3           MOVE ERRORED CHECKSUM VALUE
00021A 6802 04DE            259        B     $PRNT                  BRANCH TO PRINT ERROR
00021E 4020 0580 013E       260 ITST7  MVA   $PSEL,WORK2            STORE RETURN ADDRESS
000224 6802 051E            261        B     SUPDA                  BRANCH TO CONTINUE
                            262 ********************************************************************
                            263 *     CYCLE STEAL STATUS                                           *
                            264 *     THIS TEST WILL VERIFY THAT THE ATTACHMENT WILL SEND BACK THE *
                            265 *     ADDRESS OF THE LAST CYCLE STEAL ADDRESS.                     *
                            266 *                                                                  *
                            267 ********************************************************************
000228 6E03 04AE            268 RT02   BAL   $CONC,R6               PREPARE DEVICE ON CORRECT LEVEL
00022C 4124 059B            269        MVA   DRBUF+13,R1            LAST CYCLE ADRS USED
000230 4029 000C 0001       270        AWI   1,$CKPT                BUMP CHECKPOINT
000236 6E03 0374            271        BAL   XIOCS,R6               GO GET STATUS FROM LAST I/O
00023A C924 0032            272        CW    CSBUF,R1               COMPARE LAST STG LOCATION USED
00023E 1004                 273        JE    CSST4                  BRANCH IF GOOD ADDRESS
000240 690D 0020            274        MVW   R1,DEV3+2              LOAD EXPECTED ADDRESS INTO DEV4
000244 6802 04DE            275        B     $PRNT                  BRANCH TO PRINT ERROR
000248 4020 0580 013E       276 CSST4  MVA   $PSEL,WORK2            STORE RETURN ADDRESS
00024E 6802 051E            277        B     SUPDA                  BRANCH TO CONTINUE
                            278 ********************************************************************
                            279 *     DIAGNOSTIC MODE                                              *
                            280 *     CHECK ALL STATUS WORDS                                       *
                            281 *                                                                  *
                            282 *     A CYCLE STEEL STATUS IS PREFORMED AND WORDS 2 AND 3 ARE      *
                            283 *     CHECKED FOR VALIDITY.                                        *
                            284 ********************************************************************
000252 6E03 04AE            285 RT03   BAL   $CONC,R6               PREPARE DEVICE ON CORRECT LEVEL
000256 4029 000C 0001       286        AWI   1,$CKPT                BUMP CHECKPOINT
00025C 6E03 0374            287        BAL   XIOCS,R6               BRANCH TO ISSUE CYCLE STEEL STATUS
000260 D120 0034            288        MVD   CSTL2,R1               LOAD STATUS INFORMATION
000264 7924 F800            289        RBTWI X'F800',R1             RESET ALL UNKNOWN BITS
000268 7A44 5FFF            290        RBTWI X'5FFF',R2             RESET ALL UNKNOWN BITS
00026C C924 00AC            291        CW    $DVUT+4,R1             TEST FIRST WORD
000270 1005                 292        JE    RT032                  BRANCH IF EQUAL
000272 9028 00AC 001E       293 RT031  MVD   $DVUT+4,DEV3           LOAD BOTH WORDS INTO OUTPUT AREA
000278 6802 04DE            294        B     $PRNT                  BRANCH TO PRINT
00027C CA24 00AE            295 RT032  CW    $DVUT+6,R2             COMPARE SECOND WORD
000280 18F8                 296        JNE   RT031                  BRANCH IF NOT EQUAL
000282 4020 0580 013E       297        MVA   $PSEL,WORK2            STORE RETURN ADDRESS
000288 6802 051E            298        B     SUPDA                  BRANCH TO CONTINUE
                            299 ********************************************************************
                            300 *     DIAGNOSTIC MODE                                              *
                            301 *     CHECK ERROR CONDITIONS                                       *
                            302 *                                                                  *
                            303 *     ERRORED DCB'S ARE ISSUED TO INSURE A COMMAND REJECT AND      *
                            304 *     A DCB SPEC. CHECK ERROR TO BE RETURNED FROM THE ATTACHMENT CARD.*
                            305 ********************************************************************
00028C 6E03 04AE            306 RT04   BAL   $CONC,R6               PREPARE DEVICE ON CORRECT LEVEL
000290 4C64                 307        TBTS  (R4,XE)                SET EXPECTED ERROR BIT
000292 4029 000C 0001       308        AWI   1,$CKPT                BUMP CHECKPOINT
000298 6E03 0352            309        BAL   XIOE1,R6               BRANCH TO TEST ERROR
00029C 402B 0016 1000       310        TWI   X'1000',$ISB           IS ISB EQU TO 10XX
0002A2 1208                 311        JON   RT041                  BRANCH YES
0002A4 4020 0020 1000       312        MVWI  X'1000',DEV4           DEV4 EQUALS EXPECTED DATA
0002AA 8028 00A8 0021       313 RT043  MVB   $DVUT,DEV4+1           LOAD DEV ADDRESS
0002B0 6802 04DE            314        B     $PRNT                  BRANCH TO PRINT ERROR
0002B4 4C64                 315 RT041  TBTS  (R4,XE)                SET EXPECTED ERROR BIT
0002B6 4029 000C 0001       316        AWI   1,$CKPT                BUMP CHECKPOINT
0002BC 6E03 035A            317        BAL   XIOE2,R6               BRANCH TO TEST ERROR
0002C0 402B 0016 4000       318        TWI   X'4000',$ISB           IS ISB EQUAL TO 40XX
0002C6 1204                 319        JON   RT042                  BRANCH YES
0002C8 4020 0020 4000       320        MVWI  X'4000',DEV4           DEV4 EQUALS EXPECTED DATA
0002CE 50ED                 321        J     RT043                  BRANCH
0002D0 4020 0580 013E       322 RT042  MVA   $PSEL,WORK2            STORE RETURN ADDRESS
0002D6 6802 051E            323        B     SUPDA                  BRANCH TO CONTINUE
                            324 *
                            325 *                DTR CONTROL BLOCK
                            326 *
0002DA                      327 ASDCB  EQU   *                      USE FOR DCB REFERENCE ONLY
0002DA 0040                 328 ASCTL  DC    X'0040'                CONTROL WORD
0002DC 0000                 329 ASFMS  DC    X'0000'
0002DE 0000                 330 ASSKP  DC    X'0000'
0002E0 0000                 331        DC    X'0000'
0002E2 0000                 332        DC    X'0000'
0002E4 0000                 333 ASCHN  DC    A(*-*)                 CHAIN ADRS
0002E6 0000                 334 ASBCT  DC    A(*-*)                 BYTE COUNT
0002E8 058E                 335 ASADR  DC    A(DRBUF)               BUFFER ADRS
                            336 *
                            337 *                CYCLE STEAL DATA CONTROL BLOCK
                            338 *
0002EA                      339 CSDCB  EQU   *                      USE FOR DCB REFERENCE ONLY
0002EA 2000                 340 CSCTL  DC    X'2000'                CONTROL WORD
0002EC 0000                 341 CSFMS  DC    X'0000'                NOT USED
0002EE 0000                 342 CSSKP  DC    X'0000'                NOT USED
0002F0 0000                 343        DC    X'0000'
0002F2 0000                 344        DC    X'0000'
0002F4 0000                 345 CSCHN  DC    A(0000)                CHAIN ADRS, NOT USED
0002F6 0006                 346 CSBCT  DC    X'0006'                BYTE COUNT
0002F8 0032                 347 CSADR  DC    A(CSBUF)               BUFFER ADRS
                            348 *
                            349 *                DIAGNOSTIC  DATA CONTROL BLOCK
                            350 *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0002FA                      351 DGDCB  EQU   *                      USED FOR DCB REFERENCE ONLY
0002FA 2000                 352 DGCTL  DC    X'2000'                CONTROL WORD
0002FC 0000                 353 DGDC2  DC    X'0000'                N.U.
0002FE 0000                 354 DGDC3  DC    X'0000'
000300 0000                 355 DGDC4  DC    X'0000'
000302 0000                 356 DGDC5  DC    X'0000'
000304 0000                 357 DGCHN  DC    A(0000)                CHAIN ADDRESS
000306 000E                 358 DGBCT  DC    X'000E'                BYTE COUNT
000308 058E                 359 DGADR  DC    A(DRBUF)               BUFFER ADDRESS
                            360 *
                            361 *                DISABLE DTR CONTROL BLOCK
                            362 *
00030A                      363 DSDCB  EQU   *                      USED FOR DCB REFERENCE ONLY
00030A 0010                 364 DSCTL  DC    X'0010'                CONTROL WORD
00030C 0000                 365 DSDC2  DC    X'0000'                N.U.
00030E 0000                 366 DSDC3  DC    X'0000'
000310 0000                 367 DSDC4  DC    X'0000'
000312 0000                 368 DSDC5  DC    X'0000'
000314 0000                 369 DSCHN  DC    X'0000'                CHAIN ADDRESS
000316 0000                 370 DSBCT  DC    X'0000'                BYTE COUNT
000318 058E                 371 DSADR  DC    A(DRBUF)               BUFFER ADDRESS
                            372 *
                            373 *                ERROR ONE DATA CONTROL BLOCK
                            374 *
00031A                      375 E1DCB  EQU   *                      USED FOR DCB REFERENCE ONLY
00031A 8002                 376 E1CTL  DC    X'8002'                CONTROL WORD
00031C 0000                 377 E1DC2  DC    X'0000'                N.U.
00031E 0000                 378 E1DC3  DC    X'0000'
000320 0000                 379 E1DC4  DC    X'0000'
000322 0000                 380 E1DC5  DC    X'0000'
000324 032B                 381 E1CHN  DC    A(E2DCB)               CHAIN ADDRESS
000326 0000                 382 E1BCT  DC    X'0000'                BYTE COUNT
000328 058E                 383 E1ADR  DC    A(DRBUF)               BUFFER ADDRESS
                            384 *
                            385 *               ERROR FOUR DATA CONTROL BLOCK
                            386 *
00032A 00                   387        DC    X'00'
00032B                      388 E2DCB  EQU   *                      USED FOR DCB REFERENCE ONLY
00032B 0000                 389 E2CTL  DC    X'0000'                CONTROL WORD
00032D 0000                 390 E2DC2  DC    X'0000'                N.U.
00032F 0000                 391 E2DC3  DC    X'0000'
000331 0000                 392 E2DC4  DC    X'0000'
000333 0000                 393 E2DC5  DC    X'0000'
000335 0000                 394 E2CHN  DC    X'0000'                CHAIN ADDRESS
000337 0000                 395 E2BCT  DC    X'0000'                BYTE COUNT
000339 0000                 396 E2ADR  DC    X'0000'                BUFFER ADDRESS
00033B 00                   397        ALIGN WORD
                            398 ********************************************************************
                            399 *     ISSUE ALL I/O COMMANDS FROM A COMMON SUBROUTINE              *
                            400 *     TO DISPLAY INSTRUCTIONS AND OPERATING PROCEDURES TO THE OPERATOR*
                            401 *     AND SET UP ANY REQUIREMENTS FOR OTHER I/O COMMANDS           *
                            402 *                                                                  *
                            403 * --> BAL   XIODG,R6                 XEQ DIAG. MOD = D COMMAND    *
                            404 * --> BAL   XIOAS,R6                 XEQ DTR COMMAND              *
                            405 * --> BAL   XIOE1,R6                 XEQ ERROR ONE COMMAND        *
                            406 * --> BAL   XIOE2,R6                 XEQ ERROR TWO COMMAND        *
                            407 *                                                                  *
                            408 ********************************************************************
00033C 4020 0494 02FA       409 XIODG  MVA   DGDCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
000342 4020 0496 000D       410        MVWI  X'0D',IOMOD             MOVE MODIFIER INTO CONTROL BLOCK
000348 501F                 411        J     XIO1                    BRANCH
00034A 4020 0494 02DA       412 XIOAS  MVA   ASDCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
000350 500C                 413        J     XIO                     BRANCH
000352 4020 0494 031A       414 XIOE1  MVA   E1DCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
000358 5008                 415        J     XIO                     BRANCH
00035A 4020 0494 032B       416 XIOE2  MVA   E2DCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
000360 5004                 417        J     XIO                     BRANCH
000362 4020 0494 030A       418 XIODS  MVA   DSDCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
000368 5000                 419        J     XIO                     BRANCH
                            420 ********************************************************************
                            421 *                                                                  *
                            422 * SOUBROUTINE                                                      *
                            423 *     EXECUTE INPUT AND OUTPUT COMMANDS                            *
                            424 *                                                                  *
                            425 * PURPOSE                                                          *
                            426 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.             *
                            427 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:             *
                            428 *                                                                  *
                            429 *     1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED *
                            430 *        THE I/O COMMAND.                                          *
                            431 *     2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS *
                            432 *        ISSUED BY THIS SUBROUTINE.                                *
                            433 *     3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE       *
                            434 *        START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.         *
                            435 *     4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT *
                            436 *        SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND, *
                            437 *        MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.                *
                            438 *     5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE *
                            439 *        EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'. *
                            440 *     6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING *
                            441 *        STARTS TO DETERMINE A LOST INTERRUPT.                     *
                            442 *     7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF *
                            443 *        WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.    *
                            444 *     8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.               *
                            445 *     9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.   *
                            446 *    10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.     *
                            447 *    11. CHECK IS A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS *
                            448 *        ISSUED BY THIS SUBROUTINE.                                *
                            449 *     12. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A  *
                            450 *        CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON, *
                            451 *        COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED. *
                            452 *                                                                  *
                            453 * CALLING SEQUENCE                                                *
                            454 *                                                                  *
                            455 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                      *
                            456 *                                                                  *
                            457 * --> B     XIO                     XEQ ANY CYCLE STEAL COMMAND, MOD=0 *
                            458 * --> BAL   XIOCS,R6                XEQ START CYCLE STEAL STATUS, MOD=F *
                            459 *                                                                  *
                            460 * RETURN CONTROL                                                  *
                            461 *                                                                  *
                            462 *     BXS   (R6)                    RETURN TO USER NO ERROR      *
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
                         472 ********************************************************************
000036A  CB25 0496       474 XIO    MVWZ  IOMOD,R3                 SET MOF OF 0 FOR CYCLE STEAL OP
000036E  500C            475        J     XIO1                    CS I/O'S ARE NOT RETRIED
000370   4CA8            476        TBTR  (R4,CE)                 RESET CS STATUS INTER ERROR INDICAT.
000372   4C67            477        TBTS  (R4,CS)                 SET 'CYCLE STEAL STATUS' IN PROGRESS
000374   4020 0494 02EA  478 XIOCS  MVA   CSDCB,IODCB             SET UP CONTROL BLOCK FOR SVC CALL
000378   4020 0496 000F  479        MVWI  X'000F',IOMOD           SET CYCLE STEAL MODIFIER
00037C   4C27            480        TBT   (R4,CS)                 IS CS IN PROGRESS, ERROR CONDITION
00037E   1216            481        JON   XIO2                    * YES, BYPASS SAVING I/O ADRS
000380   4C23            482        TBT   (R4,IN)                 TEST FOR INTERRUPT
000382   1260            483        JON   XIOCK                   BRANCH IF YES
000384   6E0D 0018       484 XIO1   MVW   R6,LSTIO                SAVE IAR FOR RETRY IF REQUESTED
000388   402E 0018 0004  485        SWI   4,LSTIO                 DECREMENT FOR LAS INSTRUCTION
00038C   4324 0000       486        MVA   $PID,R3                 LOAD ADDRESS OF PROGRAM START
000392   CB2F 0018       487        SW    R3,LSTIO                SUB TO OBTAIN LISTING ADDRESS
000396   4324 0022       488        MVA   DCBUF,R3                SET UP TO ADRS TO MOVE DCB TABLE
00039A   6D08 0494       489        MVW   IODCB,R5                * AND THE FROM ADRS, ALONG WITH
00039E   0F10            490        MVBI  16,R7                   * THE NUMBER OF MOVES
0003A2   2D64            491        MVFN  (R5),(R3)               MOVE 1 STATUS WORD AND ADJUST
0003A4   0BFF            492        MVBI  255,R3                  CLEAR CYCLE STATUS BUFFER
0003A6   4524 0032       493        MVA   CSBUF,R5                *  TO ALL ONES  *
0003AA   0F10            494        MVBI  16,R7                   *
0003AC   2BAC            495        FFN   R3,(R5)                 *
0003AE   4CA3            496 XIO2   TBTR  (R4,IN)                 CLEAR INTERRUPT RECEIVED CNTL BIT
0003B0   124A            497        JON   XIOCK                   BRANCH IF ON
0003B2   4724 0490       498        MVA   IOBLK,R7                SET UP CONTROL BLOCK FOR SUPVR
0003B6   4C62            499        TBTS  (R4,XI)                 SET EXPECTED INTR CONTROL BIT
0003B8   802B 0232 00A6  500        CB    CPUTYPE,TYPE23          CHECK FOR PROCESSOR 23
0003BE   1803            501        JNE   XIO5                    BRANCH NOT EQUAL
0003C0   4524 0000       502        MVWI  X'0000',R5              LOAD LOOP COUNT
0003C4   5001            503        J     XIO6                    BRANCH
0003C6   75AA            504 XIO5   SW    R5,R5                   LOAD LOOP COUNT
0003C8   4C62            505 XIO6   TBTS  (R4,XI)                 SET EXPECTED INTR CONTROL BIT
0003CA   600A            506        SVC   START                   CALL SUPVR FOR I/O COMMAND
0003CC   6002            507 XIO8   SVC   IDLE                    ALLOW OTHER PROG TIME
0003CE   4C03            508        TBT   (R4,TM)                 IS TERMINATE BIT ON
0003D0   6A00 00E4       509        BON   $PERM                   BRANCH IF YES
0003D2   4CA3            510        TBTR  (R4,IN)                 HAS INTERRUPT BEEN RECEIVED
0003D4   1237            511        JON   XIOCK                   * YES, CHECK IF ALL WAS SATISFACTORY
0003D6   7DA1 0001       512        AWI   1,R5                    ADVANCE TIME OUT COUNT
0003DA   18F7            513        JNZ   XIO8                    BCH IF TIME OUT NOT REACHED
0003DC   4C61            514        TBTS  (R4,ER)                 SET ON ERROR CONTROL BIT
0003E0   4C66            515        TBTS  (R4,LI)                 SET LOST INTERRUPT CONTROL BIT
0003E2   6802 04DE       516        B     $PRNT                   * BCH TO FINISH ERROR SEQUENCE
                         517 ********************************************************************
                         518 *                                                                  *
                         519 * SUBROUTINE                                                       *
                         520 *                                                                  *
                         521 *     I/O EXECUTE ERROR HANDLING ROUTINE                           *
                         522 *                                                                  *
                         523 * PURPOSE                                                          *
                         524 *                                                                  *
                         525 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE  *
                         526 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE*
                         527 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                          *
                         528 *                                                                  *
                         529 * CALLING SEQUENCE                                                 *
                         530 *                                                                  *
                         531 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND       *
                         532 *                                                                  *
                         533 * RETURN CONTROL                                                   *
                         534 *                                                                  *
                         535 *     B     $PRNT                  DUMP STATUS BEFORE TERMINATION  *
                         536 *                                                                  *
                         537 ********************************************************************
0003E8   706E            538 XIOER  CPLSR R3                     SAVE CONDITION CODE ON I/O ERROR
0003EA   336A            539        SRL   13,R3                   POSITION CC CODE TO BITS 13-15
0003EC   C328 0014       540        MVB   R3,$IOIN                * PUT IN LOG OUT AREA
0003F0   6802 04DE       541        B     $PRNT                   BRANCH TO PRINT ERROR
                         542 ********************************************************************
                         543 *                                                                  *
                         544 * SOUBROUTINE                                                      *
                         545 *                                                                  *
                         546 *     ERROR INTERRUPT            RUNS ON INTERRUPT LEVEL '$INTL'   *
                         547 *                                                                  *
                         548 * PURPOSE                                                          *
                         549 *                                                                  *
                         550 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR *
                         551 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE   *
                         552 *     EXPECTED CODE.                                               *
                         553 *                                                                  *
                         554 * CALLING SEQUENCE                                                 *
                         555 *                                                                  *
                         556 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT     *
                         557 *                                                                  *
                         558 * RETURN CONTROL                                                   *
                         559 *                                                                  *
                         560 *     SVC   EXIT                 RETURN TO USER VIA SUPVR          *
                         561 *                                                                  *
                         562 ********************************************************************
0003F4   706E            563 INTER  CPLSR R3                     SAVE INDICATORS
0003F6   336A            564        SRL   13,R3                   POSITION INDICATORS IN R3
0003F8   4424 000E       565        MVA   OPTN1,R4                SET UP BASE ADRS
0003FC   4C27            566        TBT   (R4,CS)                 IS CS IN PROGRESS
0003FE   1006            567        JOFF  INTR1                   * NO
000400   4C68            568        TBTS  (R4,CE)                 TURN ON CYCLE STEAL INTER ERROR
000402   6F0D 0040       569        MVW   R7,CSTL8                SAVE CS ERR ISB VALUE, BITS 0-7
000406   C328 0041       570        MVB   R3,CSTL8+1              * AND THE COND CODE
00040A   5009            571        J     INTR1                   BRANCH
00040C   4C61            572 INTET  TBTS  (R4,ER)                 SET ERROR ON I/O COMMAND CNTL BIT
00040E   5007            573        J     INTR1                   BRANCH
                         574 ********************************************************************
                         575 *                                                                  *
                         576 * SOUBROUTINE                                                      *
                         577 *                                                                  *
                         578 *     OKAY  INTERRUPT            RUNS ON INTERRUPT LEVEL '$INTL'   *
                         579 *                                                                  *
                         580 * PURPOSE                                                          *
                         581 *                                                                  *
                         582 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                 *
                         583 *                                                                  *
                         584 * CALLING SEQUENCE                                                 *
                         585 *                                                                  *
                         586 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED       *
                         587 *                                                                  *
                         588 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE      *
                         589 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE           *
                         590 *     COMMON SECTION IS HANDLED HERE.                              *
                         591 *                                                                  *
                         592 * RETURN CONTROL                                                   *
                         593 *                                                                  *
                         594 *     SVC   EXIT                 RETURN TO USER VIA SUPVR          *
                         595 *                                                                  *
                         596 ********************************************************************
0000410  706E            597 INTOK  CPLSR R3                     SAVE INDICATORS
0000412  336A            598        SRL   13,R3                   POSITION INDICATORS IN R3
0000414  4424 000E       599        MVA   OPTN1,R4                SET UP BASE ADRS
0000418  4C24            600        TBT   (R4,XE)                 TEST EXPECTED ERROR BIT
000041A  1001            601        JOFF  INTR1                   BRANCH IF OFF
000041C  4C69            602        TBTS  (R4,GI)                 SET GOOD INTERRUPT BIT
000041E  4C63            603 INTR1  TBTS  (R4,IN)                 SET  INTERRUPT RECEIVED
0000420  4C27            604        TBT   (R4,CS)                 IS 'CS IN PROGRESS' ON
0000422  1204            605        JON   INTR2                   * YES, BCH AROUND UPDATE
0000424  C328 0015       606        MVB   R3,$IOIN+1              SAVE INTERRUPTING CC CODE
0000428  6F0D 0016       607        MVW   R7,$ISB                 SAVE INTR STATUS AND DEV ADRS
000042C  78B9            608 INTR2  CPCL  R5                      COPY INTERRUPT LEVEL TO CHECK
000042E  3521            609        SLL   4,R5                    POSITION INTR LEVEL AND PUT
0000430  0501            610        ABI   1,R5                    * IN 'I' BIT
0000432  CD24 009C       611        CW    $INTL,R5                IS THIS THE CORRECT INTR LEVEL
0000436  1004            612        JE    INTR3                   * YES, GO EXIT THIS LEVEL
0000438  3521            613        SLL   4,R5                    POSITION RECEIVED LEVEL
000043A  6D0D 0020       614        MVW   R5,DEV3+2               STORE INTO DEV4
000043E  4C65            615        TBTS  (R4,LE)                 SET INTR LEVEL ERROR CONTROL BIT
0000440  4CA2            616 INTR3  TBTR  (R4,XI)                 WAS INTERRUPT EXPECTED
0000442  1201            617        JON   INTRX                   * YES,  EXIT OFF THIS INTR LEVEL
0000444  4C60            618        TBTS  (R4,MI)                 * NO, SET MYSTERY INTR CONTROL BIT
0000446  6006            619 INTRX  SVC   EXIT                     EXIT THIS LEVEL VIA SUPVR TO PGM
                         620 ********************************************************************
                         621 *
                         622 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                         623 *     HAS BEEN SERVICED.  THE EXERCISER FINDS AN INTERRUPT HAS BEEN
                         624 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
                         625 *
                         626 ********************************************************************
0000448  4C20            627 XIOCK  TBT   (R4,MI)                 WAS THERE AN UNEXPECTED INTERRUPT
000044A  1214            628        JON   XIOCU                   BRANCH IF YES
000044C  4C25            629        TBT   (R4,LE)                 WAS AN INTR LEVEL ERROR FOUND
000044E  1002            630        JOFF  XIOCM                   * NO, CONTINUE CHECKING
0000450  4C61            631        TBTS  (R4,ER)                 SET ERROR CONTROL BIT ON
0000452  5010            632        J     XIOCU                   BRANCH
0000454  4CAA            633 XIOCH  TBTR  (R4,PE)                 WAS A PROBABLE ERROR EXPECTED
0000456  6AC0 0000       634        BON   (R6)                    BRANCH YES
000045A  4C24            635        TBT   (R4,XE)                 WAS AN ERROR EXPECTED
000045C  1211            636        JN    XIOGI                   * YES,  BRANCH
000045E  4C27            637        TBT   (R4,CS)                 WAS AUTO CS IN PROGRESS
0000460  1005            638        JOFF  XIOCV                   * NO, CONTINUE CHECKING
0000462  4C28            639        TBT   (R4,CE)                 IS CS IN AN ERR CONDITION
0000464  6800 0488       640        BOFF  CSRTN                   * NO, BCH
0000468  6802 04DE       641        B     $PRNT                   GO LOG CS ERROR
000046C  4C21            642 XIOCV  TBT   (R4,ER)                 WAS ERROR INTR CONTROL BIT ON
000046E  1004            643        JOFF  XIOCX                   * NO, EXIT THIS ROUTINE
0000470  6802 0370       644 XIOCQ  B     XIOCS-4                 * AVAILABLE, GO AND GET IT
0000474  6802 04DE       645 XIOCU  B     $PRNT                   PRINT ERROR
0000478  CB25 0012       646 XIOCX  MVWZ  OPTN3,R3                CLEAR OUT OPTION 3 CNTL BITS
000047C  68C2 0000       647        B     (R6)                    RETURN TO USER VIA REG 6
0000480  4C29            648 XIOGI  TBT   (R4,GI)                 WAS A GOOD INTERRUPT RECEIVED
0000482  12F8            649        JON   XIOCU                   YES BRANCH
0000484  68C2 0000       650        B     (R6)                    RETURN
0000488  4C21            651 CSRTN  TBT   (R4,ER)                 TEST FOR ERROR
000048A  6A00 04DE       652        BON   $PRNT                   BRANCH IF YES
000048E  5600            653        BXS   (R6)                    RETURN
                         654 *
                         655 *          I/O   PARAMETER LIST
                         656 *
0000490  00A8            657 IOBLK  DC    A($DVUT)                ADRS OF DEVICE ADRS
0000492  03F8            658        DC    A(XIOER)                ERROR ROUTINE ADRS
0000494  0000            659        DC    A(*-*)                  IOCB ADRS OR LEVEL & INTR
0000496  0000            660 IOMOD  DC    A(*-*)                  MODIFIER
0000498  0000            661        DC    A(*-*)                  ADRS OF LAST SVC CALL
000049A  0000            662 IORSP  DC    A(*-*)                  SECOND WORD OF LAST IDCB
                         663 *
                         664 *          INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                         665 *
000049C  00A8            666 INTBL  DC    A($DVUT)                ADRS OF DEVICE ADRS
000049E  0410            667 INT01  DC    A(INTOK)                INTERRUPT OK RETURN ADRS
00004A0  03F4            668 INT02  DC    A(INTER)                INTERRUPT ERROR ADRS
00004A2  0003            669 INTCC  DC    X'0003'                 INTERRUPT CODE EXPECTED
                         670 ********************************************************************
                         671 * SUBROUTINE                                                       *
                         672 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE             *
                         673 * PURPOSE                                                          *
                         674 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND    *
                         675 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE*
                         676 *     TO INTERRUPT.                                                *
                         677 * CALLING SEQUENCE                                                 *
                         678 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                   *
                         679 * --> BAL   $CONC,R6             CLEAR DEV DEP  STG AND CONNECT I/O BLK
                         680 * --> BAL   $CONB,R6             BCH TO CONNECT                   *
                         681 * --> BAL   $CONP,R6             PREPARE DEVICE ONLY              *
                         682 * RETURN CONTROL                                                  *
                         683 *     BXS   (R6)                 RETURN TO USER VIA REG 6         *
                         684 ********************************************************************
00004A4                  685 $CONR  EQU   *
00004A4  4724 049C       686        MVA   INTBL,R7                SET R7 TO CONTROL BLOCK AND
00004A8  6014            687        SVC   CICB                    * CONNECT IT TO THIS DEVICE
00004AA  68C2 0000       688        B     (R6)                    RETURN
00004AE                  689 $CONC  EQU   *
00004AE  CB25 0012       690        MVWZ  OPTN3,R3                CLEAR OLD CONTROLS FOR NEW ROUTINE
00004B2  8828 009C 0494  691 $CONP  MVW   $INTL,IODCB             PUT IN LEVEL & INTR PARAMETER
00004B8  4724 0490       692        MVA   IOBLK,R7                SET R7 TO CONTROL BLOCK TO PREPARE
00004BC  4020 0014 07FF  693        MVWI  X'07FF',$IOIN           INITIALIZE CONDITION CODE STORAGE
00004C2  CB25 0016       694        MVWZ  $ISB,R3                 * AND CLEAR OLD ISB VALUE
00004C6  6E0D 0018       695        MVW   R6,LSTIO                SET UP ADDRESS  THAT STARTED LAST I/O
00004CA  402E 0018 0004  696        SWI   4,LSTIO                 DECREMENT TO POINT AT INSTRUCTION
00004D0  4324 0000       697        MVA   $PID,R3                 LOAD ADDRESS OF START OF PROG
00004D4  CB2F 0018       698        SW    R3,LSTIO                SUB TO OBTAIN LISTING ADDRESS
00004D8  600C            699        SVC   PREP                    * AND CALL ON SUPVR
00004DA  68C2 0000       700        B     (R6)                    RETURN
                         701 ********************************************************************
```

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                           707 *                                                             *
                           708 *                  COMMON PRINT ERROR INTERFACE ROUTINE       *
                           709 *                                                             *
                           710 * ----> R6       LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE  *
                           711 *                 BRANCH IS TAKEN TO PRINT THE ERROR          *
                           712 * ----> R4       LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE  *
                           713 *                 BRANCH IS TAKEN TO PRINT THE ERROR          *
                           714 * ----> R3       LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE       *
                           715 *                 BRANCH IS TAKEN TO PRINT THE ERROR          *
                           716 * ----> PRNTRTN  THIS LABELED ADDRESS IN SYSTC PROG ID = D3410/SYST )  *
                           717 *                 POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                           718 *                 WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN    *
                           719 *                                                             *
                           720 ***************************************************************
0004DE  4624  0012         721 $PRNT  MVA   OPTN3,R6              LOAD ADDRESS OF OPTION WORD THREE
0004E2  6D08  181E         722        MVW   PRNTRTN,R5            LOAD ADDRESS OF COMMON PRNT ROUTINE
0004E6  4424  0000         723        MVA   $PID,R4               LOAD ADDRESS OF START OF PROG
0004EA  4324  0042         724        MVA   PCTR,R3               LOAD ADDRESS OF PASS COUNTER
0004EE  6FA3  0000         725        BAL   (R5),R7               BRANCH TO COMMON PRINT ROUTINE
0004F2  CE25  0012         726        MVWZ  OPTN3,R6              ZERO OUT ALL FLAGS
0004F6  4424  000E         727        MVA   OPTN1,R4              LOAD BASE ADDRESS FOR INDICATORS
0004FA  802B  0232 00A6    728        CB    CPUTYPE,TYPE23        IS THIS A TYPE 23 PROCESSOR
000500  1803              729        JNE   $PRN2                 BRANCH IF NO
000502  4524  E000         730        MVWI  X'E000',R5            INIT LOOP COUNTER
000506  5002              731        J     $PRN1                 BRANCH
000508  4524  8000         732 $PRN2  MVWI  X'8000',R5            INIT LOOP COUNTER
00050C  6002              733 $PRN1  SVC   IDLE                  DELAY
00050E  4C03              734        TBT   (R4,TM)               SHOULD PROG TERMINATE
000510  6A00  00E4         735        BON   $TERM                 BRANCH YES
000514  7DA1  0001         736        AWI   1,R5                  INCREMENT LOOP COUNTER
000518  18F9              737        JNZ   $PRN1                 BRANCH NOT ZERO
00051A  6802  00B2         738        B     $PENT                 BRANCH TO RESTART FROM BEGINING
                           739 ***************************************************************
                           740 *                                                             *
                           741 *          ROUTINE TO CHANGE DEVICE ADDRESS WHEN TESTING MULTILINE    *
                           742 *                                                             *
                           743 ***************************************************************
00051E  402B  00AA 4000    744 SUPDA TWI   X'4000',$DVUT+2         IS THE CHAIN BIT ON
000524  1204              745        JON   SUP1                  BRANCH NO
000526  4C4D              746        TBTS  (R4,QUES)             INDICATE THAT IT IS RESTORED
000528  4020  057E 004C    747 SUPD   MVA   $DVAD,WORK1           RESTORE TO FIRST ENTRY
00052E  6D08  057E         748 SUP1   MVW   WORK1,R5             LOAD ADDRESS INTO R5
000532  4324  00A8         749        MVA   $DVUT,R3              LOAD ADDRESS INTO R3
000536  4724  000A         750        MVWI  10,R7                 INIT COUNT
00053A  2D64              751        MVFN  (R5),(R3)             MOVE ENTRY
00053C  4029  057E 000A    752        AWI   (0,WORK1),10          INCREMENT R1 TO NEXT ENTRY
000542  C320  00AE         753        MVB   $DVUT+6,R3            LOAD VALID ENTRY BYTE
000546  7B64  FF00         754        RBTWI X'FF00',R3            RESET ALL UNWANTED BITS
00054A  7B06  00FF         755        CWI   X'00FF',R3            IS THIS A VALID ENTRY
00054E  10E7               756        JE    SUPDA                 BRANCH NO
000550  4C8D              757        TBTF  (R4,QUES)             IS THIS AFTER A RESTORE
000552  1204              758        JON   SUPRT                 BRANCH YES
000554  CD25  0580         759        MVWZ  WORK2,R5              LOAD RETURN ADDRESS
000558  68A1  0000         760        BNZ   (R5)                  BRANCH IF VALID RETURN ADDRESS
00055C  4C8F              761 SUPRT  TBTR  (R4,DIR)              SHOULD RETURN BE VIA R6
00055E  1202              762        JON   SUPTV                 BRANCH YES
000560  6802  00DC         763        B     $PUPD                 BRANCH YES
000564  4C8D              764 SUPTV  TBTR  (R4,QUES)             RESET BIT
000566  4724  000A         765        MVWI  10,R7                 INIT R7 TO COUNT
00056A  4524  0582         766        MVA   WORK3,R5              INIT FROM ADDRESS
00056E  4324  00A8         767        MVA   $DVUT,R3              INIT TO ADDRESS
000572  2D64              768        MVFN  (R5),(R3)             MOVE DEV TABLE
000574  8828  058C 057E    769        MVW   WORK4,WORK1           RESTORE WORK1
00057A  68C2  0000         770        B     (R6)                  RETURN TO CONTINUE
                           772 ***************************************************************
                           773 ***************************************************************
00057E  0000               774 WORK1  DC    A(*-*)                DEV TABLE POINTER
000580  0000               775 WORK2  DC    A(*-*)                RETURN POINTER FOR ROUTINE SUPDA
000582  00000000000000000  776 WORK3  DC    XL10'00'              TEMP SAVE AREA FOR DEV TAB
00058C  0000               777 WORK4  DC    A(*-*)                TEMP SAVE AREA FOR WORK1
00058E  40404040404040404  779 DRBUF  DC    CL16' '               MAXIMUM WRITE BUFFER
00059E                     780 TSTEN  EQU   *
                           781 ***************************************************************
0000B2                     782        END   $PENT
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DECLARED  NAME      ATTRIBUTES AND REFERENCES
       0  .R1.      ABSOLUTE, HEX VALUE(00000001)
                    224  225  226  242  243  244  248  249  250
                    254  255  256  270  273  275  290  291  293
       0  .R2.      ABSOLUTE, HEX VALUE(00000002)
                    216  235  241  292  297
       0  .R3.      ABSOLUTE, HEX VALUE(00000003)
                    152  153  474  486  487  488  491  492  495
                    539  540  541  565  566  572  599  600  608
                    649  694  698  701  702  723  749  751  753
                    754  755  767  768
       0  .R4.      ABSOLUTE, HEX VALUE(00000004)
                    155  156  161  162  310  318  476  477  480
                    482  496  499  505  508  510  514  515  567
                    568  570  574  601  602  604  605  606  617
                    618  620  630  632  634  636  638  640  642
                    645  651  654  722  726  733  746  757  761
                    764
       0  .R5.      ABSOLUTE, HEX VALUE(00000005)
                    151  153  189  190  191  192  193  489  491
                    493  495  502  504  504  504  512  610  611  612
                    613  615  616  721  724  729  731  735  748
                    751  759  760  766  768
       0  .R6.      ABSOLUTE, HEX VALUE(00000006)
                    154  164  188  194  195  215  219  231  236
                    239  240  269  272  287  289  309  312  320
                    484  637  650  653  656  692  699  704  720
                    725  770
       0  .R7.      ABSOLUTE, HEX VALUE(00000007)
                    150  167  171  174  175  220  222  490  494
                    498  571  609  690  696  724  750  765
      61  $CKPT     ADDRESS, HEX LOCATION(0000000C) IN CSECT(EF1E0   ) LENGTH(2)
                    189  232  271  288  311  319
     693  $CONC     ADDRESS, HEX LOCATION(000004AE) IN CSECT(EF1E0   ) LENGTH(1)
                    219  236  269  287  309
     689  $CONR     ADDRESS, HEX LOCATION(000004A4) IN CSECT(EF1E0   ) LENGTH(1)
                    215
     101  $DATA     ADDRESS, HEX LOCATION(0000001A) IN CSECT(EF1E0   ) LENGTH(2)
                    190  191
     124  $DVAD     ADDRESS, HEX LOCATION(0000004C) IN CSECT(EF1E0   ) LENGTH(2)
                     59  149  151  174  237  747
     134  $DVID     ADDRESS, HEX LOCATION(0000009E) IN CSECT(EF1E0   ) LENGTH(2)
                    226  229
     139  $DVUT     ADDRESS, HEX LOCATION(000000A8) IN CSECT(EF1E0   ) LENGTH(10)
                    152  293  295  297  316  660  669  744  749
                    753  767
     133  $INTL     ADDRESS, HEX LOCATION(0000009C) IN CSECT(EF1E0   ) LENGTH(2)
                    148  170  216  217  218  233  235  613  695
      98  $IOIN     ADDRESS, HEX LOCATION(00000014) IN CSECT(EF1E0   ) LENGTH(2)
                    541  608  697
      99  $ISB      ADDRESS, HEX LOCATION(00000016) IN CSECT(EF1E0   ) LENGTH(2)
                    313  321  609  698
     135  $MXSL     ADDRESS, HEX LOCATION(000000A0) IN CSECT(EF1E0   ) LENGTH(2)
                    183
     146  $PENT     ADDRESS, HEX LOCATION(000000B2) IN CSECT(EF1E0   ) LENGTH(6)
                     58  184  199  737  782
      56  $PID      ADDRESS, HEX LOCATION(00000000) IN CSECT(EF1E0   ) LENGTH(4)
                    486  701  722
     720  $PRNT     ADDRESS, HEX LOCATION(000004DE) IN CSECT(EF1E0   ) LENGTH(4)
                    230  247  253  259  276  296  317  516  542
                    644  648  655
     732  $PRN1     ADDRESS, HEX LOCATION(0000050C) IN CSECT(EF1E0   ) LENGTH(2)
                    730  736
     731  $PRN2     ADDRESS, HEX LOCATION(00000508) IN CSECT(EF1E0   ) LENGTH(4)
                    728
     188  $PSEL     ADDRESS, HEX LOCATION(0000013E) IN CSECT(EF1E0   ) LENGTH(4)
                    260  277  299  325
     155  $PUPD     ADDRESS, HEX LOCATION(000000DC) IN CSECT(EF1E0   ) LENGTH(4)
                    763
     182  $PUP8     ADDRESS, HEX LOCATION(00000130) IN CSECT(EF1E0   ) LENGTH(6)
                    157
     169  $RETI     ADDRESS, HEX LOCATION(00000102) IN CSECT(EF1E0   ) LENGTH(6)
                    166
     199  $RTAD     ADDRESS, HEX LOCATION(0000015C) IN CSECT(EF1E0   ) LENGTH(2)
                    195
      60  $RTNE     ADDRESS, HEX LOCATION(0000000A) IN CSECT(EF1E0   ) LENGTH(2)
                    154  182  183  188
     161  $TERM     ADDRESS, HEX LOCATION(000000E4) IN CSECT(EF1E0   ) LENGTH(2)
                    509  734
     174  $TER1     ADDRESS, HEX LOCATION(0000011A) IN CSECT(EF1E0   ) LENGTH(4)
                    169
     179  $TER2     ADDRESS, HEX LOCATION(0000012E) IN CSECT(EF1E0   ) LENGTH(2)
                    164
     166  $TER3     ADDRESS, HEX LOCATION(000000F6) IN CSECT(EF1E0   ) LENGTH(6)
                    163  177
     331  ASDCB     ADDRESS, HEX LOCATION(000002DA) IN CSECT(EF1E0   ) LENGTH(1)
                    418
      93  CE        ABSOLUTE, HEX VALUE(00000028)
                    476  570  642
      39  CICB      ABSOLUTE, HEX VALUE(00000014)
                    691
      52  CPUTYPE   ABSOLUTE, HEX VALUE(00000232)
                    500  727
      92  CS        ABSOLUTE, HEX VALUE(00000027)
                    477  480  568  606  640
     112  CSBUF     ADDRESS, HEX LOCATION(00000032) IN CSECT(EF1E0   ) LENGTH(1)
                    273  351  493
     343  CSDCB     ADDRESS, HEX LOCATION(000002EA) IN CSECT(EF1E0   ) LENGTH(1)
                    478
     654  CSRTN     ADDRESS, HEX LOCATION(00000488) IN CSECT(EF1E0   ) LENGTH(2)
                    643
     277  CSST4     ADDRESS, HEX LOCATION(00000248) IN CSECT(EF1E0   ) LENGTH(6)
                    274
     114  CSTL2     ADDRESS, HEX LOCATION(00000034) IN CSECT(EF1E0   ) LENGTH(2)
                    290
     120  CSTL8     ADDRESS, HEX LOCATION(00000040) IN CSECT(EF1E0   ) LENGTH(2)
                    571  572
     104  DCBUF     ADDRESS, HEX LOCATION(00000022) IN CSECT(EF1E0   ) LENGTH(2)
                    488
     102  DEV3      ADDRESS, HEX LOCATION(0000001E) IN CSECT(EF1E0   ) LENGTH(2)
                    192  193  228  229  246  252  258  275  295
                    616
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
   103    DEV4        ADDRESS. HEX LOCATION(00000020) IN CSECT(EF1E0   ) LENGTH(2)
                      315   316   323
   355    DGDCB       ADDRESS. HEX LOCATION(000002FA) IN CSECT(EF1E0   ) LENGTH(1)
                      415
    70    DIR         ABSOLUTE. HEX VALUE(0000000F)
                      162   761
   779    DRBUF       ADDRESS. HEX LOCATION(0000058E) IN CSECT(EF1E0   ) LENGTH(16)
                      241   242   243   246   248   249   252   254   255
                      258   270   339   363   376   388
   368    DSDCB       ADDRESS. HEX LOCATION(0000030A) IN CSECT(EF1E0   ) LENGTH(1)
                      424
    37    EF1E0       CSECT. START(00000000) LENGTH(1438) ESDID(0)
                       37
    86    ER          ABSOLUTE. HEX VALUE(00000021)
                      514   574   634   645   654
    42    EXIT        ABSOLUTE. HEX VALUE(00000006)
                      621
   380    E1DCB       ADDRESS. HEX LOCATION(0000031A) IN CSECT(EF1E0   ) LENGTH(1)
                      420
   393    E2DCB       ADDRESS. HEX LOCATION(0000032B) IN CSECT(EF1E0   ) LENGTH(1)
                      386   422
    94    GI          ABSOLUTE. HEX VALUE(00000029)
                      604   651
   136    H0000       ADDRESS. HEX LOCATION(000000A2) IN CSECT(EF1E0   ) LENGTH(2)
                      147
   137    H0001       ADDRESS. HEX LOCATION(000000A4) IN CSECT(EF1E0   ) LENGTH(2)
                      182
    43    IDLE        ABSOLUTE. HEX VALUE(00000002)
                      507   732
    88    IN          ABSOLUTE. HEX VALUE(00000023)
                      482   496   510   605
   669    INTBL       ADDRESS. HEX LOCATION(0000049C) IN CSECT(EF1E0   ) LENGTH(2)
                      690
   565    INTER       ADDRESS. HEX LOCATION(000003F4) IN CSECT(EF1E0   ) LENGTH(2)
                      671
   574    INTET       ADDRESS. HEX LOCATION(0000040C) IN CSECT(EF1E0   ) LENGTH(2)
                      569
   599    INTOK       ADDRESS. HEX LOCATION(00000410) IN CSECT(EF1E0   ) LENGTH(2)
                      670
   621    INTRX       ADDRESS. HEX LOCATION(00000446) IN CSECT(EF1E0   ) LENGTH(2)
                      619
   605    INTR1       ADDRESS. HEX LOCATION(0000041E) IN CSECT(EF1E0   ) LENGTH(2)
                      573   575   603
   610    INTR2       ADDRESS. HEX LOCATION(0000042C) IN CSECT(EF1E0   ) LENGTH(2)
                      607
   618    INTR3       ADDRESS. HEX LOCATION(00000440) IN CSECT(EF1E0   ) LENGTH(2)
                      614
   660    IOBLK       ADDRESS. HEX LOCATION(00000490) IN CSECT(EF1E0   ) LENGTH(2)
                      167   171   220   222   498   696
   662    IODCB       ADDRESS. HEX LOCATION(00000494) IN CSECT(EF1E0   ) LENGTH(2)
                      170   172   415   418   420   422   424   478   489
                      695
   661    IOERR       ADDRESS. HEX LOCATION(00000492) IN CSECT(EF1E0   ) LENGTH(2)
                      186   166   169
   663    IOMOD       ADDRESS. HEX LOCATION(00000496) IN CSECT(EF1E0   ) LENGTH(2)
                      416   474   479
   665    IORSP       ADDRESS. HEX LOCATION(0000049A) IN CSECT(EF1E0   ) LENGTH(2)
                      224   228
   240    ITSTA       ADDRESS. HEX LOCATION(000001CE) IN CSECT(EF1E0   ) LENGTH(4)
                      238
   218    ITST4       ADDRESS. HEX LOCATION(00000174) IN CSECT(EF1E0   ) LENGTH(6)
                      234
   231    ITST5       ADDRESS. HEX LOCATION(000001A8) IN CSECT(EF1E0   ) LENGTH(4)
                      227
   260    ITST7       ADDRESS. HEX LOCATION(0000021E) IN CSECT(EF1E0   ) LENGTH(6)
                      257
   254    ITST8       ADDRESS. HEX LOCATION(00000206) IN CSECT(EF1E0   ) LENGTH(4)
                      251
   248    ITST9       ADDRESS. HEX LOCATION(000001EE) IN CSECT(EF1E0   ) LENGTH(4)
                      245
    90    LE          ABSOLUTE. HEX VALUE(00000025)
                      617   632
    91    LI          ABSOLUTE. HEX VALUE(00000026)
                      515
   100    LSTIO       ADDRESS. HEX LOCATION(00000018) IN CSECT(EF1E0   ) LENGTH(2)
                      484   485   487   699   700   702
    85    MI          ABSOLUTE. HEX VALUE(00000020)
                      620   630
    63    OPTN1       ADDRESS. HEX LOCATION(0000000E) IN CSECT(EF1E0   ) LENGTH(2)
                      155   567   601   726
    73    OPTN3       ADDRESS. HEX LOCATION(00000012) IN CSECT(EF1E0   ) LENGTH(2)
                      649   694   720   725
   121    PCTR        ADDRESS. HEX LOCATION(00000042) IN CSECT(EF1E0   ) LENGTH(2)
                      147   723
    95    PE          ABSOLUTE. HEX VALUE(0000002A)
                      636
    44    PREP        ABSOLUTE. HEX VALUE(0000000C)
                      173   703
    51    PRNTRTN     ABSOLUTE. HEX VALUE(0000181E)
                      721
    68    QUES        ABSOLUTE. HEX VALUE(0000000D)
                      161   746   757   764
    48    RESET       ABSOLUTE. HEX VALUE(00000008)
                      168   221
    45    RICB        ABSOLUTE. HEX VALUE(00000013)
                      176
    49    RID         ABSOLUTE. HEX VALUE(00000009)
                      223
   215    RT01        ADDRESS. HEX LOCATION(00000166) IN CSECT(EF1E0   ) LENGTH(4)
                      200
   269    RT02        ADDRESS. HEX LOCATION(00000228) IN CSECT(EF1E0   ) LENGTH(4)
                      201
   287    RT03        ADDRESS. HEX LOCATION(00000252) IN CSECT(EF1E0   ) LENGTH(4)
                      202
   295    RT031       ADDRESS. HEX LOCATION(00000272) IN CSECT(EF1E0   ) LENGTH(6)
                      298
   297    RT032       ADDRESS. HEX LOCATION(0000027C) IN CSECT(EF1E0   ) LENGTH(4)
                      294
   309    RT04        ADDRESS. HEX LOCATION(0000028C) IN CSECT(EF1E0   ) LENGTH(4)
                      203
   318    RT041       ADDRESS. HEX LOCATION(000002B4) IN CSECT(EF1E0   ) LENGTH(2)
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
                      314
   325    RT042       ADDRESS. HEX LOCATION(000002D0) IN CSECT(EF1E0   ) LENGTH(6)
                      322
   316    RT043       ADDRESS. HEX LOCATION(000002AA) IN CSECT(EF1E0   ) LENGTH(6)
                      324
    46    START       ABSOLUTE. HEX VALUE(0000000A)
                      506
   747    SUPD        ADDRESS. HEX LOCATION(00000528) IN CSECT(EF1E0   ) LENGTH(6)
                      165
   744    SUPDA       ADDRESS. HEX LOCATION(0000051E) IN CSECT(EF1E0   ) LENGTH(6)
                      178   261   278   300   326   756
   761    SUPRT       ADDRESS. HEX LOCATION(0000055C) IN CSECT(EF1E0   ) LENGTH(2)
                      758
   764    SUPTV       ADDRESS. HEX LOCATION(00000564) IN CSECT(EF1E0   ) LENGTH(2)
                      762
   748    SUP1        ADDRESS. HEX LOCATION(0000052E) IN CSECT(EF1E0   ) LENGTH(4)
                      745
    47    TERH        ABSOLUTE. HEX VALUE(00000007)
                      179
    67    TM          ABSOLUTE. HEX VALUE(00000003)
                      156   508   733
   138    TYPE23      ADDRESS. HEX LOCATION(000000A6) IN CSECT(EF1E0   ) LENGTH(2)
                      500   727
   774    WORK1       ADDRESS. HEX LOCATION(0000057E) IN CSECT(EF1E0   ) LENGTH(2)
                      149   747   748   752   769
   775    WORK2       ADDRESS. HEX LOCATION(00000580) IN CSECT(EF1E0   ) LENGTH(2)
                      163   177   260   277   299   325   759
   776    WORK3       ADDRESS. HEX LOCATION(00000582) IN CSECT(EF1E0   ) LENGTH(10)
                      766
   777    WORK4       ADDRESS. HEX LOCATION(0000058C) IN CSECT(EF1E0   ) LENGTH(2)
                      769
    89    XE          ABSOLUTE. HEX VALUE(00000024)
                      310   318   602   638
    87    XI          ABSOLUTE. HEX VALUE(00000022)
                      499   505   618
   474    XIO         ADDRESS. HEX LOCATION(0000036A) IN CSECT(EF1E0   ) LENGTH(4)
                      419   421   423   425
   418    XIOAS       ADDRESS. HEX LOCATION(0000034A) IN CSECT(EF1E0   ) LENGTH(6)
                      231
   630    XIOCK       ADDRESS. HEX LOCATION(00000448) IN CSECT(EF1E0   ) LENGTH(2)
                      483   497   511
   636    XIOCM       ADDRESS. HEX LOCATION(00000454) IN CSECT(EF1E0   ) LENGTH(2)
                      633
   478    XIOCS       ADDRESS. HEX LOCATION(00000374) IN CSECT(EF1E0   ) LENGTH(6)
                      272   289   647
   648    XIOCU       ADDRESS. HEX LOCATION(00000474) IN CSECT(EF1E0   ) LENGTH(4)
                      631   635   652
   645    XIOCV       ADDRESS. HEX LOCATION(0000046C) IN CSECT(EF1E0   ) LENGTH(2)
                      641
   649    XIOCX       ADDRESS. HEX LOCATION(00000478) IN CSECT(EF1E0   ) LENGTH(4)
                      646
   415    XIODG       ADDRESS. HEX LOCATION(0000033C) IN CSECT(EF1E0   ) LENGTH(6)
                      240
   424    XIODS       ADDRESS. HEX LOCATION(00000362) IN CSECT(EF1E0   ) LENGTH(6)
                      239
   539    XIOER       ADDRESS. HEX LOCATION(000003E8) IN CSECT(EF1E0   ) LENGTH(2)
                      146   661
   420    XIOE1       ADDRESS. HEX LOCATION(00000352) IN CSECT(EF1E0   ) LENGTH(6)
                      312
   422    XIOE2       ADDRESS. HEX LOCATION(0000035A) IN CSECT(EF1E0   ) LENGTH(6)
                      320
   651    XIOGI       ADDRESS. HEX LOCATION(00000480) IN CSECT(EF1E0   ) LENGTH(2)
                      639
   484    XIO1        ADDRESS. HEX LOCATION(00000388) IN CSECT(EF1E0   ) LENGTH(4)
                      417   475
   496    XIO2        ADDRESS. HEX LOCATION(000003B0) IN CSECT(EF1E0   ) LENGTH(2)
                      481
   504    XIO5        ADDRESS. HEX LOCATION(000003C8) IN CSECT(EF1E0   ) LENGTH(2)
                      501
   505    XIO6        ADDRESS. HEX LOCATION(000003CA) IN CSECT(EF1E0   ) LENGTH(2)
                      503
   507    XIO8        ADDRESS. HEX LOCATION(000003CE) IN CSECT(EF1E0   ) LENGTH(2)
                      513
```

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                             3 ************************************************************************
                             4 *                                                                      *
                             5 *                     ***       PREREQUISITES        ***               *
                             6 *                                                                      *
                             7 *                                NONE                                  *
                             8 *                                                                      *
                             9 ************************************************************************
                            10 *                                                                      *
                            11 *                     ***       MODIFICATIONS        ***               *
                            12 *                                                                      *
                            13 *                CHANGES MADE TO ROUTINE ON THE INTERPETATION          *
                            14 *                OF DIAGNOSTIC DATA FROM CARD (WITH/WITHOUT WRAP)      *
                            15 *                                                                      *
                            16 ************************************************************************
                            17 *                                                                      *
                            18 *                     ***     REA'S INCORPORATED     ***               *
                            19 *                                                                      *
                            20 *                                27-11576                              *
                            21 *                                                                      *
                            22 ************************************************************************
                            23 *                                                                      *
                            24 *                     ***    SPECIAL INSTRUCTIONS    ***               *
                            25 *                                                                      *
                            26 *                                NONE                                  *
                            27 *                                                                      *
                            28 ************************************************************************
                            29 *                                                                      *
                            30 *                     ***       E. C. HISTORY        ***               *
                            31 *                                                                      *
                            32 *        DATE 06MAY77  DATE 15SEP77  DATE          DATE                *
                            33 *        E.C. 578756   E.C. 754882   E.C.          E.C.                 *
                            34 *                                                                      *
                            35 ************************************************************************
 000000                     37 EF8E0 START X'0000'
                            38 *                SUPERVISOR EQUATES
 000014                     39 CICB   EQU   20                    CONNECT INTERRUPT CONTROL BLOCK
 000001                     40 OUTIN  EQU   1                     OUT MESSAGE WITH EXPECTED RESPONCE
 00001A                     41 HTOE   EQU   26                    CHANGE HEX DATA TO EBCDIC DATA
 000006                     42 EXIT   EQU   6                     EXIT INTERRUPT LEVEL
 000002                     43 IDLE   EQU   2                     SHARE PROGRAM TIME WITH OTHER PGMS
 00000C                     44 PREP   EQU   12                    PREPARE DEVICE
 000013                     45 RICB   EQU   19                    RELEASE INTERRUPT CONTROL BLOCK
 00000A                     46 START  EQU   10                    START CYCLE STEAL COMMAND
 000007                     47 TERM   EQU   7                     TERMINATE THIS PROGRAM
 000008                     48 RESET  EQU   8                     DEVICE RESET
 000009                     49 RID    EQU   9                     DEVICE READ ID
 000000                     50 REG    EQUR  0                     WORK REGISTER
 00181E                     51 PRNTRTN EQU  X'181E'               COMMON PRINT ROUTINE ADDRESS LOCATION
 000232                     52 CPUTYPE EQU  X'0232'               ADDRESS OF PROCESSOR TYPE
                            53 *
                            54 *                PROGRAM HEADING AND CONTROL WORDS
                            55 *
 000000  C6F8F0F0           56 $PID   DC    C'F800'               PROGRAM IDENTIFICATION
 000004  0000               57        DC    XL2'0000'             CURRENT LEVEL OF PROGRAM
 000006  009C               58        DC    A($PENT)              -> TO START EXEC ADDRESS
 000008  004C               59        DC    A($DVAD)              -> TO DEVICE TABLE
 00000A  0000               60 $RTNE  DC    A(*-*)                ROUTINE NUMBER BEING RUN
 00000C  0000               61 $CKPT  DC    A(*-*)                LAST CHECK POINT PASSED
 00000E  0000               63 OPTN1  DC    X'0000'               PROGRAM OPTION CONTROL WORD 1
                            64 *
                            65 * BIT FUNCTION
                            66 *
 000003                     67 TM     EQU   3                     TERMINATE PROGRAM
 00000D                     68 QUES   EQU   13                    QUESTION HAS BEEN ASKED
 00000E                     69 IND    EQU   14                    INDICATOR
 00000F                     70 DIR    EQU   15                    SEEK DIRECTION INDICATOR
                            71 *
 000010  0000               72 OPTN2  DC    X'0000'               PROGRAM OPTION CONTROL WORD 2
 000012  0000               73 OPTN3  DC    X'0000'               PROGRAM OPTION CONTROL WORD 3
                            74 *
                            75 *  0  MYSTERY INTERRUPT     MI        8  CS STATUS INTERRUPT ERR CE
                            76 *  1  ERROR INTERRUPT       ER        9  GOOD INTERRUPT RECEIVED GI
                            77 *  2  EXPECTED INTERRUPT    XI       10  PROBABLE ERROR EXPECTED PE
                            78 *  3  INTERRUPT RECEIVED    IN       11  NO INTERRUPT EXPECTED   NI
                            79 *
                            80 *  4  EXPECTED ERR/ATTENT   XE       12  N.U.
                            81 *  5  WRONG INTR LEVEL      LE       13  N.U.
                            82 *  6  LOAS INTERRUPT        LI       14  N.U.
                            83 *  7  CS STATUS IN PROGR    CS       15  N.U.
                            84 *                       BIT    HEX
 000020                     85 MI     EQU   32      0      8     MYSTERY INTERRUPT HAPPENED
 000021                     86 ER     EQU   33      1      4     ERROR RECEIVED ON INTERRUPT
 000022                     87 XI     EQU   34      2      2     EXPECTED INTERRUPT CONTROL BIT
 000023                     88 IN     EQU   35      3      1     INTERRUPT RECEIVED CONTROL BIT
 000024                     89 XE     EQU   36      4      8     EXPECTED ERROR RESPONSE
 000025                     90 LE     EQU   37      5      4     INTERRUPT ON WRONG LEVEL ERROR
 000026                     91 LI     EQU   38      6      2     LOST INTERRUPT
 000027                     92 CS     EQU   39      7      1     CYCLE STEAL IN PROGRESS
 000028                     93 CE     EQU   40      8      8     CYCLE STEAL STATUS INERRRUPT ERROR
 000029                     94 GI     EQU   41      9      4     GOOD INTERRUPT RECEIVED (EXPECTED ER)
 00002A                     95 PE     EQU   42      10     2     PROBABLE ERROR EXPECTED
 00002B                     96 NI     EQU   43      11     1     NO INTR. EXPECTED UNPREPED DEV.
 000014  0000               98 $IOIN  DC    A(*-*)                I/O AND INTR CONDITION CODES
 000016  0000               99 $ISB   DC    A(*-*)                R7  INTR STATUS BYTE & DEV ADRS
 000018  0000              100 LSTIO  DC    A(*-*)                ADRS OF LAST I/O - 4 BYTES
 00001A  00000000          101 $DATA  DC    2A(*-*)               DEVICE DEPENDENT DATA
 00001E  0000              102 DEV3   DC    A(*-*)                DEPENDENT DATA DEV3
 000020  0000              103 DEV4   DC    A(*-*)                DEPENDENT DATA DEV4
 000022  0000              104 DCBUF  DC    A(*-*)                LAST DCB TABLE, CONTROL WORD
 000024  0000              105 DCB2   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000026  0000              106 DCB3   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 000028  0000              107 DCB4   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002A  0000              108 DCB5   DC    A(*-*)                LAST DCB TABLE, DEV DEP WORD
 00002C  0000              109 DCB6   DC    A(*-*)                LAST DCB TABLE, CHAIN ADRS
 00002E  0000              110 DCB7   DC    A(*-*)                LAST DCB TABLE, BYTE COUNT
 000030  0000              111 DCB8   DC    A(*-*)                LAST DCB TABLE, BUFFER ADDRESS
 000032                    112 CSBUF  EQU   *                     CYCLE STEAL DATA BUFFER
 000032  0000              113 CSTL1  DC    A(*-*)                CYCLE STEAL BUFFER,  RESIDUAL ADRS
 000034  0000              114 CSTL2  DC    A(*-*)                CYCLE STEAL WD 2, DEVICE DEPEND
 000036  0000              115 CSTL3  DC    A(*-*)                CYCLE STEAL WD 3, DEVICE DEPEND
 000038  0000              116 CSTL4  DC    A(*-*)                CYCLE STEAL WD 4, DEVICE DEPEND
 00003A  0000              117 CSTL5  DC    A(*-*)                CYCLE STEAL WD 5, DEVICE DEPEND
 00003C  0000              118 CSTL6  DC    A(*-*)                CYCLE STEAL WD 6, DEVICE DEPEND
 00003E  0000              119 CSTL7  DC    A(*-*)                CYCLE STEAL WD 7, DEVICE DEPEND
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
 000040  0000              120 CSTL8  DC    A(*-*)                CYCLE STEAL WD 8, DEVICE DEPEND
 000042  00000000          121 PCTR   DC    2A(*-*)               PASS COUNTER
 000046  00000000          122 ECTR   DC    2A(*-*)               ERROR COUNTER
 00004A  0005              123 ERNUM  DC    X'0005'               NUM OF ERRORS PROG CAN HAVE
 00004C  00F8              124 $DVAD  DC    X'00F8'               DEVICE ADDRESS BEING TESTED
 00004E  0000000000000000  125        DC    XL8'00'
 000056  0011              126 $INTL  DC    X'0011'               INTERPUPT LEVEL REQUESTED
 000058  1016              127 $DVID  DC    X'1016'               DEVICE IDENTIFICATION
 00005A  0005              128 $MXSL  DC    A(5)                  MAXIMUM SELECTABLE ROUTINES
 00005C  0000              129 H0000  DC    X'0000'               CONSTANT
 00005E  0001              130 H0001  DC    X'0001'               HEX WORD CONSTANT
 000060  0001              131 $HTOE  DC    A(1)                  HEX TO EBC CONTROL BLOCK
 000062  004C              132        DC    A($DVAD)
 000064  0094              133        DC    A(MSG11)
 000066  0080              134        DC    X'0080'
 000068  0072              135 $OUTN  DC    A(MSG01)              SVC OUTIN CONTROL BLOCK
 00006A  0098              136        DC    A(INARA)
 00006C  0001              137        DC    A(1)
 00006E  0000              138        DC    A(0)
 000070  F8E1              139        DC    X'F8E1'
 000072  C9E240E3C8C5D9C54 140 MSG01  DC    C'IS THERE A WRAP CONNECTED TO DA = '
 000094  4040              141 MSG11  DC    C' '
 000096  0000              142        DC    A(0)
 000098  4040              143 INARA  DC    C' '
 00009A  2300              144 TYPE23 DC    X'2300'               CONSTANT TO CHECK PROCESSOR AGAINST
                           146 ************************************************************************
                           147 *                                                                      *
                           148 *                PROGRAM CONTROL FUNCTIONS                             *
                           149 *                                                                      *
                           150 ************************************************************************
 00009C  4020 04BC 0412    151 $PENT  MVA   XIOER,IOERR           RESTORE ERROR ADDRESS
 0000A2  A82A 005C 0042    152        AD    H0000,PCTR            ADVANCE PASS COUNTER BY 1
 0000A8  4020 0056 0011    153        MVWI  X'0011',$INTL         INIT INTERRUPT LEVEL
 0000AE  4120 000E         154        MVA   OPTN1,R4              LOAD ADDRESS OF OPTION WORDS
 0000B2  4C0D              155        TBT   (R4,QUES)             HAS QUESTION BEN ASKED
 0000B4  120D              156        JON   $PEN1                 BRANCH YES
 0000B6  4C4D              157        TBTS  (R4,QUES)             SET QUES BIT
 0000B8  4724 0060         158        MVA   $HTOE,R7              LOAD ADDRESS OF CONTROL BLOCK
 0000BC  601A              159        SVC   HTOE                  ISSUE SVC
 0000BE  4724 0068         160        MVA   $OUTN,R7              LOAD ADDRESS OF CONTROL BLOCK
 0000C2  6001              161        SVC   OUTIN                 ISSUE SVC
 0000C4  C620 0098         162        MVI   INARA,R6              LOAD ANSWER
 0000C8  F6E8              163        CBI   C'Y',R6               COMPARE TO YES
 0000CA  1001              164        JE    ISWRP                 BRANCH EQUAL
 0000CC  5001              165        J     $PEN1                 BRANCH NO
 0000CE  4C4E              166 ISWRP  TBTS  (R4,IND)             SET WRAP INDICATOR
 0000D0  CE25 000A         167 $PEN1  MVWZ  $RTNE,R6             CLEAR OLD ROUTINE NUMBER
 0000D4  4424 000E         168 $PUPD  MVA   OPTN1,R4             R4 MUST BE SET TO 'OPTN1'
 0000D8  4C03              169 $PUP2  TBT   (R4,TM)              IS TERMINATE PGM REQUESTED
 0000DA  1018              170        JZ    $PUP8                 * NO, CONTINUE CHECKING
                           171 *
                           172 *                TERMINATE CONTROL BIT FOUND ON
                           173 *
 0000DC  4020 04BC 00E8    174 $TERM  MVA   $RETI,IOERR           INIT ERROR ADDRESS
 0000E2  4724 04BA         175        MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
 0000E6  6008              176        SVC   RESET                 ISSUE SVC
 0000E8  4020 04BC 0100    177 $RETI  MVA   $TER1,IOERR           INIT ERROR ADDRESS
 0000EE  8828 0056 04BE    178        MVW   $INTL,IODCB           LOAD CURRENT INTERRUPT LEVEL
 0000F4  4724 04BA         179        MVA   IOBLK,R7              LOAD ADDRESS OF CONTROL BLOCK
 0000F8  402D 04BE 0001    180        RBTWI X'0001',IODCB         TURN OF PREPARE 'I' BIT
 0000FE  600C              181        SVC   PREP                  ISSUE SVC
 000100  C720 004C         182 $TER1  MVB   $DVAD,R7              LOAD CURRENT DEV ADDRESS
 000104  7FE4 FF00         183        RBTWI X'FF00',R7            ZERO HIGH ORDEF BYTE
 000108  6013              184        SVC   RICB                  ISSUE SVC
 00010A  6007              185        SVC   TERM                  ISSUE SVC
                           187 *
 00010C  A828 005E 000A    188 $PUP8  AW    H0001,$RTNE           ADVANCE ROUTINE NUMBER
 000112  882B 005A 000A    189        CW    $MXSL,$RTNE           CHECK FOR LAST AUTOMATIC  ROUTINE
 000118  10C1              190        JE    $PENT                 * BCH AND START WITH RTN 1
                           191 *
                           192 *                GET RTN NUMBER AND BCH TO THAT RTN
                           193 *
 00011A  6E08 000A         194 $PSEL  MVW   $RTNE,R6              MOVE RTN NUMBER IN REG
 00011E  CD25 000C         195        MVWZ  $CKPT,R5              ZERO CHECKPOINT
 000122  CD25 001A         196        MVWZ  $DATA,R5              ZERO ALL FOUR WORDS OF DEV
 000126  CD25 001C         197        MVWZ  $DATA+2,R5            * DEPENDENT DATA
 00012A  CD25 001E         198        MVWZ  DEV3,R5               *  -------------
 00012E  CD25 0020         199        MVWZ  DEV3+2,R5             *  -------------
 000132  3609              200        SLL   1,R6                  DOUBLE FOR BRANCH TABLE
 000134  68D2 0138         201        B     (R6,$RTAD)*           BCH VIA RTN TABLE
                           202 *
                           203 *                TABLE OF ROUTINE ADDRESSES
                           204 *
 000138  009C              205 $RTAD  DC    A($PENT)              NO RTN SELECTED
 00013A  0142              206        DC    A(RT01)               ROUTINE ADDRESS
 00013C  01E4              207        DC    A(RT02)                  ''      ''
 00013E  0238              208        DC    A(RT03)                  ''      ''
 000140  02AE              209        DC    A(RT04)                  ''      ''
                           211 ************************************************************************
                           212 *     CHANNEL INTERFACE TEST                                           *
                           213 *     TO VERIFY THE CHANNEL INTERFACE CAN INTERRUPT ON ALL LEVELS      *
                           214 *     THE PROG WILL PREPARE THE I/O DEVICE TO INTERRUPT ON LEVEL ZERO  *
                           215 *     AND CAUSE AN INTERRUPT. WHEN THE INTERRUPT OCCURS, THE LEVEL IS  *
                           216 *     COMPARED TO THE EXPECTED LEVEL. THIS IS DONE ON ALL LEVELS       *
                           217 *     EXCEPT LEVEL THREE. AFTER THIS, A DIAG. READ IS ISSUED AND       *
                           218 *     A CHECKSUM CHECK IS PREFORMED.                                   *
                           219 ************************************************************************
 000142  6E03 04CE         220 RT01   BAL   $CONR,R6              CLEAR AND CONNECT I/O BLK
 000146  6A08 0056         221        MVW   $INTL,R2              SAVE SELECTED INTERRUPT
 00014A  C825 02F8         222        MVWZ  DRCTL,REG             SET UP CONTROL WORD FOR TESTING
 000150  4020 0056 FFF1    223        MVWI  X'FFF1',$INTL         SET UP INTERRUPT LEVEL FOR PREP
 000154  4029 0056 0010    224 ITST4  AWI   X'10',$INTL           ADV INTR LEVEL, STARTING AT 0
 00015A  6E03 04D8         225        BAL   $CONC,R6              GO PREPARE ON NEW LEVEL
 00015E  4724 04BA         226        MVA   IOBLK,R7              SET UP POINTER TO CONTROL BLOCK
 000162  6008              227        SVC   RESET                 CALL SUPVR TO ISSUE RESET
 000164  4724 04BA         228        MVA   IOBLK,R7              SET UP POINTER TO CONTROL BLOCK
 000168  6009              229        SVC   RID                   CALL SUPVR TO ISSUE READ ID
 00016A  882B 04C4 0058    230        CW    IORSP,$DVID           IS ID RECEIVED THE SAME
 000170  1008              231        JE    ITST5                 * YES, CONTINUE
 000172  8828 04C4 001E    232        MVW   IORSP,DEV3            LOAD RECEIVED ID INTO DEV3
 000178  8828 0058 0020    233        MVW   $DVID,DEV3+2          LOAD EXPECTED ID INTO DEV4
 00017E  6802 0508         234        B     $PRNT                 BRANCH TO PRINT ERROR
 000182  6E03 0368         235 ITST5  BAL   XIODR,R6              EXEC NO-OP TO GET AN INTR
 000186  4029 000C 0001    236        AWI   1,$CKPT               BUMP CHECKPOINT
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

00018C  402F 0056 0021     237          CWI   X'21',$INTL          HAS INTR LEVEL COME DOWN TO 2
000192  18E0               238          JNE   ITST4                * NO, BCH AND CONTINUE TEST
000194  6A0D 0056          239          MVW   R2,$INTL             RESTORE SELECTED INTR LEVEL
000198  6E03 04D8          240          BAL   $CONC,R6             SET UP FOR START IO ON CORRECT LEV.
00019C  402B 0050 8000     241          TWI   X'8000',$DVAD+4      IS DTR JUMPERED ON
0001A2  1202               242          JON   ITSTA                BRANCH IF YES
0001A4  6E03 038E          243          BAL   XIODS,R6             BRANCH TO DISABLE DTR
0001A8  6E03 035A          244 ITSTA    BAL   XIODG,R6             SET UP FOR START IO
0001AC  4224 0548          245 ITSTC    MVA   DRBUF,R2             SET UP TO CHECK CHECKSUM
0001B0  6908 0548          246          MVW   DRBUF,R1             SET UP TO CHECK CHECKSUM VALUE
0001B4  690B 054A          247          XW    DRBUF+2,R1           * AGAINST SHOULD BE
0001B8  7921 0001          248          AWI   1,R1                 CHECK FOR A VALID CHECKSUM
0001BC  1005               249          JZ    ITST9                BCH IF OKAY
0001BE  9028 0548 001E     250          MVD   DRBUF,DEV3           MOVE ERRORED CHECKSUM VALUE
0001C4  6802 0508          251          B     $PRNT                BRANCH TO PRINT ERROR
0001C8  6908 054C          252 ITST9    MVW   DRBUF+4,R1           SET UP TO CHECK CHECKSUM VALUE
0001CC  690B 054E          253          XW    DRBUF+6,R1           * AGAINST SHOULD BE
0001D0  7921 0001          254          AWI   1,R1                 CHECK FOR A VALID CHECKSUM
0001D4  1005               255          JZ    ITST7                BCH IF OKAY
0001D6  9028 054C 001E     256          MVD   DRBUF+4,DEV3         MOVE ERRORED CHECKSUM VALUE
0001DC  6802 0508          257          B     $PRNT                BRANCH TO PRINT ERROR
0001E0  6802 00D4          258 ITST7    B     $PUPD                BRANCH TO CONTINUE
                           260 ********************************************************************
                           261 *    CYCLE STEAL STATUS                                            *
                           262 *    THIS TEST WILL VERIFY THAT THE ATTACHMENT WILL SEND BACK THE  *
                           263 *    ADDRESS OF THE LAST CYCLE STEAL ADDRESS.                      *
                           264 *                                                                  *
                           265 *    KNOWING THE LAST BUFFER LOCATION USED                         *
                           266 *    THE RESIDUAL ADDRESS CAN BE COMPUTED.  THE START CYCLE STATUS IS*
                           267 *    EXECUTED AND THE TWO ADDRESSES ARE COMPARED.                  *
                           268 *    ANOTHER START CYCLE STEAL STATUS IS EXECUTED AND IT WILL VERIFY *
                           269 *    THAT START CYCLE STATUS DOES NOT DESTROY THE RESIDUAL ADDRESS.  *
                           270 *    AFTER WHICH THE RESIDUAL WORD COUNT IS CHECKED AND VERFIED.    *
                           271 ********************************************************************
C001E4  6E03 04D8          272 RT02     BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
0001E8  4124 0552          273          MVA   DRBUF+10,R1          LAST CYCLE ADRS USED
0001EC  4029 000C 0001     274          AWI   1,$CKPT              BUMP CHECKPOINT
0001F2  6E03 03A0          275          BAL   XIOCS,R6             GO GET STATUS FROM LAST I/O
C001F6  C924 0032          276          CW    CSBUF,R1             COMPARE LAST STG LOCATION USED
0001FA  1004               277          JE    CSST4                BRANCH IF GOOD ADDRESS
0001FC  690D 0020          278          MVW   R1,DEV3+2            LOAD EXPECTED ADDRESS INTO DEV4
000200  6802 0508          279          B     $PRNT                BRANCH TO PRINT ERROR
000204  4029 000C 0001     280 CSST4    AWI   1,$CKPT              BUMP CHECKPOINT
00020A  6E03 03A0          281 CSST5    BAL   XIOCS,R6             EXECUTE 2 ND START CS STS
00020E  C924 0032          282          CW    CSBUF,R1             CK IF 2 ND CS STS DESTROYED RESID ADR
000212  1004               283          JE    CSST7                IF THE RESIDUAL ADRS OK, BCH
000214  690D 0020          284          MVW   R1,DEV3+2            MOVE EXPECTED VALUE INTO DEV4
000218  6802 0508          285          B     $PRNT                BRANCH TO PRINT ERROR
00021C  4029 000C 0001     286 CSST7    AWI   1,$CKPT              BUMP CHECKPOINT COUNTER
000222  402F 0034 0001     287          CWI   X'0001',CSTL2        IS RES. WORD COUNT EQUAL TO ONE
000228  1005               288          JE    CSST8                BRANCH YES
00022A  4020 0020 0001     289          MVWI  X'0001',DEV3+2       LOAD DEV4 WITH SHOULD BE DATA
000230  6802 0508          290          B     $PRNT                BRANCH TO PRINT ERROR
000234  6802 00D4          291 CSST8    B     $PUPD                BRANCH TO CONTINUE
                           293 ********************************************************************
                           294 *    DIAGNOSTIC MODE                                               *
                           295 *    CHECK ALL POSSIBLE DIAGNOSTIC MODE INDICATORS                 *
                           296 *                                                                  *
                           297 *    A DIAGNOSTIC COMMAND IS ISSUED TO OBTAIN THE STATUS INFORMATION *
                           298 *    OF THE ATTACHMENT CARD. THIS INFORMATION IS THEN COMPARED     *
                           299 *    AGAINST EXPECTED VALUES AND VALUES ENTERED AS CONFIGURATION   *
                           300 *    INFORMATION.                                                  *
                           301 ********************************************************************
000238  6E03 04D8          302 RT03     BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
00023C  4029 000C 0001     303          AWI   1,$CKPT              BUMP CHECKPOINT
000242  6E03 0380          304          BAL   XIODE,R6             BRANCH TO ISSUE DIAG. COM.
000246  4029 000C 0001     305          AWI   1,$CKPT              BUMP CHECKPOINT
00024C  5005               306          J     RT032                BRANCH TO CONTINUE
00024E  8828 0550 001E     307 RT031    MVW   DRBUF+8,DEV3         LOAD DEV3 WITH RECEIVED DATA
000254  6802 0508          308          B     $PRNT                BRANCH TO PRINT ERROR
000258  402B 004E 0004     309 RT032    TWI   X'0004',$DVAD+2      TEST INTERNAL CLOCK BIT
00025E  1203               310          JON   RT036                BRANCH IF YES
000260  4C0E               311          TBT   (R4,IND)             TEST IF WRAPPED
000262  1001               312          JOFF  RT036                BRANCH IF NO
000264  5005               313          J     RT039                BRANCH
000266  402B 0550 0400     314 RT036    TWI   X'0400',DRBUF+8      IS INDICATOR BIT ON
00026C  12F0               315          JON   RT031                BRANCH IF YES
00026E  5004               316          J     RT037                BRANCH
000270  402B 0550 0400     317 RT039    TWI   X'0400',DRBUF+8      IS INDICATOR BIT ON
000276  1DE5               318          JOFF  RT031                BRANCH IF NO
000278  4029 000C 0001     319 RT037    AWI   1,$CKPT              BUMP CHECKPOINT
00027E  6908 0550          320          MVW   DRBUF+8,R1           LOAD REGISTER
000282  7924 0FFF          321          RBTWI X'0FFF',R1           ZERO UNWANTED DATA
000286  4C0E               322          TBT   (R4,IND)             IS SDLC WRAPPED
000288  1007               323          JOFF  RT033                BRANCH NO
00028A  7906 F000          324          CWI   X'F000',R1           COMPARE TO EXPECTED
00028E  100D               325          JE    RT035                BRANCH IF EQUAL
000290  4020 0020 F000     326          MVWI  X'F000',DEV3+2       MOVE EXPECTED RES. TO DEV4
000296  50DB               327          J     RT031                BRANCH
000298  7924 5000          328 RT033    RBTWI X'5000',R1           RESET UNKNOWN BITS
00029C  7906 A000          329          CWI   X'A000',R1           COMPARE VS. EXPECTED DATA
0002A0  1004               330          JE    RT035                BRANCH IF EQUAL
0002A2  4020 0020 A000     331          MVWI  X'A000',DEV3+2       MOVE EXPECTED RESULTS INTO DEV4
0002A8  50D2               332          J     RT031                BRANCH
0002AA  6802 00D4          333 RT035    B     $PUPD                BRANCH TO CONTINUE
                           335 ********************************************************************
                           336 *    ERROR MODE                                                    *
                           337 *    CHECK COMMAND REJECT AND DCB SPEC CHECK ERRORS                *
                           338 *                                                                  *
                           339 *    FIRST A ERRORED DCB IS ISSUED TO OBTAIN THE SPEC CHECK        *
                           340 *    THEN A DCB ON AN ODD BYTE BOUNDRY IS ISSUED TO OBTAIN THE     *
                           341 *    DCB COMMAND REJECT. AFTER WHICH A DISABLE FOLLOWED BY AN      *
                           342 *    ENABLE IS ISSUED.                                             *
                           343 ********************************************************************
0002AE  6E03 04D8          344 RT04     BAL   $CONC,R6             PREPARE DEVICE ON CORRECT LEVEL
0002B2  4C64               345          TBTS  (R4,XE)              SET EXPECTED ERROR BIT
0002B4  4029 000C 0001     346          AWI   1,$CKPT              BUMP CHECKPOINT
0002BA  6E03 0370          347          BAL   XIOE1,R6             BRANCH TO TEST ERROR
0002BE  402B 0016 1000     348          TWI   X'1000',$ISB         IS ISB EQU TO 10XX
0002C4  1208               349          JON   RT041                BRANCH YES
0002C6  4020 0020 1000     350          MVWI  X'1000',DEV4         DEV4 EQUALS EXPECTED DATA
0002CC  8028 004C 0021     351 RT043    MVB   $DVAD,DEV4+1         LOAD DEV ADDRESS
0002D2  6802 0508          352          B     $PRNT                BRANCH TO PRINT ERROR
0002D6  4C64               353 RT041    TBTS  (R4,XE)              SET EXPECTED ERROR BIT
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

0002D8  4029 000C 0001     354          AWI   1,$CKPT              BUMP CHECKPOINT
0002DE  6E03 0378          355          BAL   XIOE2,R6             BRANCH TO TEST ERROR
0002E2  402B 0016 4000     356          TWI   X'4000',$ISB         IS ISB EQUAL TO 40XX
0002E8  1204               357          JON   RT042                BRANCH YES
0002EA  4020 0020 4000     358          MVWI  X'4000',DEV4         DEV4 EQUALS EXPECTED DATA
0002F0  50ED               359          J     RT043                BRANCH
0002F2  4CA4               360 RT042    TBTR  (R4,XE)              RESET EXPECTED ERROR BIT
0002F4  6802 00D4          361          B     $PUPD                BRANCH TO CONTINUE
                           363 *
                           364 *                    DTR CONTROL BLOCK
                           365 *
0002F8                     366 DRDCB    EQU   *                    USE FOR DCB REFERENCE ONLY
0002F8  0000               367 DRCTL    DC    X'0000'              CONTROL WORD
0002FA  2000               368 DRFMS    DC    X'2000'
0002FC  0000               369 DRSKP    DC    X'0000'
0002FE  0000               370          DC    A(0)
000300  0000               371          DC    A(0)
000302  0000               372 DRCHN    DC    A(*-*)               CHAIN ADRS
000304  0000               373 DRBCT    DC    A(*-*)               BYTE COUNT
000306  0548               374 DRADR    DC    A(DRBUF)             BUFFER ADRS
                           375 *
                           376 *          CYCLE STEAL DATA CONTROL BLOCK
                           377 *
000308                     378 CSDCB    EQU   *                    USE FOR DCB REFERENCE ONLY
000308  2000               379 CSCTL    DC    X'2000'              CONTROL WORD
00030A  0000               380 CSFMS    DC    X'0000'              NOT USED
00030C  0000               381 CSSKP    DC    X'0000'              NOT USED
00030E  0000               382          DC    X'0000'
000310  0000               383          DC    X'0000'
000312  0000               384 CSCHN    DC    A(0000)              CHAIN ADRS, NOT USED
000314  0008               385 CSBCT    DC    X'0008'              BYTE COUNT
000316  0032               386 CSADR    DC    A(CSBUF)             BUFFER ADRS
                           387 *
                           388 *          DIAGNOSTIC  DATA CONTROL BLOCK
                           389 *
000318                     390 DGDCB    EQU   *                    USED FOR DCB REFERENCE ONLY
000318  2000               391 DGCTL    DC    X'2000'              CONTROL WORD
00031A  0000               392 DGDC2    DC    X'0000'              N.U.
00031C  0000               393 DGDC3    DC    X'0000'
00031E  0000               394 DGDC4    DC    X'0000'
000320  0000               395 DGDC5    DC    X'0000'
000322  0000               396 DGCHN    DC    A(0000)              CHAIN ADDRESS
000324  000C               397 DGBCT    DC    X'000C'              BYTE COUNT
000326  0548               398 DGADR    DC    A(DRBUF)             BUFFER ADDRESS
                           400 *
                           401 *          DISABLE DTR CONTROL BLOCK
                           402 *
000328                     403 DSDCB    EQU   *                    USED FOR DCB REFERENCE ONLY
000328  0010               404 DSCTL    DC    X'0010'              CONTROL WORD
00032A  0000               405 DSDC2    DC    X'0000'              N.U.
00032C  0000               406 DSDC3    DC    X'0000'
00032E  0000               407 DSDC4    DC    X'0000'
000330  0000               408 DSDC5    DC    X'0000'
000332  0000               409 DSCHN    DC    X'0000'              CHAIN ADDRESS
000334  0000               410 DSBCT    DC    X'0000'              BYTE COUNT
000336  0548               411 DSADR    DC    A(DRBUF)             BUFFER ADDRESS
                           412 *
                           413 *          ERROR ONE DATA CONTROL BLOCK
                           414 *
000338                     415 E1DCB    EQU   *                    USED FOR DCB REFERENCE ONLY
000338  0800               416 E1CTL    DC    X'0800'              CONTROL WORD
00033A  0000               417 E1DC2    DC    X'0000'              N.U.
00033C  0000               418 E1DC3    DC    X'0000'
00033E  0000               419 E1DC4    DC    X'0000'
000340  0001               420 E1DC5    DC    X'0001'
000342  0000               421 E1CHN    DC    A(0000)              CHAIN ADDRESS
000344  0012               422 E1BCT    DC    X'0012'              BYTE COUNT
000346  0000               423 E1ADR    DC    A(0000)              BUFFER ADDRESS
                           424 *
                           425 *          ERROR FOUR DATA CONTROL BLOCK
                           426 *
000348  00                 427          DC    X'00'
000349                     428 E2DCB    EQU   *                    USED FOR DCB REFERENCE ONLY
000349  0000               429 E2CTL    DC    X'0000'              CONTROL WORD
00034B  2000               430 E2DC2    DC    X'2000'              N.U.
00034D  0000               431 E2DC3    DC    X'0000'
00034F  0000               432 E2DC4    DC    X'0000'
000351  0000               433 E2DC5    DC    X'0000'
000353  0000               434 E2CHN    DC    X'0000'              CHAIN ADDRESS
000355  0000               435 E2BCT    DC    X'0000'              BYTE COUNT
000357  0000               436 E2ADR    DC    X'0000'              BUFFER ADDRESS
000359  00                 437          ALIGN WORD
                           439 ********************************************************************
                           440 *    ISSUE ALL I/O COMMANDS FROM A COMMON SUBROUTINE               *
                           441 *    TO DISPLAY INSTRUCTIONS AND OPERATING PROCEDURES TO THE OPERATOR*
                           442 *    AND SET UP ANY REQUIREMENTS FOR OTHER I/O COMMANDS            *
                           443 *                                                                  *
                           444 * --> BAL   XIODG,R6                 XEQ DIAG. MOD = D COMMAND     *
                           445 * --> BAL   XIODR,R6                 XEQ DTR COMMAND               *
                           446 * --> BAL   XIOE1,R6                 XEQ ERROR ONE COMMAND         *
                           447 * --> BAL   XIOE2,R6                 XEQ ERROR TWO COMMAND         *
                           448 * --> BAL   XIODE,R6                 XEQ DIAG. MOD = E COMMAND     *
                           449 *                                                                  *
                           450 ********************************************************************
00035A  4020 04BE 0318     451 XIODG    MVA   DGDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
000360  4020 04C0 000D     452          MVWI  X'0D',IOMOD          MOVE MODIFIER INTO CONTROL BLOCK
000366  5026               453          J     XIO1                 BRANCH
000368  4020 04BE 02F8     454 XIODR    MVA   DRDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
00036E  5013               455          J     XIO                  BRANCH
000370  4020 04BE 0338     456 XIOE1    MVA   E1DCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
000376  500F               457          J     XIO                  BRANCH
000378  4020 04BE 0349     458 XIOE2    MVA   E2DCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
00037E  500B               459          J     XIO                  BRANCH
000380  4020 04BE 0318     460 XIODE    MVA   DGDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
000386  4020 04C0 000E     461          MVWI  X'0E',IOMOD          MOVE MODIFIER INTO CONTROL BLOCK
00038C  5013               462          J     XIO1                 BRANCH
00038E  4020 04BE 0328     463 XIODS    MVA   DSDCB,IODCB          SET UP CONTROL BLOCK FOR SVC CALL
000394  5000               464          J     XIO                  BRANCH
                           466 ********************************************************************
                           467 *                                                                  *
                           468 * SOUBROUTINE                                                     *
                           469 *                                                                  *
                           470 *    EXECUTE INPUT AND OUTPUT COMMANDS                             *
                           471 *                                                                  *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
                            472 * PURPOSE                                                                *
                            473 *                                                                        *
                            474 *     TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.                   *
                            475 *     THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:                   *
                            476 *                                                                        *
                            477 *      1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED   *
                            478 *         THE I/O COMMAND.                                               *
                            479 *      2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS      *
                            480 *         ISSUED BY THIS SUBROUTINE.                                     *
                            481 *      3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE            *
                            482 *         START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.              *
                            483 *      4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT     *
                            484 *         SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,   *
                            485 *         MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.                     *
                            486 *      5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE      *
                            487 *         EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC  START'.     *
                            488 *      6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING   *
                            489 *         STARTS TO DETERMINE A LOST INTERRUPT.                          *
                            490 *      7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF     *
                            491 *         WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.         *
                            492 *      8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.                    *
                            493 *      9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.        *
                            494 *     10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.          *
                            495 *     11. CHECK IS A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS      *
                            496 *         ISSUED BY THIS SUBROUTINE.                                     *
                            497 *     12. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A        *
                            498 *         CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON,  *
                            499 *         COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.    *
                            500 *                                                                        *
                            501 * CALLING SEQUENCE                                                     *
                            502 *                                                                        *
                            503 *     THIS ROUTINE HAS THE FOLLOWING ENTRIES:                            *
                            504 *                                                                        *
                            505 * --> B     XIO                   XEQ ANY CYCLE STEAL COMMAND, MOD=0   *
                            506 * --> BAL   XIOCS,R6              XEQ START CYCLE STEAL STATUS, MOD=F  *
                            507 *                                                                        *
                            508 * RETURN CONTROL                                                       *
                            509 *                                                                        *
                            510 *     BXS   (R6)                  RETURN TO USER NO ERROR              *
                            511 ************************************************************************
000396  CB25 04C0           513 XIO   MVWZ  IOMOD,R3              SET MOF OF 0 FOR CYCLE STEAL OP
00039A  500C                514       J     XIO1                  CS I/O'S ARE NOT RETRIED
00039C  4CA8                515       TBTR  (R4,CE)               RESET CS STATUS INTER ERROR INDICAT.
00039E  4C67                516       TBTS  (R4,CS)               SET 'CYCLE STEAL STATUS' IN PROGRESS
0003A0  4020 04BE 0308      517 XIOCS MVA   CSDCB,IODCB           SET UP CONTROL BLOCK FOR SVC CALL
0003A6  4020 04C0 000F      518       MVWI  X'000F',IOMOD         SET CYCLE STEAL MODIFIER
0003AC  4C27                519       TBT   (R4,CS)               IS CS IN PROGRESS, ERROR CONDITION
0003AE  1216                520       JON   XIO2                  * YES, BYPASS SAVING I/O ADRS
0003B0  4C23                521       TBT   (R4,IN)               TEST FOR INTERRUPT
0003B2  125F                522       JON   XIOCK                 BRANCH IF YES
0003B4  6E0D 0018           523 XIO1  MVW   R6,LSTIO              SAVE IAR FOR RETRY IF REQUESTED
0003B8  402E 0018 0004      524       SWI   4,LSTIO               DECREMENT FOR LAS INSTRUCTION
0003BE  4324 0000           525       MVA   $PID,R3               LOAD ADDRESS OF PROGRAM START
0003C2  CB2F 0018           526       SW    R3,LSTIO              SUB TO OBTAIN LISTING ADDRESS
0003C6  4324 0022           527       MVA   DCBUF,R3              SET UP TO ADRS TO MOVE DCB TABLE
0003CA  6D08 04BE           528       MVW   IODCB,R5              * AND THE FROM ADRS, ALONG WITH
0003CE  0F10                529       MVBI  16,R7                 * THE NUMBER OF MOVES
0003D0  2D64                530       MVFN  (R5),(R3)             MOVE 1 STATUS WORD AND ADJUST
0003D2  0BFF                531       MVBI  255,R3                CLEAR CYCLE STATUS BUFFER
0003D4  4524 0032           532       MVA   CSBUF,R5              *  TO ALL ONES  *
0003D8  0F10                533       MVBI  16,R7                 *
0003DA  2BAC                534       MFN   R3,(R5)               *
0003DC  4CA3                535 XIO2  TBTR  (R4,IN)               CLEAR INTERRUPT RECEIVED CNTL BIT
0003DE  1249                536       JON   XIOCK                 BRANCH IF ON
0003E0  4724 04BA           537       MVA   IOBLK,R7              SET UP CONTROL BLOCK FOR SUPVR
0003E4  802B 0232 009A      538       CB    CPUTYPE,TYPE23        CHECK FOR PROCESSOR 23
0003EA  1803                539       JNE   XIO5                 BRANCH NOT EQUAL
0003EC  4524 0000           540       MVWI  X'0000',R5            LOAD LOOP COUNT
0003F0  5001                541       J     XIO6                  BRANCH
0003F2  75AA                542 XIO5  SW    R5,R5                 LOAD LOOP COUNT
0003F4  4C62                543 XIO6  TBTS  (R4,XI)               SET EXPECTED INTR CONTROL BIT
0003F6  600A                544       SVC   START                 CALL SUPVR FOR I/O COMMAND
0003F8  6002                545 XIO8  SVC   IDLE                  ALLOW OTHER PROG TIME
0003FA  4C03                546       TBT   (R4,TM)               IS TERMINATE BIT ON
0003FC  6A00 00DC           547       BON   $TERM                 BRANCH IF ON
000400  4CA3                548       TBTR  (R4,IN)               HAS INTERRUPT BEEN RECEIVED
000402  1237                549       JON   XIOCK                 * YES, CHECK IF ALL WAS SATISFACTORY
000404  7DA1 0001           550       AWI   1,R5                  ADVANCE TIME OUT COUNT
000408  18F7                551       JNZ   XIO8                  BCH IF TIME OUT NOT REACHED
00040A  4C61                552       TBTS  (R4,ER)               SET ON ERROR CONTROL BIT
00040C  4C66                553       TBTS  (R4,LI)               SET LOST INTERRUPT CONTROL BIT
00040E  6802 0508           554       B     $PRNT                 * BCH TO FINISH ERROR SEQUENCE
                            555 ************************************************************************
                            556 *                                                                      *
                            557 * SUBROUTINE                                                           *
                            558 *                                                                      *
                            559 *     I/O EXECUTE ERROR HANDLING ROUTINE                               *
                            560 *                                                                      *
                            561 * PURPOSE                                                              *
                            562 *                                                                      *
                            563 *     THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE      *
                            564 *     PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE    *
                            565 *     SUPERVISOR AND IT WAS NOT ACCEPTED.                              *
                            566 *                                                                      *
                            567 * CALLING SEQUENCE                                                     *
                            568 *                                                                      *
                            569 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND          *
                            570 *                                                                      *
                            571 * RETURN CONTROL                                                       *
                            572 *                                                                      *
                            573 *     B     $PRNT                 DUMP STATUS BEFORE TERMINATION       *
                            574 *                                                                      *
                            575 ************************************************************************
000412  706E                576 XIOER CPLSR R3                    SAVE CONDITION CODE ON I/O ERROR
000414  336A                577       SRL   13,R3                 POSITION CC CODE TO BITS 13-15
000416  C328 0014           578       MVB   R3,$IOIN              * PUT IN LOG OUT AREA
00041A  6802 0508           579       B     $PRNT                 BRANCH TO PRINT ERROR
                            580 ************************************************************************
                            581 *                                                                      *
                            582 * SOUBROUTINE                                                          *
                            583 *                                                                      *
                            584 *     ERROR INTERRUPT               RUNS ON INTERRUPT LEVEL '$INTL'    *
                            585 *                                                                      *
                            586 * PURPOSE                                                              *
                            587 *                                                                      *
                            588 *     THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR     *
                            589 *     OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE       *
                            590 *     EXPECTED CODE.                                                   *
                            591 *                                                                      *
                            592 * CALLING SEQUENCE                                                     *
                            593 *                                                                      *
                            594 *     SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT        *
                            595 *                                                                      *
                            596 * RETURN CONTROL                                                       *
                            597 *                                                                      *
                            598 *     SVC   EXIT                    RETURN TO USER VIA SUPVR           *
                            599 *                                                                      *
                            600 ************************************************************************
00041E  706E                601 INTER CPLSR R3                    SAVE INDICATORS
000420  336A                602       SRL   13,R3                 POSITION INDICATORS IN R3
000422  4424 000E           603       MVA   OPTN1,R4              SET UP BASE ADRS
000426  4C27                604       TBT   (R4,CS)               IS CS IN PROGRESS
000428  1006                605       JOFF  INTBT                 * NO
00042A  4C68                606       TBTS  (R4,CE)               TURN ON CYCLE STEAL INTER ERROR
00042C  6F0D 0040           607       MVW   R7,CSTL8              SAVE CS ERR ISB VALUE, BITS 0-7
000430  C328 0041           608       MVB   R3,CSTL8+1            * AND THE COND CODE
000434  5009                609       J     INTR1                 BRANCH
000436  4C61                610 INTET TBTS  (R4,ER)               SET ERROR ON I/O COMMAND CNTL BIT
000438  5007                611       J     INTR1                 BRANCH
                            612 ************************************************************************
                            613 *                                                                      *
                            614 * SOUBROUTINE                                                          *
                            615 *                                                                      *
                            616 *     OKAY  INTERRUPT               RUNS ON INTERRUPT LEVEL '$INTL'    *
                            617 *                                                                      *
                            618 * PURPOSE                                                              *
                            619 *                                                                      *
                            620 *     TO CHECK THE INTERRUPT AND CONTINUE THE TEST                     *
                            621 *                                                                      *
                            622 * CALLING SEQUENCE                                                     *
                            623 *                                                                      *
                            624 *     SUPERVISOR WILL ENTER HERE  IF INTR CC IS AS REQUESTED           *
                            625 *     THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE          *
                            626 *     AFTER THE SPECIAL PART HAS BEEN COMPLETED  AND THE               *
                            627 *     COMMON SECTION IS HANDLED HERE.                                  *
                            628 *                                                                      *
                            629 * RETURN CONTROL                                                       *
                            630 *                                                                      *
                            631 *     SVC   EXIT                    RETURN TO USER VIA SUPVR           *
                            632 *                                                                      *
                            633 ************************************************************************
00043A  706E                634 INTOK CPLSR R3                    SAVE INDICATORS
00043C  336A                635       SRL   13,R3                 POSITION INDICATORS IN R3
00043E  4424 000E           636       MVA   OPTN1,R4              SET UP BASE ADRS
000442  4C24                637       TBT   (R4,XE)               TEST EXPECTED ERROR BIT
000444  1001                638       JOFF  INTR1                 BRANCH IF OFF
000446  4C69                639       TBTS  (R4,GI)               SET GOOD INTERRUPT BIT
000448  4C63                640 INTR1 TBTS  (R4,IN)               SET   INTERRUPT RECEIVED
00044A  4C27                641       TBT   (R4,CS)               IS 'CS IN PROGRESS' ON
00044C  1204                642       JON   INTR2                 * YES, BCH AROUND UPDATE
00044E  C328 0015           643       MVB   R3,$IOIN+1            SAVE INTERRUPTING CC CODE
000452  6F0D 0016           644       MVW   R7,$ISB               SAVE INTR STATUS AND DEV ADRS
000456  78B9                645 INTR2 CPCL  R5                    COPY INTERRUPT LEVEL TO CHECK
000458  3521                646       SLL   4,R5                  POSITION INTR LEVEL AND PUT
00045A  ABI   1F,R5          647       ABI   1F,R5                 * IN 'II' BIT
00045C  CD24 0056           648       CW    $INTL,R5              IS THIS  THE CORRECT INTR LEVEL
000460  1004                649       JE    INTR3                 * YES,  GO EXIT THIS LEVEL
000462  3521                650       SLL   4,R5                  POSITION RECEIVED LEVEL
000464  6D0D 0020           651       MVW   R5,DEV3+2             STORE INTO DEV4
000468  4C65                652       TBTS  (R4,LE)               SET INTR LEVEL ERROR CONTROL BIT
00046A  4CA2                653 INTR3 TBTR  (R4,XI)               WAS INTERRUPT EXPECTED
00046C  1201                654       JON   INTRX                 * YES,  EXIT OFF THIS INTR LEVEL
00046E  4C60                655       TBTS  (R4,MI)               * NO, SET MYSTERY INTR CONTROL BIT
000470  6006                656 INTRX SVC   EXIT,1               EXIT THIS LEVEL VIA SUPVR TO PGM
                            657 ************************************************************************
                            658 *
                            659 *     THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
                            660 *     HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN
                            661 *     RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
                            662 *
                            663 ************************************************************************
000472  4C20                664 XIOCK TBT   (R4,MI)               WAS THERE AN UNEXPECTED INTERRUPT
000474  1214                665       JON   XIOCU                 BRANCH IF YES
000476  4C25                666       TBT   (R4,LE)               WAS AN INTR LEVEL ERROR FOUND
000478  1002                667       JOFF  XIOCM                 * NO, CONTINUE CHECKING
00047A  4C61                668       TBTS  (R4,ER)               SET ERROR CONTROL BIT ON
00047C  0510                669       J     XIOCU                 BRANCH
00047E  4CAA                670 XIOCM TBTR  (R4,PE)               WAS A PROBABLE ERROR EXPECTED
000480  6AC0 0000           671       BON   (R6)                  BRANCH YES
000484  4C24                672       TBT   (R4,XE)               WAS AN ERROR EXPECTED
000486  1211                673       JN    XIOGI                 * YES, BRANCH
000488  4C27                674       TBT   (R4,CS)               WAS AUTO CS IN PROGRESS
00048A  1005                675       JOFF  XIOCV                 * NO, CONTINUE CHECKING
00048C  4C28                676       TBT   (R4,CE)               IS CS IN AN ERR CONDITION
00048E  6800 04B2           677       BOFF  CSRTN                 * NO, BCH
000492  6802 0508           678       B     $PRNT                 GO LOG CS ERROR
000496  4C21                679 XIOCV TBT   (R4,ER)               WAS ERROR INTR CONTROL BIT ON
000498  1004                680       JOFF  XIOCX                 * NO, EXIT THIS ROUTINE
00049A  6802 039C           681 XIOCO B     XIOCS-4               * AVAILABLE, GO AND GET IT
00049E  6802 0508           682 XIOCU B     $PRNT                 PRINT ERROR
0004A2  CB25 0012           683 XIOCX MVWZ  OPTN3,R3              CLEAR OUT OPTION 3 CNTL BITS
0004A6  68C2 0000           684       B     (R6)                  RETURN TO USER VIA REG 6
0004AA  4C29                685 XIOGI TBT   (R4,GI)               WAS A GOOD INTERRUPT RECEIVED
0004AC  12F8                686       JON   XIOCU                 YES BRANCH
0004AE  68C2 0000           687       B     (R6)                  RETURN
0004B2  4C21                688 CSRTN TBT   (R4,ER)               TEST FOR ERROR
0004B4  6A00 0508           689       BON   $PRNT                 BRANCH IF YES
0004B8  5600                690       BXS   (R6)                  RETURN
                            691 *
                            692 *     I/O   PARAMETER LIST
                            693 *
0004BA  004C                694 IOBLK DC    A($DVAD)              ADRS OF DEVICE ADRS
0004BC  0412                695 IOERR DC    A(XIOER)              ERROR ROUTINE ADRS
0004BE  0000                696 IODCB DC    A(*-*)                DCB ADRS OR LEVEL & INTR
0004C0  0000                697 IOMOD DC    A(*-*)                MODIFIER
0004C2  0000                698       DC    A(*-*)                ADRS OF LAST SVC CALL
0004C4  0000                699 IORSP DC    A(*-*)                SECOND WORD OF LAST IDCB
                            700 *
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 LOCTR  OBJECT TEXT       STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                          705 *           INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
                          706 *
0004C6  004C              707 INTBL DC    A($DVAD)                ADRS OF DEVICE ADRS
0004C8  043A              708 INTO1 DC    A(INTOK)                INTERRUPT OK RETURN ADRS
0004CA  041E              709 INTO2 DC    A(INTER)                INTERRUPT ERROR ADRS
0004CC  0003              710 INTCC DC    X'0003'                 INTERRUPT CODE EXPECTED
                          712 ********************************************************************
                          713 *                                                                  *
                          714 * SUBROUTINE                                                       *
                          715 *                                                                  *
                          716 *     CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE             *
                          717 *                                                                  *
                          718 * PURPOSE                                                          *
                          719 *                                                                  *
                          720 *     TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND     *
                          721 *     PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE*
                          722 *     TO INTERRUPT.                                                *
                          723 *                                                                  *
                          724 * CALLING SEQUENCE                                                 *
                          725 *                                                                  *
                          726 *     THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:                   *
                          727 *                                                                  *
                          728 * --> BAL   $CONC,R6              CLEAR DEV DEP STG AND CONNECT I/O BLK
                          729 * --> BAL   $CONR,R6              BCH TO CONNECT                   *
                          730 * --> BAL   $CONP,R6              PREPARE DEVICE ONLY              *
                          731 *                                                                  *
                          732 * RETURN CONTROL                                                   *
                          733 *                                                                  *
                          734 *     BXS   (R6)                  RETURN TO USER VIA REG 6         *
                          735 *                                                                  *
                          736 ********************************************************************
0004CE                    737 $CONR EQU   *
0004CE  4724 04C6         738       MVA   INTBL,R7              SET R7 TO CONTROL BLOCK AND
0004D2  6014              739       SVC   CICB                  * CONNECT IT TO THIS DEVICE
0004D4  68C2 0000         740       B     (R6)                  RETURN
0004D8                    741 $CONC EQU   *
0004D8  CB25 0012         742       MVWZ  OPTN3,R3              CLEAR OLD CONTROLS FOR NEW ROUTINE
0004DC  8828 0056 04BE    743 $CONP MVW   $INTL,IODCB           PUT IN LEVEL & INTR PARAMETER
0004E2  4724 04BA         744       MVA   IOBLK,R7              SET R7 TO CONTROL BLOCK TO PREPARE
0004E6  4020 0014 07FF    745       MVWI  X'07FF',$IOIN         INITIALIZE CONDITION CODE STORAGE
0004EC  CB25 0016         746       MVWZ  $ISB,R3               * AND CLEAR OLD ISB VALUE
0004F0  6E0D 0018         747       MVW   R6,LSTIO              SET UP ADDRESS THAT STARTED LAST I/O
0004F4  402E 0018 0004    748       SWI   4,LSTIO               DECREMENT TO POINT AT INSTRUCTION
0004FA  4324 0000         749       MVA   $PID,R3               LOAD ADDRESS OF START OF PROG
0004FE  CB2F 0018         750       SW    R3,LSTIO              SUB TO OBTAIN LISTING ADDRESS
000502  600C              751       SVC   PREP                  * AND CALL ON SUPVR
000504  68C2 0000         752       B     (R6)                  RETURN
                          754 ********************************************************************
                          755 *                  COMMON PRINT ERROR INTERFACE ROUTINE            *
                          756 *                                                                  *
                          757 * ----> R6        LOADED WITH THE START ADDRESS OF THE DATA BEFORE THE  *
                          758 *                  BRANCH IS TAKEN TO PRINT THE ERROR              *
                          759 * ----> R4        LOADED WITH THE START ADDRESS OF THE PROG BEFORE THE  *
                          760 *                  BRANCH IS TAKEN TO PRINT THE ERROR              *
                          761 * ----> R3        LOADED WITH THE PASS COUNTER ADDRESS BEFORE THE   *
                          762 *                  BRANCH IS TAKEN TO PRINT THE ERROR              *
                          763 * ----> PRNTRTN THIS LABELED ADDRESS IN SYST ( PROG ID = D3410/SYST )  *
                          764 *                  POINTES TO A COMMON ERROR OUTPUT AND FORMATTER ROUTINE*
                          765 *                  WHICH WILL RETURN TO THIS PROG VIA REGISTER SEVEN*
                          766 *                                                                  *
                          767 ********************************************************************
000508  4624 0012         768 $PRNT MVA   OPTN3,R6             LOAD ADDRESS OF OPTION WORD THREE
00050C  6D08 181E         769       MVW   PRNTRTN,R5          LOAD ADDRESS OF COMMON PRNT ROUTINE
000510  4424 0000         770       MVA   $PID,R4             LOAD ADDRESS OF START OF PROG
000514  4324 0042         771       MVA   PCTR,R3             LOAD ADDRESS OF PASS COUNTER
000518  6FA3 0000         772       BAL   (R5),R7             BRANCH TO COMMON PRINT ROUTINE
00051C  CE25 0012         773       MVWZ  OPTN3,R6            ZERO OUT ALL FLAGS
000520  4424 000E         774       MVA   OPTN1,R4            LOAD BASE ADDRESS FOR INDICATORS
000524  802B 0232 009A     775       CB    CPUTYPE,TYPE23      IS THIS A TYPE 23 PROCESSOR
00052A  1803              776       JNE   $PRN2               BRANCH IF NO
00052C  4524 E000         777       MVWI  X'E000',R5          INIT LOOP COUNTER
000530  5002              778       J     $PRN1               BRANCH
000532  4524 8000         779 $PRN2 MVWI  X'8000',R5          INIT LOOP COUNTER
000536  6002              780 $PRN1 SVC   IDLE                DELAY
000538  4C03              781       TBT   (R4,TM)             SHOULD PROG TERMINATE
00053A  6A00 00DC         782       BON   $TERM               BRANCH YES
00053E  7DA1 0001         783       AWI   1,R5                INCREMENT LOOP COUNTER
000542  18F9              784       JNZ   $PRN1               BRANCH NOT ZERO
000544  6802 009C         785       B     $PENT               BRANCH TO RESTART FROM BEGINING
                          787 ********************************************************************
                          788 ********************************************************************
000548  40404040404040404 789 DRBUF DC    CL16' '             MAXIMUM WRITE BUFFER
000558                    790 TSTEN EQU   *
                          791 ********************************************************************
00009C                    792       END   $PENT
```


CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
      50  .REG.      ABSOLUTE. HEX VALUE(00000000)
                     222
       0  .R1.       ABSOLUTE. HEX VALUE(00000001)
                     246   247   248   252   253   254   273   276   278
                     282   284   320   321   324   328   329
       0  .R2.       ABSOLUTE. HEX VALUE(00000002)
                     221   239   245
       0  .R3.       ABSOLUTE. HEX VALUE(00000003)
                     513   525   526   527   530   531   534   577   578
                     579   603   604   610   637   638   646   687   742
                     746   749   750   771
       0  .R4.       ABSOLUTE. HEX VALUE(00000004)
                     154   155   157   166   168   169   311   322   345
                     353   360   515   516   519   521   535   543   546
                     548   552   553   605   606   608   612   639   640
                     642   643   644   655   656   658   668   670   672
                     674   676   678   680   683   689   692   770   774
                     781
       0  .R5.       ABSOLUTE. HEX VALUE(00000005)
                     195   196   197   198   199   528   530   532   534
                     540   542   542   550   648   649   650   651   653
                     654   769   772   777   779   783
       0  .R6.       ABSOLUTE. HEX VALUE(00000006)
                     162   163   167   194   200   201   220   225   235
                     240   243   244   272   275   281   302   304   344
                     347   355   523   675   688   691   694   740   747
                     752   768   773
       0  .R7.       ABSOLUTE. HEX VALUE(00000007)
                     158   160   175   179   182   183   226   228   529
                     533   537   609   647   738   744   772
      61  $CKPT      ADDRESS. HEX LOCATION(0000000C) IN CSECT(EF8E0   ) LENGTH(2)
                     195   236   274   280   286   303   305   319   346
                     354
     741  $CONC      ADDRESS. HEX LOCATION(000004D8) IN CSECT(EF8E0   ) LENGTH(1)
                     225   240   272   302   344
     737  $CONR      ADDRESS. HEX LOCATION(000004CE) IN CSECT(EF8E0   ) LENGTH(1)
                     220
     101  $DATA      ADDRESS. HEX LOCATION(0000001A) IN CSECT(EF8E0   ) LENGTH(2)
                     196   197
     124  $DVAD      ADDRESS. HEX LOCATION(0000004C) IN CSECT(EF8E0   ) LENGTH(2)
                      59   132   182   241   309   351   698   707
     127  $DVID      ADDRESS. HEX LOCATION(00000058) IN CSECT(EF8E0   ) LENGTH(2)
                     230   233
     131  $HTOE      ADDRESS. HEX LOCATION(00000060) IN CSECT(EF8E0   ) LENGTH(2)
                     158
     126  $INTL      ADDRESS. HEX LOCATION(00000056) IN CSECT(EF8E0   ) LENGTH(2)
                     153   178   221   223   224   237   239   651   743
      98  $IOIN      ADDRESS. HEX LOCATION(00000014) IN CSECT(EF8E0   ) LENGTH(2)
                     579   646   745
      99  $ISB       ADDRESS. HEX LOCATION(00000016) IN CSECT(EF8E0   ) LENGTH(2)
                     348   356   647   746
     128  $MXSL      ADDRESS. HEX LOCATION(0000005A) IN CSECT(EF8E0   ) LENGTH(2)
                     189
     135  $OUTN      ADDRESS. HEX LOCATION(00000068) IN CSECT(EF8E0   ) LENGTH(2)
                     160
     151  $PENT      ADDRESS. HEX LOCATION(0000009C) IN CSECT(EF8E0   ) LENGTH(6)
                      58   190   205   785   792
     167  $PEN1      ADDRESS. HEX LOCATION(000000D0) IN CSECT(EF8E0   ) LENGTH(4)
                     156   165
      56  $PID       ADDRESS. HEX LOCATION(00000000) IN CSECT(EF8E0   ) LENGTH(4)
                     525   749   770
     768  $PRNT      ADDRESS. HEX LOCATION(00000508) IN CSECT(EF8E0   ) LENGTH(4)
                     234   251   257   279   285   290   308   352   554
                     580   682   686   693
     780  $PRN1      ADDRESS. HEX LOCATION(00000536) IN CSECT(EF8E0   ) LENGTH(2)
                     778   784
     779  $PRN2      ADDRESS. HEX LOCATION(00000532) IN CSECT(EF8E0   ) LENGTH(4)
                     776
     168  $PUPD      ADDRESS. HEX LOCATION(000000D4) IN CSECT(EF8E0   ) LENGTH(4)
                     258   291   333   361
     188  $PUP8      ADDRESS. HEX LOCATION(0000010C) IN CSECT(EF8E0   ) LENGTH(6)
                     170
     177  $RETI      ADDRESS. HEX LOCATION(000000E8) IN CSECT(EF8E0   ) LENGTH(6)
                     174
     205  $RTAD      ADDRESS. HEX LOCATION(00000138) IN CSECT(EF8E0   ) LENGTH(2)
                     201
      60  $RTNE      ADDRESS. HEX LOCATION(0000000A) IN CSECT(EF8E0   ) LENGTH(2)
                     167   188   189   194
     174  $TERM      ADDRESS. HEX LOCATION(000000DC) IN CSECT(EF8E0   ) LENGTH(6)
                     547   782
     182  $TER1      ADDRESS. HEX LOCATION(00000100) IN CSECT(EF8E0   ) LENGTH(4)
                     177
      93  CE         ABSOLUTE. HEX VALUE(00000028)
                     515   608   680
      39  CICB       ABSOLUTE. HEX VALUE(00000014)
                     739
      52  CPUTYPE    ABSOLUTE. HEX VALUE(00000232)
                     538   775
      92  CS         ABSOLUTE. HEX VALUE(00000027)
                     516   519   606   644   678
     112  CSBUF      ADDRESS. HEX LOCATION(00000032) IN CSECT(EF8E0   ) LENGTH(1)
                     276   282   386   532
     378  CSDCB      ADDRESS. HEX LOCATION(00000308) IN CSECT(EF8E0   ) LENGTH(1)
                     517
     692  CSRTN      ADDRESS. HEX LOCATION(000004B2) IN CSECT(EF8E0   ) LENGTH(2)
                     681
     280  CSST4      ADDRESS. HEX LOCATION(00000204) IN CSECT(EF8E0   ) LENGTH(6)
                     277
     286  CSST7      ADDRESS. HEX LOCATION(0000021C) IN CSECT(EF8E0   ) LENGTH(6)
                     283
     291  CSST8      ADDRESS. HEX LOCATION(00000234) IN CSECT(EF8E0   ) LENGTH(4)
                     288
     114  CSTL2      ADDRESS. HEX LOCATION(00000034) IN CSECT(EF8E0   ) LENGTH(2)
                     287
     120  CSTL8      ADDRESS. HEX LOCATION(00000040) IN CSECT(EF8E0   ) LENGTH(2)
                     609   610
     104  DCBUF      ADDRESS. HEX LOCATION(00000022) IN CSECT(EF8E0   ) LENGTH(2)
                     527
     102  DEV3       ADDRESS. HEX LOCATION(0000001E) IN CSECT(EF8E0   ) LENGTH(2)
                     198   199   232   233   250   256   278   284   289
                     307   326   331   654
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
   103    DEV4       ADDRESS. HEX LOCATION(00000020) IN CSECT(EF8E0   ) LENGTH(2)
                     350   351   358
   390    DGDCB      ADDRESS. HEX LOCATION(00000318) IN CSECT(EF8E0   ) LENGTH(1)
                     451   460
   789    DRBUF      ADDRESS. HEX LOCATION(00000548) IN CSECT(EF8E0   ) LENGTH(16)
                     245   246   247   250   252   253   256   273   307
                     314   317   320   374   398   411
   367    DRCTL      ADDRESS. HEX LOCATION(000002F8) IN CSECT(EF8E0   ) LENGTH(2)
                     222
   366    DRDCB      ADDRESS. HEX LOCATION(000002F8) IN CSECT(EF8E0   ) LENGTH(1)
                     454
   403    DSDCB      ADDRESS. HEX LOCATION(00000328) IN CSECT(EF8E0   ) LENGTH(1)
                     463
    37    EF8E0      CSECT. START(00000000) LENGTH(1368) ESDID(0)
                     37
    86    ER         ABSOLUTE. HEX VALUE(00000021)
                     552   612   672   683   692
    42    EXIT       ABSOLUTE. HEX VALUE(00000006)
                     659
   415    E1DCB      ADDRESS. HEX LOCATION(00000338) IN CSECT(EF8E0   ) LENGTH(1)
                     456
   428    E2DCB      ADDRESS. HEX LOCATION(00000349) IN CSECT(EF8E0   ) LENGTH(1)
                     458
    94    GI         ABSOLUTE. HEX VALUE(00000029)
                     642   689
    41    HTOE       ABSOLUTE. HEX VALUE(0000001A)
                     159
   129    H0000      ADDRESS. HEX LOCATION(0000005C) IN CSECT(EF8E0   ) LENGTH(2)
                     152
   130    H0001      ADDRESS. HEX LOCATION(0000005E) IN CSECT(EF8E0   ) LENGTH(2)
                     188
    43    IDLE       ABSOLUTE. HEX VALUE(00000002)
                     545   780
    88    IN         ABSOLUTE. HEX VALUE(00000023)
                     521   535   548   643
   143    INARA      ADDRESS. HEX LOCATION(00000098) IN CSECT(EF8E0   ) LENGTH(2)
                     136   162
    69    IND        ABSOLUTE. HEX VALUE(0000000E)
                     166   311   322
   707    INTBL      ADDRESS. HEX LOCATION(000004C6) IN CSECT(EF8E0   ) LENGTH(2)
                     738
   603    INTER      ADDRESS. HEX LOCATION(0000041E) IN CSECT(EF8E0   ) LENGTH(2)
                     709
   612    INTET      ADDRESS. HEX LOCATION(00000436) IN CSECT(EF8E0   ) LENGTH(2)
                     607
   637    INTOK      ADDRESS. HEX LOCATION(0000043A) IN CSECT(EF8E0   ) LENGTH(2)
                     708
   659    INTRX      ADDRESS. HEX LOCATION(00000470) IN CSECT(EF8E0   ) LENGTH(2)
                     657
   643    INTR1      ADDRESS. HEX LOCATION(00000448) IN CSECT(EF8E0   ) LENGTH(2)
                     611   613   641
   648    INTR2      ADDRESS. HEX LOCATION(00000456) IN CSECT(EF8E0   ) LENGTH(2)
                     645
   656    INTR3      ADDRESS. HEX LOCATION(0000046A) IN CSECT(EF8E0   ) LENGTH(2)
                     652
   698    IOBLK      ADDRESS. HEX LOCATION(000004BA) IN CSECT(EF8E0   ) LENGTH(2)
                     175   179   226   228   537   744
   700    IODCB      ADDRESS. HEX LOCATION(000004BE) IN CSECT(EF8E0   ) LENGTH(2)
                     178   180   451   454   456   458   460   463   517
                     528   743
   699    IOERR      ADDRESS. HEX LOCATION(000004BC) IN CSECT(EF8E0   ) LENGTH(2)
                     151   174   177
   701    IOMOD      ADDRESS. HEX LOCATION(000004C0) IN CSECT(EF8E0   ) LENGTH(2)
                     452   461   513   518
   703    IORSP      ADDRESS. HEX LOCATION(000004C4) IN CSECT(EF8E0   ) LENGTH(2)
                     230   232
   166    ISWRP      ADDRESS. HEX LOCATION(000000CE) IN CSECT(EF8E0   ) LENGTH(2)
                     164
   244    ITSTA      ADDRESS. HEX LOCATION(000001A8) IN CSECT(EF8E0   ) LENGTH(4)
                     242
   224    ITST4      ADDRESS. HEX LOCATION(00000154) IN CSECT(EF8E0   ) LENGTH(6)
                     238
   235    ITST5      ADDRESS. HEX LOCATION(00000182) IN CSECT(EF8E0   ) LENGTH(4)
                     231
   258    ITST7      ADDRESS. HEX LOCATION(000001E0) IN CSECT(EF8E0   ) LENGTH(4)
                     255
   252    ITST9      ADDRESS. HEX LOCATION(000001C8) IN CSECT(EF8E0   ) LENGTH(4)
                     249
    90    LE         ABSOLUTE. HEX VALUE(00000025)
                     655   670
    91    LI         ABSOLUTE. HEX VALUE(00000026)
                     553
   100    LSTIO      ADDRESS. HEX LOCATION(00000018) IN CSECT(EF8E0   ) LENGTH(2)
                     523   524   526   747   748   750
    85    MI         ABSOLUTE. HEX VALUE(00000020)
                     658   668
   140    MSG01      ADDRESS. HEX LOCATION(00000072) IN CSECT(EF8E0   ) LENGTH(34)
                     135
   141    MSG11      ADDRESS. HEX LOCATION(00000094) IN CSECT(EF8E0   ) LENGTH(2)
                     133
    63    OPTN1      ADDRESS. HEX LOCATION(0000000E) IN CSECT(EF8E0   ) LENGTH(2)
                     154   168   605   639   774
    73    OPTN3      ADDRESS. HEX LOCATION(00000012) IN CSECT(EF8E0   ) LENGTH(2)
                     687   742   768   773
    40    OUTIN      ABSOLUTE. HEX VALUE(00000001)
                     161
   121    PCTR       ADDRESS. HEX LOCATION(00000042) IN CSECT(EF8E0   ) LENGTH(2)
                     152   771
    95    PE         ABSOLUTE. HEX VALUE(0000002A)
                     674
    44    PREP       ABSOLUTE. HEX VALUE(0000000C)
                     181   751
    51    PRNTRTN    ABSOLUTE. HEX VALUE(0000181E)
                     769
    68    QUES       ABSOLUTE. HEX VALUE(0000000D)
                     155   157
    48    RESET      ABSOLUTE. HEX VALUE(00000008)
                     176   227
    45    RICB       ABSOLUTE. HEX VALUE(00000013)
                     184
    49    RID        ABSOLUTE. HEX VALUE(00000009)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                     229
   220    RT01       ADDRESS. HEX LOCATION(00000142) IN CSECT(EF8E0   ) LENGTH(4)
                     206
   272    RT02       ADDRESS. HEX LOCATION(000001E4) IN CSECT(EF8E0   ) LENGTH(4)
                     207
   302    RT03       ADDRESS. HEX LOCATION(00000238) IN CSECT(EF8E0   ) LENGTH(4)
                     208
   307    RT031      ADDRESS. HEX LOCATION(0000024E) IN CSECT(EF8E0   ) LENGTH(6)
                     315   318   327   332
   309    RT032      ADDRESS. HEX LOCATION(00000258) IN CSECT(EF8E0   ) LENGTH(6)
                     306
   328    RT033      ADDRESS. HEX LOCATION(00000298) IN CSECT(EF8E0   ) LENGTH(4)
                     323
   333    RT035      ADDRESS. HEX LOCATION(000002AA) IN CSECT(EF8E0   ) LENGTH(4)
                     325   330
   314    RT036      ADDRESS. HEX LOCATION(00000266) IN CSECT(EF8E0   ) LENGTH(6)
                     310   312
   319    RT037      ADDRESS. HEX LOCATION(00000278) IN CSECT(EF8E0   ) LENGTH(6)
                     316
   317    RT039      ADDRESS. HEX LOCATION(00000270) IN CSECT(EF8E0   ) LENGTH(6)
                     313
   344    RT04       ADDRESS. HEX LOCATION(000002AE) IN CSECT(EF8E0   ) LENGTH(4)
                     209
   353    RT041      ADDRESS. HEX LOCATION(000002D6) IN CSECT(EF8E0   ) LENGTH(2)
                     349
   360    RT042      ADDRESS. HEX LOCATION(000002F2) IN CSECT(EF8E0   ) LENGTH(2)
                     357
   351    RT043      ADDRESS. HEX LOCATION(000002CC) IN CSECT(EF8E0   ) LENGTH(6)
                     359
    46    START      ABSOLUTE. HEX VALUE(0000000A)
                     544
    47    TERM       ABSOLUTE. HEX VALUE(00000007)
                     185
    67    TM         ABSOLUTE. HEX VALUE(00000003)
                     169   546   781
   144    TYPE23     ADDRESS. HEX LOCATION(0000009A) IN CSECT(EF8E0   ) LENGTH(2)
                     538   775
    89    XE         ABSOLUTE. HEX VALUE(00000024)
                     345   353   360   640   676
    87    XI         ABSOLUTE. HEX VALUE(00000022)
                     543   656
   513    XIO        ADDRESS. HEX LOCATION(00000396) IN CSECT(EF8E0   ) LENGTH(4)
                     455   457   459   464
   668    XIOCK      ADDRESS. HEX LOCATION(00000472) IN CSECT(EF8E0   ) LENGTH(2)
                     522   536   549
   674    XIOCM      ADDRESS. HEX LOCATION(0000047E) IN CSECT(EF8E0   ) LENGTH(2)
                     671
   517    XIOCS      ADDRESS. HEX LOCATION(000003A0) IN CSECT(EF8E0   ) LENGTH(6)
                     275   281   685
   686    XIOCU      ADDRESS. HEX LOCATION(0000049E) IN CSECT(EF8E0   ) LENGTH(4)
                     669   673   690
   683    XIOCV      ADDRESS. HEX LOCATION(00000496) IN CSECT(EF8E0   ) LENGTH(2)
                     679
   687    XIOCX      ADDRESS. HEX LOCATION(000004A2) IN CSECT(EF8E0   ) LENGTH(4)
                     684
   460    XIODE      ADDRESS. HEX LOCATION(00000380) IN CSECT(EF8E0   ) LENGTH(6)
                     304
   451    XIODG      ADDRESS. HEX LOCATION(0000035A) IN CSECT(EF8E0   ) LENGTH(6)
                     244
   454    XIODR      ADDRESS. HEX LOCATION(00000368) IN CSECT(EF8E0   ) LENGTH(6)
                     235
   463    XIODS      ADDRESS. HEX LOCATION(0000038E) IN CSECT(EF8E0   ) LENGTH(6)
                     243
   577    XIOER      ADDRESS. HEX LOCATION(00000412) IN CSECT(EF8E0   ) LENGTH(2)
                     151   699
   456    XIOE1      ADDRESS. HEX LOCATION(00000370) IN CSECT(EF8E0   ) LENGTH(6)
                     347
   458    XIOE2      ADDRESS. HEX LOCATION(00000378) IN CSECT(EF8E0   ) LENGTH(6)
                     355
   689    XIOGI      ADDRESS. HEX LOCATION(000004AA) IN CSECT(EF8E0   ) LENGTH(2)
                     677
   523    XIO1       ADDRESS. HEX LOCATION(000003B4) IN CSECT(EF8E0   ) LENGTH(4)
                     453   462   514
   535    XIO2       ADDRESS. HEX LOCATION(000003DC) IN CSECT(EF8E0   ) LENGTH(2)
                     520
   542    XIO5       ADDRESS. HEX LOCATION(000003F2) IN CSECT(EF8E0   ) LENGTH(2)
                     539
   543    XIO6       ADDRESS. HEX LOCATION(000003F4) IN CSECT(EF8E0   ) LENGTH(2)
                     541
   545    XIO8       ADDRESS. HEX LOCATION(000003F8) IN CSECT(EF8E0   ) LENGTH(2)
                     551
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                    COPYRIGHT IBM CORP 1976
001800                       3 F3420 START X'1800'
                             4 ************************************************************************
                             5 *                                                                      *
                             6 *                     ***       PREREQUISITES         ***              *
                             7 *                                                                      *
                             8 *                                NONE                                  *
                             9 *                                                                      *
                            10 ************************************************************************
                            11 *                                                                      *
                            12 *                     ***       MODIFICATIONS         ***              *
                            13 *                                                                      *
                            14 *                     1. MODIFICATIONS TO SUPPORT SENSOR I/O.           *
                            15 *                                                                      *
                            16 ************************************************************************
                            17 *                                                                      *
                            18 *                     ***     REA'S INCORPORATED      ***              *
                            19 *                                                                      *
                            20 *                                NONE                                  *
                            21 *                                                                      *
                            22 ************************************************************************
                            23 *                                                                      *
                            24 *                     ***    SPECIAL INSTRUCTIONS     ***              *
                            25 *                                                                      *
                            26 *                                NONE                                  *
                            27 *                                                                      *
                            28 ************************************************************************
                            29 *                                                                      *
                            30 *                     ***       E. C. HISTORY         ***              *
                            31 *                                                                      *
                            32 *          DATE 06MAY77  DATE 15SEP77  DATE          DATE              *
                            33 *          E.C. 578756   E.C. 754882   E.C.          E.C.              *
                            34 *                                                                      *
                            35 ************************************************************************
                            37 ************************************************************************
                            38 *                                                                      *
                            39 *       EQUATED NAMES FOR SUPPORTED SVC'S                              *
                            40 *                                                                      *
                            41 ************************************************************************
000000                      42 OUT    EQU   0                    OUT SVC
000001                      43 OUTIN  EQU   1                    OUTIN SVC
000002                      44 IDLE   EQU   2                    IDLE SVC
000004                      45 CHNGE  EQU   4                    CHANGE SVC
000007                      46 TERM   EQU   7                    TERMINATE SVC
000019                      47 ETOH   EQU   25                   EBCDIC TO HEX SVC
00001A                      48 HTOE   EQU   26                   HEX TO EBCDIC SVC (STRING)
00001F                      49 READI  EQU   31                   READ IN AN OVERLAY
000020                      50 WRITI  EQU   32                   WRITE A DATA SET
                            52 ************************************************************************
                            53 *                                                                      *
                            54 *       EQUATE TABLE                                                   *
                            55 *                                                                      *
                            56 ************************************************************************
000030                      57 INTAD  EQU   X'030'
000230                      58 LASAD  EQU   X'230'              LAST ADDRESSABLE WORD IN STG
000233                      59 DKAD   EQU   X'233'              SYSTEM DISK ADDRESS
000234                      60 DCPIN  EQU   X'234'              DCP INDICATORS
000240                      61 OPADR  EQU   X'240'              ALT OUTPUT DEVICE ADR
000246                      62 DKINT  EQU   X'246'
00024E                      63 MKRET  EQU   X'24E'
000250                      64 STOP   EQU   X'250'
000258                      65 ECP05  EQU   X'258'
00025C                      66 SCHAD  EQU   X'25C'
00025E                      67 ECP08  EQU   X'25E'
000000                      68 ZERO   EQU   0                    VALUE OF 0
000001                      69 ONE    EQU   1                             1
000002                      70 TWO    EQU   2                             2
000003                      71 THREE  EQU   3                             3
000004                      72 FOUR   EQU   4                             4
000005                      73 FIVE   EQU   5                             5
000006                      74 SIX    EQU   6                             6
000007                      75 SEVEN  EQU   7                             7
000008                      76 EIGHT  EQU   8                             8
000009                      77 NINE   EQU   9                             9
00000A                      78 TEN    EQU   10                            10
00000B                      79 ELEVN  EQU   11                            11
00000C                      80 TWELV  EQU   12                            12
00000D                      81 THRTN  EQU   13                            13
00000E                      82 FORTN  EQU   14                            14
00000F                      83 FIFTN  EQU   15                            15
000010                      84 SIXTN  EQU   16                            16
000012                      85 EGHTN  EQU   18                            18
000016                      86 TWEN2  EQU   22                            22
00001A                      87 TWEN6  EQU   26                            26
00001B                      88 TWEN7  EQU   27                            27
00001C                      89 TWEN8  EQU   28                            28
000022                      90 THIR4  EQU   34                            34
000028                      91 FORTY  EQU   40                            40
00003C                      92 SIXTY  EQU   60                            60
00003F                      93 SIXT3  EQU   63                            63
000040                      94 SIXT4  EQU   64                            64
00005E                      95 NINT4  EQU   94                            94
00007F                      96 ONE27  EQU   127                           127
000080                      97 ONE28  EQU   128                           128
000100                      98 TWO56  EQU   256                           256
000400                      99 OTH24  EQU   1024                          1024
001C00                     100 STH68  EQU   7168                          7168
002800                     101 TW8HN  EQU   10240                         10240
FFFFFF                     102 M1     EQU   -1                            -1
FFFFFE                     103 M2     EQU   -2                            -2
FFFFF8                     104 M8     EQU   -8                            -8
000000                     105 STERR  EQU   0
000000                     106 HALT1  EQU   0
000001                     107 SM     EQU   1
000001                     108 BYPAS  EQU   1
000006                     109 STOP1  EQU   6
000007                     110 ALTDV  EQU   7
00000F                     111 NOMEN  EQU   15
000017                     112 ORAL   EQU   23
00FF00                     113 FF00   EQU   X'FF00'
                           115 ************************************************************************
                           116 *                                                                      *
                           117 *       EQUATES FOR CODED STOPS USED BY THIS MONITOR                   *
                           118 *            (NORMAL AND ERROR)                                        *
                           119 *                                                                      *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                    COPYRIGHT IBM CORP 1976
                           120 ************************************************************************
003480                     121 CD0    EQU   X'3480'              COMMANDS FOR FRIEND
003493                     122 CD13   EQU   X'3493'              TEST TO LARGE TO KEEP
003494                     123 CD14   EQU   X'3494'              DATA ADDRESS LOW
00349A                     124 CD1A   EQU   X'349A'              DEVICE ADR DEVICE TYPE
00349B                     125 CD1B   EQU   X'349B'              INVALID COMMAND
00349C                     126 CD1C   EQU   X'349C'              ALT CONSOLE OFF
00349D                     127 CD1D   EQU   X'349D'              ALT CONSOLE ON
00349E                     128 CD1E   EQU   X'349E'              INVALID DEVICE
0034B4                     129 CD34   EQU   X'34B4'              IS A SPECIFIC STG ADR NEEDED
0034B5                     130 CD35   EQU   X'34B5'              WHAT IS THE STG ADR
0034B6                     131 CD36   EQU   X'34B6'              DO YOU WISH TO USE YOUR TEST
0034B7                     132 CD37   EQU   X'34B7'              WHICH ONE
0034B8                     133 CD38   EQU   X'34B8'              DATA ADR EXCEEDS STG
0034B9                     134 CD39   EQU   X'34B9'              INCORRECT TEST NUMBER
0034BF                     135 CD3F   EQU   X'34BF'              CAN'T ADD--PROGRAM AREA FULL
001800 F3F4F2F0            137 FREND  DC    CL4'3420'           PROGRAM IDENTIFIER
001804 00                  138 LEVEL  DC    X'00'               PROGRAM RELEASE LEVEL
001805 FF                  139        DC    X'FF'               DEFINITION RESERVED
001806 2900                140 BEGIN  DC    A(INIT)             INITIAL EXECUTION POINTER
001808 180C                141 DEVPT  DC    A(CKPT)             NO DEVICE TABLE
00180A 3420                142 RTNE   DC    X'3420'             CURRENT ROUTINE NUMBER
00180C 0000                143 CKPT   DC    A(*-*)              CURRENT CHECKPOINT NUMBER
00180E 0000                144 OPTN1  DC    A(*-*)              OPTION WORD ONE
001810 0000                145 OPTN2  DC    A(*-*)              OPTION WORD TWO
001812 0000                146 IDCPT  DC    A(*-*)              POINTER TO IDCB BUILD AREA
001814 0000                147 STRTB  DC    A(*-*)              POINTER TO I STREAM BUILD AREA
001816 0000                148 DTENT  DC    A(*-*)              POINTER TO DATA BUILD AREA
001818 0000                149 DVBPT  DC    A(*-*)              POINTER TO DEVICE UNDER TEST
00181A 0000                150 DCBPT  DC    A(*-*)              POINTER TO DCB BUILD AREA
00181C 190A                151 BADCC  DC    A(NCCD7)            POINTER TO BAD CODE ROUTINE
00181E 00                  152 KMODE  DC    X'00'               POINTER TO DEVICE KEYING IN
00181F 00                  153 LPIND  DC    X'00'               LOOP INDICATOR
001820 00000000            154 KEYMD  DC    2A(*-*)             ADDRESS OF DEVICES KEYING
001824 0000                155 KYMOD  DC    A(*-*)              INDICATOR A DEVICE IS KEYING IN
001826 0000                156 LOOPS  DC    A(*-*)              ADDRESS OF LOOP START
001828 FF                  157 HEXFF  DC    X'FF'
001829 00                  158 ZEROS  DC    X'00'
00182A 0000                159 NUMDV  DC    A(*-*)
00182C 0000                160 DVPNT  DC    A(*-*)
                           162 ************************************************************************
                           163 *                                                                      *
                           164 *       DEVC1 IS A POINTER TO AN AREA THAT CONTAINS THE FOLLOWING:     *
                           165 *                                                                      *
                           166 *       BYTE      INFORMATION                                          *
                           167 *        0        DEVICE ADDRESS                                       *
                           168 *        1        FLAGS                                                *
                           169 *                 BIT 0=1 EXPECTING AN INTERRUPT                       *
                           170 *                 BIT 1=1 INTERRUPT RECEIVED                           *
                           171 *                 BITS 2-7 SPARES                                      *
                           172 *        2        DEVICE TYPE                                          *
                           173 *        3        CYCLE STEAL STATUS BYTES                             *
                           174 *       4-5       START ADDRESS FOR EACH DEVICE(ABSOLUTE STG ADR)      *
                           175 *       6-7       ADDRESS OF LAST IO ISSUED FOR THIS DEVICE            *
                           176 *                                                                      *
                           177 ************************************************************************
001830 0000                178 DEVC1  DC    A(*-*)
001832 1912                179 EPRNT  DC    A(PRINT)
001834 190E                180 LOST   DC    A(INTLS)
001836 6802 2B12           181 RETMK  B     ST14A
001838 4000                182 EXDAT  DC    X'4000'             DATA START ADR IF MORE THAN 16K STG
00183A 0000                183 ENDAD  DC    A(*-*)
00183C 0000                184 STSAV  DC    A(*-*)
00183E                     186 OPTAB  EQU   *
00183E 2C74                187        DC    A(STRTA)
001840 2CF6                188        DC    A(STLOP)
001842 2A2A                189        DC    A(ST2)
001844 2C16                190        DC    A(DRPDV)
001846 2C7C                191        DC    A(RTDEV)
001848 2DE6                192        DC    A(CHANG)
00184A 2D04                193        DC    A(SAVTS)
00184C 2E2A                194        DC    A(NEWTS)
00184E 2BF6                195        DC    A(STNBR)
001850 2BFE                196        DC    A(UNSTP)
001852 2C06                197        DC    A(BYPEP)
001854 2C0E                198        DC    A(UNBYP)
001856 2DFA                199        DC    A(LSCOM)
001858 2BF0                200        DC    A(TERMN)
00185A 2CBE                201        DC    A(MENOF)
00185C 6802 185C           202 BYPCD  B     *
001860 6802 191A           203 MKCOD  B     MKINT
001864 5000                204 JINST  J     *+TWO
001866 5000                205        J     *+TWO
00185E                     206 BYPAD  EQU   BYPCD+TWO
001868 000000000000        208 UBUFR  DC    3A(*-*)
00186E 1902                209 INTR1  DC    A(NOTCS)
001870 1906                210 INTR2  DC    A(CSDEV)
001872 6400                211 STIST  DC    X'6400'
001874 4724 180E           212 LPIST  MVA   OPTN1,R7
001878 4F00                213        TBT   (R7,HALT1)
00187A 6800 340E           214        BZ    INSTR
00187E 6802 2BA4           215        B     ST21
001882 0000                216 CMEND  DC    A(*-*)
001884 0FFF                217 STGND  DC    X'0FFF'
001886 60                  218 UNPRE  DC    X'60'
001887 00                  219 UNPRP  DC    X'00'
001888 0000                220        DC    A(0)
00188A 6F                  221 RSDEV  DC    X'6F'
00188B 00                  222 RESET  DC    X'00'
00188C 0000                223        DC    A(0)
00188E 60                  224 PREPR  DC    X'60'
00188F 00                  225 PRADR  DC    X'00'
001890 0005                226        DC    X'0005'
001892 0000                227 R3SAV  DC    A(*-*)
001894 0000                228 R5SAV  DC    A(*-*)
001896 0000                229 R7SAV  DC    A(*-*)
001898 0000                230 DSTRT  DC    A(*-*)
00189A 0000000000000000    231 INADR  DC    4A(*-*)
0018A2 00                  232        DC    X'00'
0018A3 D6F3F4F2F1          233 INTOV  DC    C'03421'
0018A8 0000                234        DC    A(*-*)
0018AA 00                  235        DC    X'00'
0018AB D6                  236 FROVL  DC    C'O'
0018AC F4F0                237 FRTYP  DC    C'40'
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0018AE  C5F8                238         DC    C'E8'
0018B0  0000                239         DC    A(*-*)
0018B2  00                  240 SVADR   DC    X'00'
0018B3  D6                  241 SVOVL   DC    C'O'
0018B4  F3F4                242 SVOV1   DC    C'34'
0018B6  F2F8                243 SVOV2   DC    C'28'
0018B8  0000                244         DC    A(*-*)
0018BA  0001                245 CVTYP   DC    A(1)
0018BC  1869                246         DC    A(UBUFR+ONE)
0018BE  18AC                247         DC    A(FRTYP)
0018C0  0001                248 CVSAV   DC    A(1)
0018C2  18B2                249         DC    A(SVADR)
0018C4  18B6                250         DC    A(SVOV2)
0018C6  18B4                251 SAVOL   DC    A(SVOV1)
0018C8  1900                252         DC    A(PID)
0018CA  1000                253         DC    X'1000'
0018CC  0000                254 IDCBS   DC    A(*-*)
0018CE  00                  255 ALTAS   DC    X'00'
0018CF  00                  256 DONAS   DC    X'00'
0018D0  D5                  257 NO      DC    C'N'
0018D1  08                  258 HEX8    DC    X'08'
0018D2  00                  259 STIND   DC    X'00'
0018D3  00                  260 FULL    DC    X'00'
0018D4  00                  261 FSTSW   DC    X'00'
                            263         ORG   FREND+X'100'
001900  0000                264 PID     DC    A(*-*)                 OVERLAY I.D.
001902  6802 1902           265 OVLST   B     *
001906  0000                266 SINST   DC    A(*-*)
001908  0000                267 SVTS1   DC    A(*-*)
00190A  0000                268 SVTS2   DC    A(*-*)
00190C  0000                269 SVTS3   DC    A(*-*)
00190E  0000                270 SVTS4   DC    A(*-*)
001910  0000                271 SVTS5   DC    A(*-*)
001912  0000                272 SVTS6   DC    A(*-*)
001914  0000                273 SVTS7   DC    A(*-*)
001916  0000                274 SVTS8   DC    A(*-*)
001902                      276 NOTCS   EQU   PID+TWO
001906                      278 CSDEV   EQU   PID+SIX
00190A                      280 NCCD7   EQU   PID+TEN
00190E                      282 INTLS   EQU   PID+FORTN
001912                      284 PRINT   EQU   PID+EGHTN
001916                      286 CMNDP   EQU   PID+TWEN2
00191A                      288 MKINT   EQU   PID+TWEN6
                            290         ORG   FREND+X'1100'
002900                      291 INIT    EQU   *
002900  902C 1860 024E      292         MVD   MKCOD,MKRET*             MCK,PCK,PTW RETURN
002906  4124 189A           293         MVA   INADR,R1                 ADR OF DEVICES
00290A  4524 0030           294         MVWI  INTAD,R5                 GET THE INTERRUPT VECTOR ADDRESS
00290E  C320 0233           295         MVB   DKAD,R3                  GET THE IPL DEVICE ADR
002912  3309                296         SLL   ONE,R3                   DOUBLE FOR WORD DISPLACEMENT
002914  7568                297         AW    R5,R3                    THIS IS THE VECTOR ADDRESS
002916  CB58                298         MVW   R3,(R1)+                 SAVE THE INT VECTOR
002918  8B44                299         MVW   (R3),(R1)+               SAVE THE INT ADR
00291A  C320 0240           300         MVB   OPADR,R3                 GET THE OUTPUT DEVICE ADR
00291E  3309                301         SLL   ONE,R3                   DOUBLE FOR WORD DISPLACEMENT
002920  7568                302         AW    R5,R3                    THIS IS THE VECTOR ADDRESS
002922  CB58                303         MVW   R3,(R1)+                 SAVE THE INT VECTOR
002924  8B44                304         MVW   (R3),(R1)+               SAVE THE INT ADR
002926  8829 0230 1884      305         OW    LASAD,STGND              GET THE END ADDRESS
00292C  4030 0250 2B96      306         MVA   ST20,STOP*               ADR FOR A COMMAND OF 7
002932  4224 025E           307         MVWI  ECP08,R2                 GET A SAVE AREA
002936  8A08 18CC           308         MVW   (R2),IDCBS               FOR THE IDCB AREA
00293A  4224 0258           309         MVWI  ECP05,R2                 GET THE ECP POINTER
00293E  7A41 0002           310         AWI   TWO,R2                   BUMP THE POINTER
002942  8A08 182E           311         MVW   (R2),DEVC1               SAVE THE POINTER
002946  4724 18B3           312         MVA   SVOVL,R7                 ADR OF TEST OVERLAY
00294A  601F                313         SVC   READI
00294C  75A7                314         IR    R5,R5                    SET THE IND
00294E  6801 2A88           315         BNZ   ST6                      J-IF PGM NOT FOUND
002952  6D08 1908           316         MVW   SVTS1,R5                 HAS A USER TEST BEEN SAVED
002956  102C                317         JZ    STAA                     J-NO
002958  4724 2EB0           318         MVA   ASKIT,R7                 MESSAGE CONTROL BLOCK
00295C  6001                319         SVC   OUTIN
00295E  802B 1868 18D0      320         CB    UBUFR,NO                 WAS IT NO
002964  1025                321         JE    STAA                     J-YES
002966  4724 2EF0           322         MVA   WHICH,R7                 WHICH TEST IS DESIRED
00296A  6001                323         SVC   OUTIN
00296C  C220 1868           324         MVB   UBUFR,R2                 GET THE TEST NUMBER
002970                      325 INITA   EQU   *
002970  C224 18D1           326         CB    HEX8,R2                  IS THE NUMBER TO HI
002974  1D0F                327         JGT   INITB                    J-YES
002976  0228                328         ABI   FORTY,R2                 BUMP NUMBER BY X'28'
002978  C228 18B2           329         MVB   R2,SVADR                 SAVE THE NUM FOR CONVERTING
00297C  4724 18C0           330         MVA   CVSAV,R7                 CONVERT CONTROL BLOCK
002980  601A                331         SVC   HTOE
002982  4724 18B3           332         MVA   SVOVL,R7                 ADR OF OVERLAY NAME
002986  601F                333         SVC   READI
002988  75A7                334         IR    R5,R5                    SET THE CONDITION CODE
00298A  1804                335         JNZ   INITB                    J-IF NOT FOUND
00298C  8828 1914 1898      336         MVW   SVTS7,DSTRT              SET UP THE DATA AREA
002992  1805                337         JNZ   STA                      J-IF TEST IS CORRECT
002994                      338 INITB   EQU   *
002994  4724 2E9A           339         MVA   TOOHI,R7                 INCORRECT TEST NUMBER
002998  6000                340         SVC   OUT
00299A  6802 2ACC           341         B     ST12
00299E                      342 STA     EQU   *
00299E  6F03 1902           343         BAL   OVLST,R7                 SET UP THE TEST
0029A2  4724 18A3           344         MVA   INTOV,R7                 INTERRUPT OVERLAY
0029A6  601F                345         SVC   READI                    READ IT IN
0029A8  75A7                346         IR    R5,R5                    CHECK INDICATORS
0029AA  186E                347         JNZ   ST6                      J-PGM NOT FOUND
0029AC  6802 2ACC           348         B     ST12
0029B0                      349 STAA    EQU   *
0029B0  4724 2EBA           350         MVA   ISTHR,R7                 IS A SPECIFIC DATA ADR NEEDED
0029B4  6001                351         SVC   OUTIN
0029B6  802B 1868 18D0      352         CB    UBUFR,NO                 WAS IT A NO ANSWER
0029BC  1013                353         JE    ST1A                     YES
0029BE  4724 2EC4           354         MVA   WHERE,R7                 WHAT IS THE ADR
0029C2  6001                355         SVC   OUTIN
0029C4  4724 3B0E           356         MVA   DATAB,R7                 START OF DATA
0029C8  CF24 1898           357         CW    DSTRT,R7                 IS THE ADDRESS TOO LOW
0029CC  1604                358         JLLE  STAB                     J-NO
0029CE  4724 2E9E           359         MVA   ADLOW,R7                 MSG ADDRESS
0029D2  6000                360         SVC   OUT
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0029D4  5007                361         J     ST1A
0029D6                      362 STAB    EQU   *
0029D6  882B 1884 1898      363         CW    STGND,DSTRT              IS THE ADR TO HI
0029DC  160E                364         JLLE  ST1C                     J-NO
0029DE  4724 2E96           365         MVA   WRONG,R7                 WRONG ADR
0029E2  6000                366         SVC   OUT
0029E4                      367 ST1A    EQU   *
0029E4  4020 1898 3B0E      368         MVA   DATAB,DSTRT              USE NORMAL ADR
0029EA  C120 0230           369         MVB   LASAD,R1                 GET THE ADDRESS COUNT
0029EE  3132                370         SRL   SIX,R1                   POSITION THE BITS
0029F0  7127                371         IR    R1,R1                    IS THIS A 16K STG
0029F2  1003                372         JZ    ST1C                     JUMP YES
0029F4  8828 1838 1898      373         MVW   EXDAT,DSTRT              GET THE NEW DATA START ADDRESS
0029FA                      374 ST1C    EQU   *
0029FA  8828 1898 183A      375         MVW   DSTRT,ENDAD              SAVE THE DATA START
002A00  402E 183A 0100      376         SWI   TWO56,ENDAD              ADJUST FOR BUFFER
002A06  4020 181A 320E      377         MVA   DCBTB,DCBPT              ADR OF DCB TABLE AREA
002A0C  4020 1824 1820      378         MVA   KEYMD,KYMOD              ADR OF DEVICES KEYING IN DATA
002A12  8828 1898 1816      379         MVW   DSTRT,DTENT              ADR OF DATA FIELDS
002A18  8828 18CC 1812      380         MVW   IDCBS,IDCPT              ADR OF BUILD AREA FOR IDCB'S
002A1E  4020 1814 340E      381         MVA   INSTR,STRTB              ADR OF THE BUILD AREAS FOR INSTRS
002A24  8828 182E 182C      382         MVW   DEVC1,DVPNT              ADR OF THE DEVICE TABLE
002A2A                      383 ST2     EQU   *
002A2A  C720 18D3           384         MVB   FULL,R7                  IS THE INSTR'S AT CAPACITY
002A2E  1005                385         JZ    ST2AA                    J-NO
002A30  4724 2ED2           386         MVA   NOMOR,R7                 MSG ADDRESS
002A34  6000                387         SVC   OUT
002A36  6802 2CCE           388         B     RTDV4
002A3A                      389 ST2AA   EQU   *
002A3A  4724 2E40           390         MVA   MG6,R7                   MESSAGE ADDRESS
002A3E  6001                391         SVC   OUTIN                   ASK THE QUESTION
002A40  4524 1868           392         MVA   UBUFR,R5                 GET THE DEVICE ADR/TYPE
002A44  6A08 182E           393         MVW   DEVC1,R2                 ADR OF THE DEVICE TABLE
002A48  6B08 182A           394         MVW   NUMDV,R3                 GET THE NUMBER OF DEVICES
002A4C  1006                395         JZ    ST3                      J-NO ENTRIES
002A4E                      396 ST2A    EQU   *
002A4E  80A3 1868           397         CB    UBUFR,(R2)               IS THE DEVICE IN THE TABLE
002A52  100E                398         JE    ST4                      J-YES
002A54  7A41 0008           399         AWI   EIGHT,R2                BUMP POINTER
002A58  BBFA                400         JCT   ST2A,R3                  TRY THE NEXT ONE
002A5A                      401 ST3     EQU   *
002A5A  4029 182A 0001      402         AWI   ONE,NUMDV                BUMP THE DEVICE COUNTER
002A60  8BA0 1868           403         MVW   UBUFR,(R2)               SAVE THE TYPE AND ADDRESS
002A64  7A41 0001           404         AWI   ONE,R2                   BUMP THE POINTER
002A68  80A0 1829           405         MVB   ZEROS,(R2)               CLEAR THE BYTE
002A6C  7A41 FFFF           406         AWI   M1,R2                    BACKUP
002A70                      407 ST4     EQU   *
002A70  6A0D 182C           408         MVW   R2,DVPNT                 SAVE THE NEW POINTER
002A74  4724 18BA           409         MVA   CVTYP,R7                 CONTROL BLOCK
002A78  601A                410         SVC   HTOE                     GO CONVERT
002A7A  4724 18AB           411         MVA   FROVL,R7                 OVERLAY TO READ IN
002A7E  6D0D 1894           412         MVW   R5,R5SAV                 SAVE THIS REG
002A82  601F                413         SVC   READI                    READ IN THE OVERLAY
002A84  75A7                414         IR    R5,R5                    CHECK THE RETURN
002A86  1004                415         JZ    ST10                     J-NO ERRORS
002A88                      416 ST6     EQU   *
002A88  4724 2ECE           417         MVA   INVMG,R7                 PRINT INVALID DEVICE TYPE
002A8C  6000                418         SVC   OUT                      OUTPUT THE MESSAGE
002A8E  50D5                419         J     ST2AA                    TRY AGAIN
002A90                      420 ST10    EQU   *
002A90  8828 1814 183C      421         MVW   STRTB,STSAV              SAVE THE POINTER
002A96  6D08 1894           422         MVW   R5SAV,R5                 RESTORE THIS REG
002A9A  6F03 1902           423         BAL   OVLST,R7                 GO EXECUTE THE OVERLAY
002A9E  4724 18A3           424         MVA   INTOV,R7                 INTERRUPT OVERLAY
002AA2  601F                425         SVC   READI                    READ IT IN
002AA4  75A7                426         IR    R5,R5                    CHECK INDICATORS
002AA6  18F0                427         JNZ   ST6                      J-PGM NOT FOUND
002AA8  882B 183C 1814      428         CW    STSAV,STRTB              ARE THEY THE SAME
002AAE  1807                429         JNE   ST11                     J-NO
002AB0  4029 182A FFFF      430         AWI   M1,NUMDV                 RESET THE POINTER
002AB6  4029 182C FFF8      431         AWI   M8,DVPNT                 SAME HERE
002ABC  5007                432         J     ST12
002ABE                      433 ST11    EQU   *
002ABE  882B 183A 1814      434         CW    ENDAD,STRTB              IS THE INSTR'S AT CAPACITY
002AC4  1603                435         JLLE  ST12                     J-NO
002AC6  8028 1828 18D3      436         MVB   HEXFF,FULL               T/ON THE IND
002ACC                      437 ST12    EQU   *
002ACC  4724 1810           438         MVA   OPTN2,R7                 GET THE OPTION WORD
002AD0  4F0F                439         TBT   (R7,NOMEN)               IS THE IND ON
002AD2  1208                440         JON   ST13A                    J-YES DON'T PRINT MESSAGES
002AD4  4424 0010           441         MVWI  SIXTN,R4                 NUM OF MSGS TO PRINT
002AD8  4724 2E4A           442         MVA   MG10,R7                  ADR OF FIRST MSG
002ADC                      443 ST13    EQU   *
002ADC  6000                444         SVC   OUT
002ADE  7FE1 0004           445         AWI   FOUR,R7                  BUMP TO NEXT MSG
002AE2  BCFC                446         JCT   ST13,R4
002AE4                      447 ST13A   EQU   *
002AE4  4724 2EA6           448         MVA   DUMMY,R7                 ADR OF CONTROL BLOCK FOR OUTIN
002AE8  6001                449         SVC   OUTIN
002AEA  4324 1868           450         MVA   UBUFR,R3                 INPUT BUFFER ADDRESS
002AEE                      451 ST14    EQU   *
002AEE  4424 183E           452         MVA   OPTAB,R4                 ADR OF BRANCH TABLE
002AF2  C6C0                453         MVB   (R3),R6                  GET THE COMMAND
002AF4  6B0D 2CD8           454         BZ    RTDV5
002AF8  7EC1 FFFF           455         AWI   M1,R6                    REDUCE BY ONE
002AFC  7E06 000F           456         CWI   FIFTN,R6                 IS IT A VALID COMMAND
002B00  6D01 2E34           457         BGT   NGOOD                    B-NO
002B04  3609                458         SLL   ONE,R6                   POSITION FOR WORD BOUNDARY
002B06  74C8                459         AW    R4,R6                    GET BRANCH ADDRESS
002B08  6EC8 0000           460         MVW   (R6),R6                  ADDRESS TO BRANCH TO
002B0C  7FE1 FFFF           461         AWI   M1,R7                    REDUCE COUNTER
002B10  5600                462         BXS   (R6)
002B12                      463 ST14A   EQU   *
002B12  6808 182A           464         MVW   NUMDV,R0                 GET THE NUMBER OF DEVICES IN TEST
002B16  6A08 182E           465         MVW   DEVC1,R2                 GET THE DEVICE ADDRESSES
002B1A                      466 ST15    EQU   *
002B1A  C390                467         MVB   (R2)+,R3                 GET THE DEVICE ADDRESS
002B1C  C795                468         MVBZ  (R2)+,R7                 POSITION THE ADDRESS
002B1E  7864 FF00           469         RSTWI FF00,R3                  RESET BITS 0-7
002B22  C328 188B           470         MVB   R3,RSET                  RESET ADDRESS
002B26  C328 188F           471         MVB   R3,PRADR                 PREPARE ADDRESS
002B2A  680C 188A           472         IO    RSDEV                    RESET THE DEVICE
002B2E  4624 1C00           473         MVWI  STH68,R6                 DELAY COUNT
002B32                      474 ST150   EQU   *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

002B32  6002                475        SVC   IDLE
002B34  BEFE                476        JCT   ST150,R6             WAIT FOR RESET TO SETTLE
002B36  680C 188E           477        IO    PREPR                PREPARE THE DEVICE
002B3A  C324 0240           478        CB    OPADR,R3             IS THIS AN ALT DEV
002B3E  1810                479        JNE   ST15A                J-NO
002B40  C720 18CF           480        MVB   DONAS,R7             GET THE IND
002B44  1003                481        JZ    S15                  J-PRINT THE MESSAGE
002B46  7A41 0001           482        AWI   ONE,R2               BUMP THE POINTER
002B4A  5018                483        J     ST16
002B4C                      484 S15    EQU   *
002B4C  4724 2E8E           485        MVA   ALTMG,R7             MSG CONTROL BLOCK
002B50  6000                486        SVC   OUT
002B52  4724 0234           487        MVWI  DCPIN,R7             GET THE MONITOR IND
002B56  4F87                488        TBTR  (R7,ALTDV)           T/OFF THE ASSIGNED IND
002B58  4F46                489        TBTS  (R7,STOP11)          T/ON THE STOP IND
002B5A  8028 1828 18CE      490        MVB   HEXFF,ALTAS          T/ON IND
002B60                      491 ST15A  EQU   *
002B60  4524 0030           492        MVWI  INTAD,R5             GET THE INTERRUPT VECTOR ADDRESS
002B64  3309                493        SLL   ONE,R3               DOUBLE FOR WORD DISPLACEMENT
002B66  7568                494        AW    R5,R3                THIS IS THE VECTOR ADDRESS
002B68  7A41 0001           495        AWI   ONE,R2               GET THE DEVICE JUST READ IN
002B6C  C580                496        MVB   (R2),R5              IS IT A CSS DEVICE
002B6E  1004                497        JZ    ST15B                J-NO
002B70  1203                498        JN    ST15B                J-IF SIO
002B72  40C0 1870           499        MVA   INTR2,(R3)           ADR OF INT FOR CSS DEVICE
002B76  5002                500        J     ST16
002B78                      501 ST15B  EQU   *
002B78  40C0 186E           502        MVA   INTR1,(R3)           INT FOR NO CSS DEVICE
002B7C                      503 ST16   EQU   *
002B7C  7A41 0005           504        AWI   FIVE,R2              BUMP TO NEXT ENTRY
002B80  B8CC                505        JCT   ST15,R0              DO ALL DEVICES
002B82  0F0E                506        MVBI  FORTN,R7             NUM OF BYTES TO MOVE
002B84  4624 1874           507        MVA   LPIST,R6             ADR OF BRANCH INSTRUCTION
002B88  6808 1814           508        MVW   STRTB,R0             ADR IN THE INSTR STREAM
002B8C  2E04                509        MVFN  (R6),(R0)            MOVE INSTR INTO STREAM
002B8E  680D 1882           510        MVW   R0,CMEND             SAVE THE ADR
002B92  6802 340E           511        B     INSTR                START THE INSTRUCTIONS
002B96                      512 ST20   EQU   *
002B96  4724 180E           513        MVA   OPTN1,R7             OPTION WORD 1 ADR
002B9A  4F40                514        TBTS  (R7,HALT1)           SET THE HALT BIT
002B9C  C725 18D2           515        MVBZ  STIND,R7             CLEAR THE IND
002BA0  6812 025C           516        B     SCHAD*               RETURN TO SCHEDULER
002BA4                      517 ST21   EQU   *
002BA4  4324 1C00           518        MVWI  STH68,R3             DELAY COUNT
002BA8                      519 ST21A  EQU   *
002BA8  6002                520        SVC   IDLE
002BAA  BBFE                521        JCT   ST21A,R3             WAIT FOR ALL INTERRUPTS
002BAC  4724 180E           522        MVA   OPTN1,R7             ADR OF OPTION WORD
002BB0  4F80                523        TBTR  (R7,HALT1)           RESET THE HALT BIT
002BB2  6808 182A           524        MVW   NUMDV,R0             GET THE NUMBER OF DEVICES
002BB6  6A08 182E           525        MVW   DEVC1,R2             DEVICE TABLE
002BBA                      526 ST22   EQU   *
002BBA  8218 1887           527        MVB   (R2)+,UNPRP          ADRESS TO UNPREPARE
002BBE  680C 1886           528        IO    UNPRE                PREPARE WITH I BIT OFF
002BC2  C385                529        MVBZ  (R2),R3              CLEAR THE INT INDICATOR
002BC4  7A41 0007           530        AWI   SEVEN,R2             BUMP THE POINTER
002BC8  B8F8                531        JCT   ST22,R0              DO THEM ALL
002BCA  4124 189A           532        MVA   INADR,R1             ADR OF SAVED VECTORS
002BCE  CB50                533        MVW   (R1)+,R3             ADR TO RESTORE
002BD0  89D0                534        MVW   (R1)+,(R3)           RESTORE THE VECTOR
002BD2  CB50                535        MVW   (R1)+,R3             ADR TO RESTORE
002BD4  89D0                536        MVW   (R1)+,(R3)           RESTORE THE VECTOR
002BD6  6201                537        EN    SM                   ENABLE THE SUMMARY MASK
002BD8  C725 18CE           538        MVBZ  ALTAS,R7             WAS THE ALTERNATE T/OFF
002BDC  1007                539        JZ    ST24                 J-NO
002BDE  4724 0234           540        MVWI  DCPIN,R7             MONITOR IND
002BE2  4F47                541        TBTS  (R7,ALTDV)           T/ON ALT ASSIGNED
002BE4  4F86                542        TBTR  (R7,STOP1)           RESET THE STOP IND
002BE6  4724 2E92           543        MVA   RTALT,R7             MSG CONTROL BLOCK
002BEA  6000                544        SVC   OUT
002BEC                      545 ST24   EQU   *
002BEC  6802 2ACC           546        B     ST12
002BF0                      547 TERMN  EQU   *
002BF0  D725 180E           548        MVDZ  OPTN1,R7             CLEAR THE OPTION WORDS
002BF4  6007                549        SVC   TERM                 THEN TERMINATE
002BF6                      550 STNER  EQU   *
002BF6  4624 1810           551        MVA   OPTN2,R6             ADR OF THE OPTION BITS
002BFA  4E40                552        TBTS  (R6,STERR)           T/ON STOP ON ERROR
002BFC  5068                553        J     RTDV4
002BFE                      554 UNSTP  EQU   *
002BFE  4624 1810           555        MVA   OPTN2,R6             ADR OF THE OPTION BITS
002C02  4E80                556        TBTR  (R6,STERR)           T/OFF STOP ON ERR
002C04  5064                557        J     RTDV4
002C06                      558 BYPEP  EQU   *
002C06  4624 1810           559        MVA   OPTN2,R6             ADR OF THE OPTION BITS
002C0A  4E41                560        TBTS  (R6,BYPAS)           T/ON BYPASS ERROR PRINTING
002C0C  5060                561        J     RTDV4
002C0E                      562 UNBYP  EQU   *
002C0E  4624 1810           563        MVA   OPTN2,R6             ADR OF THE OPTION BITS
002C12  4E81                564        TBTR  (R6,BYPAS)           T/OFF BYPASS ERR PRINTINGG
002C14  505C                565        J     RTDV4
002C16                      566 DRPDV  EQU   *
002C16  7B61 0001           567        AWI   ONE,R3               BUMP POINTER
002C1A  7FE1 FFFF           568        AWI   M1,R7                REDUCE COUNTER
002C1E  6F0D 1896           569        MVW   R7,R7SAV             SAVE THE REGISTER
002C22  8028 1828 18D4      570        MVB   HEXFF,FSTSW          SET THE FIRST TIME SWITCH
002C28                      571 DRP0   EQU   *
002C28  6808 182A           572        MVW   NUMDV,R0             NUMBER OF DEVICES IN TEST
002C2C  6908 182E           573        MVW   DEVC1,R1             START OF DEVICES
002C30                      574 DRP1   EQU   *
002C30  8343                575        CB    (R3),(R1)            IS THIS THE DEVICE
002C32  100E                576        JE    DRP2                 J-YES
002C34  7921 0008           577        AWI   EIGHT,R1             BUMP POINTER
002C38  B8FB                578        JCT   DRP1,R0              DO THEM ALL
002C3A  4724 0007           579        MVWI  SEVEN,R7             SET THE MASK
002C3E  C7CA                580        RBTB  R7,(R3)              RESET BITS 13,14,15
002C40  C725 18D4           581        MVBZ  FSTSW,R7             IS THE FIRST PASS SW ON
002C44  18F1                582        JNZ   DRP0                 J-YES
002C46  4724 2ECE           583        MVA   INVMG,R7             ADR OF MSG CONTROL BLOCK
002C4A  6000                584        SVC   OUT
002C4C  6802 2ACC           585        B     ST12
002C50                      586 DRP2   EQU   *
002C50  830B 0240           587        CB    (R3),OPADR           IS THIS THE ALT CONSOLE
002C54  1803                588        JNE   DRP3                 J-NO
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

002C56  8028 1828 18CF      589        MVB   HEXFF,DONAS          IND DONT PRINT MSG
002C5C                      590 DRP3   EQU   *
002C5C  7921 0004           591        AWI   FOUR,R1              BUMP POINTER
002C60  CA50                592        MVW   (R1)+,R2             ADR OF START INST FOR THIS DEV
002C62  7921 0006           593        AWI   SIX,R1               BUMP POINTER
002C66  8908 185E           594        MVW   (R1),BYPAD           ADR FOR INSTR TO INSERT
002C6A  90A0 185C           595        MVD   BYPCD,(R2)           MOVE IN THE INSTR TO BYPASS
002C6E  6F08 1896           596        MVW   R7SAV,R7             RESTORE R7
002C72  502D                597        J     RTDV4
002C74                      598 STRTA  EQU   *
002C74  8028 1828 18D2      599        MVB   HEXFF,STIND          SET THE IND
002C7A  5029                600        J     RTDV4
002C7C                      601 RTDEV  EQU   *
002C7C  7B61 0001           602        AWI   ONE,R3               BUMP POINTER
002C80  7FE1 FFFF           603        AWI   M1,R7                REDUCE COUNTER
002C84  6F0D 1896           604        MVW   R7,R7SAV             SAVE THE REGISTER
002C88  8028 1828 18D4      605        MVB   HEXFF,FSTSW          SET THE FIRST TIME SWITCH
002C8E                      606 RTDV0  EQU   *
002C8E  6808 182A           607        MVW   NUMDV,R0             NUMBER OF DEVICES IN TEST
002C92  6908 182F           608        MVW   DEVC1,R1             START OF DEVICES
002C96                      609 RTDV1  EQU   *
002C96  8343                610        CB    (R3),(R1)            IS THIS THE DEVICE
002C98  100E                611        JE    RTDV2                J-YES
002C9A  7921 0008           612        AWI   EIGHT,R1             BUMP POINTER
002C9E  B8FB                613        JCT   RTDV1,R0
002CA0  4724 0007           614        MVWI  SEVEN,R7             SET THE MASK
002CA4  C7CA                615        RBTB  R7,(R3)              RESET BITS 13,14,15
002CA6  C725 18D4           616        MVBZ  FSTSW,R7             IS THE FIRST PASS SW ON
002CAA  18F1                617        JNZ   RTDV0                J-YES
002CAC  4724 2ECE           618        MVA   INVMG,R7             ADR OF MSG CONTROL BLOCK
002CB0  6000                619        SVC   OUT
002CB2  6802 2ACC           620        B     ST12
002CB6                      621 RTDV2  EQU   *
002CB6  6F08 1896           622        MVW   R7SAV,R7             RESTORE R7
002CBA  830B 0240           623        CB    (R3),OPADR           IS THIS THE ALT CONSOLE
002CBE  1802                624        JNE   RTDV3                J-NO
002CC0  C025 18CF           625        MVBZ  DONAS,R0             RESET THE IND
002CC4                      626 RTDV3  EQU   *
002CC4  7921 0004           627        AWI   FOUR,R1              BUMP POINTER
002CC8  CA50                628        MVW   (R1)+,R2             ADR OF START INST FOR THIS DEV
002CCA  90A0 1864           629        MVD   JINST,(R2)           ADR FOR INSTR TO INSERT
002CCE                      630 RTDV4  EQU   *
002CCE  7B61 0001           631        AWI   ONE,R3               BUMP COMMAND POINTER
002CD2  7F87                632        R7,R7                      SET THE INDICATORS
002CD4  6E11 2AEE           633        BNZ   ST14
002CD8                      634 RTDV5  EQU   *
002CD8  6A08 182A           635        MVW   NUMDV,R2             IS THERE ANY DEVICES UNDER TEST
002CDC  6800 2ACC           636        BZ    ST12                 B-NO
002CE0  902B 1828 18D2      637        CB    HEXFF,STIND          IS THE START IND ON
002CE6  6800 2B12           638        BE    ST14A                B-YES
002CEA  6802 2ACC           639        B     ST12
002CEE                      640 MENOF  EQU   *
002CEE  4A24 1810           641        MVA   OPTN2,R6             GET THE OPTION WORD ADDRESS
002CF2  4E8F                642        TBTV  (R6,NOMEN)           INVERT THE BIT
002CF4  50EC                643        J     RTDV4
002CF6                      644 STLOP  EQU   *
002CF6  6808 1814           645        MVW   STRTB,R0             GET THE ADDRESS STREAM
002CFA  8824 1872           646        MVW   STIST,(R0)+          MOVE IN THE STOP INSTR
002CFE  6808 1814           647        MVW   R0,STRTB             SAVE THE NEW ADR
002D02  5085                648        J     RTDV4
002D04                      649 SAVTS  EQU   *
002D04  6F0D 1896           650        MVW   R7,R7SAV             SAVE R7
002D08  7B61 0001           651        AWI   ONE,R3               BUMP THE POINTER
002D0C  631D 1892           652        MVW   R3,R3SAV             SAVE R3
002D10  C720                653        MVB   (R3),R2              GET THE TEST NUMBER
002D12  CA24 18D1           654        CB    HEXA,R2              IS THE NUM O.K.
002D16  7105                655        JLLT  SAVT1                J-YES
002D18  4724 2E9A           656        MVA   TOOHI,R7             TEST NUM TOO HI
002D1C  6000                657        SVC   OUT
002D1E  6802 2ACC           658        B     ST12
002D22                      659 SAVT1  EQU   *
002D22  0228                660        ABI   FORTY,R2              BUMP BY CONSTANT
002D24  C228 18B2           661        MVB   R2,SVADR             SAVE THE NUM TO CONVERT
002D28  4724 18C0           662        MVA   CVSAV,R7             CONVERT CONTROL BLOCK
002D2C  601A                663        SVC   HTOE
002D2E  4724 18B3           664        MVA   SVOVL,R7             ADR OF CONTROL BLOCK
002D32  601F                665        SVC   READI
002D34  75A7                666        IR    R5,R5                CHECK RETURN CONDITIONS
002D36  6801 2A88           667        BNZ   ST6                  B-IF ERROR
002D3A  4524 2800           668        MVWI  TW8HN,R5             GET THE START ADDRESS
002D3E  0F22                669        MVBI  THIR4,R7             NUMBER OF BYTES TO MOVE
002D40  6A08 1906           670        MVW   SINST,R2             AREA FOR DATA
002D44  4124 180E           671        MVA   OPTN1,R1             FROM AREA
002D48  2944                672        MVFN  (R1),(R2)            MOVE THE DATA
002D4A  6F08 182A           673        MVW   NUMDV,R7             GET THE NUMBEF OF DEVICES
002D4E  3719                674        SLL   THREE,R7             MULTIPLY BY 8
002D50  6908 182E           675        MVW   DEVC1,R1             ADR OF DATA TO MOVE
002D54  2944                676        MVFN  (R1),(R2)            SAVE THE DATA
002D56  4020 1908 340E      677        MVA   INSTS,SVTS1          ADR OF I-STREAM
002D5C  8828 18CC 190C      678        MVW   IDCBS,SVTS3          ADR OF IDCB'S
002D62  4020 1910 320E      679        MVA   DCBTB,SVTS5          ADR OF DCB'S
002D68  8828 1898 1914      680        MVW   DSTRT,SVTS7          ADR OF DATA
002D6E  6908 1908           681        MVW   SVTS1,R1             WHERE THE INSTR'S START
002D72  6F08 1814           682        MVW   STRTB,R7             WHERE THE INSTR'S END
002D76  71EA                683        SW    R1,R7                NUMBER OF BYTES TO MOVE
002D78  6F0D 190A           684        MVW   R7,SVTS2             SAVE THE BYTE COUNT
002D7C  2944                685        MVFN  (R1),(R2)            MOVE THE INSTR'S
002D7E  6908 190C           686        MVW   SVTS3,R1             WHERE THE IDCB'S START
002D82  6F08 1812           687        MVW   IDCPT,R7             WHERE THE IDCB'S END
002D86  71EA                688        SW    R1,R7                NUMBER OF BYTES TO MOVE
002D88  6F0D 190E           689        MVW   R7,SVTS4             SAVE THE BYTE COUNT
002D8C  2944                690        MVFN  (R1),(R2)            MOVE THE INSTR'S
002D8E  6908 1910           691        MVW   SVTS5,R1             WHERE THE DCB'S START
002D92  6F08 181A           692        MVW   DCBPT,R7             WHERE THE DCB'S END
002D96  71EA                693        SW    R1,R7                NUMBER OF BYTES TO MOVE
002D98  6F0D 1912           694        MVW   R7,SVTS6             SAVE THE BYTE COUNT
002D9C  2944                695        MVFN  (R1),(R2)            MOVE THE DCB'S
002D9E  6908 1914           696        MVW   SVTS7,R1             WHERE THE DCB'S  START
002DA2  6F08 1816           697        MVW   DTENT,R7             WHERE THE DATA END
002DA6  71EA                698        SW    R1,R7                NUMBER OF BYTES TO MOVE
002DA8  6F0D 1916           699        MVW   R7,SVTS8             SAVE THE BYTE COUNT
002DAC  7764                700        MVW   R7,R3                GET THE BYTE COUNT
002DAE  7268                701        AW    R2,R3                ADD THE START ADDRESS
002DB0  73A5                702        CW    R3,R5                IS THE ALLOTTED SAVE AREA EXCEEDED
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LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT
002DB2 1715               703        JLLT  SAVT3              J-YES
002DB4 2944               704        MVFN  (R1),(R2)          MOVE THE INSTR'S
002DB6 4724 18C6          705        MVA   SAVOL,R7           OVERLAY TO BE WRITTEN
002DBA 6020               706        SVC   WRITI              WRITE IT
002DBC                    707 SAVT2  EQU   *
002DBC 8828 1814 1882     708        MVW   STRTB,CMEND        SAVE NEW END ADR
002DC2 4724 18A3          709        MVA   INTOV,R7           INTERRUPT OVERLAY
002DC6 601F               710        SVC   READI              READ IT IN
002DC8 75A7               711        IR    R5,R5              CHECK INDICATORS
002DCA 6801 2A88          712        BNZ   ST6                J-PGM NOT FOUND
002DCE 6B08 1892          713        MVW   R3SAV,R3           RESTORE R3
002DD2 6F08 1896          714        MVW   R7SAV,R7           RESTORE R7
002DD6 7FE1 FFFF          715        AWI   M1,R7              BUMP THE POINTER
002DDA 6802 2CCE          716        B     RTDV4
002DDE                    717 SAVT3  EQU   *
002DDE 4724 2EA2          718        MVA   TOBIG,R7           MSG ADDRESS
002DE2 6000               719        SVC   OUT
002DE4 50EB               720        J     SAVT2
002DE6                    721 CHANG  EQU   *
002DE6 7B61 0001          722        AWI   ONE,R3             BUMP POINTER
002DEA 73C4               723        MVW   R3,R6              SAVE POINTER
002DEC 7B61 0001          724        AWI   ONE,R3             BUMP THE POINTER
002DF0 7FE1 FFFE          725        AWI   M2,R7              REDUCE COUNT
002DF4 C420 1829          726        MVB   ZEROS,R4           SET INDICATOR
002DF8 5001               727        J     LSCOA
002DFA                    728 LSCOM  EQU   *
002DFA 0C01               729        MVBI  ONE,R4             SET INDICATOR
002DFC                    730 LSCOA  EQU   *
002DFC 6B0D 1892          731        MVW   R3,R3SAV           SAVE REG
002E00 6F0D 1896          732        MVW   R7,R7SAV           "
002E04 6808 1882          733        MVW   CMEND,R0           GET THE END ADR
002E08 1802               734        JNZ   LSCO1              J-IF NOT ZERO
002E0A 6808 1814          735        MVW   STRTB,R0           GET THE ADDRESS STREAM
002E0E                    736 LSCO1  EQU   *
002E0E 4124 340E          737        MVA   INSTR,R1           START OF THE INSTR'S
002E12 6A08 18CC          738        MVW   IDCBS,R2           START OF IDCBS
002E16 4324 320E          739        MVA   DCBTB,R3           START OF DCBS
002E1A 6F03 1916          740        BAL   CMNDP,R7           B-TO THE OVERLAY
002E1E 6B08 1892          741        MVW   R3SAV,R3           RESTORE REG3
002E22 6F08 1896          742        MVW   R7SAV,R7           RESTORE REG7
002E26 6802 2CCE          743        B     RTDV4
002E2A                    744 NEWTS  EQU   *
002E2A 7B61 0001          745        AWI   ONE,R3             BUMP THE POINTER
002E2E C2C0               746        MVB   (R3),R2            GET THE BYTE
002E30 6802 2970          747        B     INITA              GO GET THE OVERLAY
002E34                    748 NGOOD  EQU   *
002E34 4724 2E8A          749        MVA   NOGOD,R7           MSG CONTROL BLOCK
002E38 6000               750        SVC   OUT
002E3A 6802 2ACC          751        B     ST12
002E3E 00C0               752        DC    X'00C0'
002E40 2F2A               753 MG6    DC    A(M6)
002E42 1868               754        DC    A(UBUFR)
002E44 0002               755        DC    A(2)
002E46 0001               756        DC    A(1)
002E48 0080               757        DC    X'0080'
002E4A 2F3E               758 MG10   DC    A(M10)
002E4C 0080               759        DC    X'0080'
002E4E 2FE8               760        DC    A(M10A)
002E50 0080               761        DC    X'0080'
002E52 3010               762        DC    A(M10B)
002E54 0080               763        DC    X'0080'
002E56 2FF8               764        DC    A(M10C)
002E58 0080               765        DC    X'0080'
002E5A 2FBA               766        DC    A(M10D)
002E5C 0080               767        DC    X'0080'
002E5E 2FCC               768        DC    A(M10E)
002E60 0080               769        DC    X'0080'
002E62 30FE               770        DC    A(M10F)
002E64 0080               771        DC    X'0080'
002E66 307C               772        DC    A(M10G)
002E68 0080               773        DC    X'0080'
002E6A 30B8               774        DC    A(M10H)
002E6C 0080               775        DC    X'0080'
002E6E 2F5E               776        DC    A(M10I)
002E70 0080               777        DC    X'0080'
002E72 2F70               778        DC    A(M10J)
002E74 0080               779        DC    X'0080'
002E76 2F88               780        DC    A(M10K)
002E78 0080               781        DC    X'0080'
002E7A 2F9E               782        DC    A(M10L)
002E7C 0080               783        DC    X'0080'
002E7E 30E2               784        DC    A(M10M)
002E80 0080               785        DC    X'0080'
002E82 3048               786        DC    A(M10N)
002E84 0080               787        DC    X'0080'
002E86 3056               788        DC    A(M10O)
002E88 00C0               789        DC    X'00C0'
002E8A 2F0E               790 NOGOD  DC    A(NOGOD)
002E8C 0080               791        DC    X'0080'
002E8E 2ED6               792 ALTMG  DC    A(ALT1)
002E90 0080               793        DC    X'0080'
002E92 2EE4               794 RTALT  DC    A(ALT2)
002E94 00C0               795        DC    X'00C0'
002E96 319A               796 WRONG  DC    A(M7D)
002E98 00C0               797        DC    X'00C0'
002E9A 31FC               798 TOOHI  DC    A(M7E)
002E9C 00C0               799        DC    X'00C0'
002E9E 31B2               800 ADLOW  DC    A(LOW)
002EA0 00C0               801        DC    X'00C0'
002EA2 31C6               802 TOBIG  DC    A(TOOOB)
002EA4 00C0               803        DC    X'00C0'
002EA6 306E               804 DUMMY  DC    A(DUM)
002EA8 1868               805        DC    A(UBUFR)
002EAA 0006               806        DC    A(6)
002EAC 0001               807        DC    A(1)
002EAE 00C0               808        DC    X'00C0'
002EB0 313E               809 ASKIT  DC    A(M7)
002EB2 1868               810        DC    A(UBUFR)
002EB4 0001               811        DC    A(1)
002EB6 0000               812        DC    A(0)
002EB8 00C0               813        DC    X'00C0'
002EBA 315E               814 ISTHR  DC    A(M7B)
002EBC 1868               815        DC    A(UBUFR)
002EBE 0001               816        DC    A(1)
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LOCTR  OBJECT TEXT                STMT SOURCE STATEMENT
002EC0 0000                       817        DC    A(0)
002EC2 00C0                       818        DC    X'00C0'
002EC4 3188                       819 WHERE  DC    A(M7C)
002EC6 1898                       820        DC    A(DSTRT)
002EC8 0002                       821        DC    A(2)
002ECA 0001                       822        DC    A(1)
002ECC 00C0                       823        DC    X'00C0'
002ECE 312E                       824 INVMG  DC    A(INMSG)
002ED0 00C0                       825        DC    X'00C0'
002ED2 31D8                       826 NOMOR  DC    A(NOMO)
002ED4 349C                       827        DC    A(CD1C)
002ED6 C1D3E340C3D6D540D          828 ALT1   DC    C'ALT CON OFF'
002EE1 00                         829        DC    X'00'
002EE2 349D                       830        DC    A(CD1D)
002EE4 C1D3E340C3D6D540D          831 ALT2   DC    C'ALT CON ON'
002EEE 00C0                       832        DC    X'00C0'
002EF0 2EFA                       833 WHICH  DC    A(M7A)
002EF2 1868                       834        DC    A(UBUFR)
002EF4 0001                       835        DC    A(1)
002EF6 0001                       836        DC    A(1)
002EF8 34B7                       837        DC    A(CD37)
002EFA E6C8C9C3C840D6D5C          838 M7A    DC    C'WHICH ONE (00-07)'
002F0B 00                         839        DC    X'00'
002F0C 349B                       840        DC    A(CD1B)
002F0E E6D9D6D5C740C3D6D          841 NOOGD  DC    C'WRONG COMMAND START OVER'
002F26 00                         842        DC    X'00'
002F28 349A                       843        DC    A(CD1A)
002F2A C4C5E540C1C4D940C          844 M6     DC    C'DEV ADR DEV TYPE'
002F3A 00                         845        DC    X'00'
002F3C 0000                       846        DC    A(0)
002F3E E2C5D3C5C3E340E3C          847 M10    DC    C'SELECT THE CORRECT OPTION(S)'
002F5A 00                         848        DC    X'00'
002F5C 0000                       849        DC    A(0)
002F5E F0F940E2E3D6D740D          850 M10I   DC    C'09 STOP ON ERR'
002F6C 00                         851        DC    X'00'
002F6E 0000                       852        DC    A(0)
002F70 F0C140E361D6C6C64          853 M10J   DC    C'0A T/OFF STOP ON ERR'
002F84 00                         854        DC    X'00'
002F86 0000                       855        DC    A(0)
002F88 F0C240C2E8D7C1E2E          856 M10K   DC    C'0B BYPASS ERR PRINT'
002F9B 00                         857        DC    X'00'
002F9C 0000                       858        DC    A(0)
002F9E F0C340E361D6C6C64          859 M10L   DC    C'0C T/OFF BYPASS ERR PRINT'
002FB7 00                         860        DC    X'00'
002FB8 0000                       861        DC    A(0)
002FBA F0F4E7E740E2E3D6D          862 M10D   DC    C'04XX STOP DA XX'
002FC9 00                         863        DC    X'00'
002FCA 0000                       864        DC    A(0)
002FCC F0F5E7E740D9C5E3E          865 M10E   DC    C'05XX RETURN DA XX TO TEST'
002FE5 00                         866        DC    X'00'
002FE6 0000                       867        DC    A(0)
002FE8 F0F140E2E3C1D9E34          868 M10A   DC    C'01 START TEST'
002FF5 00                         869        DC    X'00'
002FF6 0000                       870        DC    A(0)
002FF8 F0F340C1C4C440C4C          871 M10C   DC    C'03 ADD DEVICE TO TEST'
00300D 00                         872        DC    X'00'
00300E 0000                       873        DC    A(0)
003010 F0F240E2E3D6D740C          874 M10B   DC    C'02 STOP AFTER EACH PASS (PRESS START KEY TO CONTINUE)'
003045 00                         875        DC    X'00'
003046 0000                       876        DC    A(0)
003048 F0C540E3C5D9D440D          877 M10N   DC    C'0E TERM PGM'
003053 00                         878        DC    X'00'
003054 0000                       879        DC    A(0)
003056 F0C640D4C5D5E440D          880 M10O   DC    C'0F MENU PRINT CONTROL'
00306B 00                         881        DC    X'00'
00306C 3480                       882        DC    A(CD0)
00306E C3D6D4D4C1D5C44DE          883 DUM    DC    C'COMMAND(S)'
003078 00                         884        DC    X'00'
00307A 0000                       885        DC    A(0)
00307C F0F7E7E740D2C5C5D          886 M10G   DC    C'07XX KEEP ON DISKETTE THE TEST CREATED(XX MUST BE 00-07)'
003084 00                         887        DC    X'00'
003086 0000                       888        DC    A(0)
0030B8 F0F8E7E740D3D6C1C          889 M10H   DC    C'08XX LOAD YOUR TEST (XX MUST BE 00-07)'
0030DE 00                         890        DC    X'00'
0030E0 0000                       891        DC    A(0)
0030E2 F0C440D7D9C9D5E34          892 M10M   DC    C'0D PRINT PROGRAM,IDCB,DCB'
0030FB 00                         893        DC    X'00'
0030FC 0000                       894        DC    A(0)
0030FE F0F6E7E7E8E840C3C          895 M10F   DC    C'06XXYY CHANGE DA XX TO YY (SAME DEVICE TYPE)'
00312A 00                         896        DC    X'00'
00312C 349E                       897        DC    A(CD1E)
00312E E6D9D6D5C740C4C5E          898 INMSG  DC    C'WRONG DEVICE'
00313A 00                         899        DC    X'00'
00313C 34B6                       900        DC    A(CD36)
00313E C4D640E8D6E440E6C          901 M7     DC    C'DO YOU WISH TO USE YOUR TEST?'
00315B 00                         902        DC    X'00'
00315C 34B4                       903        DC    A(CD34)
00315E C9E240C140E2D7C5C          904 M7B    DC    C'IS A SPECIFIC STG ADR NEEDED FOR DATA?'
003184 00                         905        DC    X'00'
003186 34B5                       906        DC    A(CD35)
003188 E6C8C1E340C9E240E          907 M7C    DC    C'WHAT IS THE ADR'
003197 00                         908        DC    X'00'
003198 34B8                       909        DC    A(CD38)
00319A C4C1E3C140C1C4D94          910 M7D    DC    C'DATA ADR EXCEEDS STG'
0031AE 00                         911        DC    X'00'
0031B0 3494                       912        DC    A(CD14)
0031B2 C4C1E3C140C1C4D94          913 LOW    DC    C'DATA ADR TOO LOW'
0031C2 00                         914        DC    X'00'
0031C4 3493                       915        DC    A(CD13)
0031C6 E3C5E2E340E3D6D64          916 TOOOB  DC    C'TEST TOO LARGE'
0031D4 00                         917        DC    X'00'
0031D6 34BF                       918        DC    A(CD3F)
0031D8 D7D9D6C7D9C1D440C          919 NOMO   DC    C'PROGRAM AREA FULL,NO MORE ENTRIES'
0031F9 00                         920        DC    X'00'
0031FA 34B9                       921        DC    A(CD39)
0031FC E6D9D6D5C740E3C5E          922 M7E    DC    C'WRONG TEST NUMBER'
00320D 00                         923        DC    X'00'
                                  925        ALIGN WORD
00320E                            926 DCBTB  EQU   *
00320E 00000000000000000          927        DC    64A(*-*)
00328E 00000000000000000          928        DC    64A(*-*)
00330E 00000000000000000          929        DC    64A(*-*)
00338E 00000000000000000          930        DC    64A(*-*)
00340E                            931 INSTR  EQU   *                    THE FOLLOWING AREA IS USED
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TO BUILD THE OIO INSTRUCTIONS

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 LOCTR   OBJECT TEXT          STMT SOURCE STATEMENT
                               932 *
00340E  0000000000000000      933          DC    64A(*-*)
00348E  0000000000000000      934          DC    64A(*-*)
00350E  0000000000000000      935          DC    64A(*-*)
00358E  0000000000000000      936          DC    64A(*-*)
00360E  0000000000000000      937          DC    64A(*-*)
00368E  0000000000000000      938          DC    64A(*-*)
00370E  0000000000000000      939          DC    64A(*-*)
00378E  0000000000000000      940          DC    64A(*-*)
00380E  0000000000000000      941          DC    64A(*-*)
00388E  0000000000000000      942          DC    64A(*-*)
00390E  0000000000000000      943          DC    64A(*-*)
00398E  0000000000000000      944          DC    64A(*-*)
003A0E  0000000000000000      945          DC    64A(*-*)
003A8E  0000000000000000      946          DC    64A(*-*)
003B0E                        947 DATAB    EQU   *
003B0E  0000000000000000      948          DC    64A(*-*)
003B8E  0000000000000000      949          DC    64A(*-*)
000000                        950          END
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R0.       ABSOLUTE. HEX VALUE(00000000)
                    464   505   508   509   510   524   531   572   578
                    607   613   625   645   646   646   647   733   735
       0  .R1.       ABSOLUTE. HEX VALUE(00000001)
                    293   298   298   299   299   303   303   304   304
                    369   370   371   371   532   533   533   534   535
                    535   536   573   575   577   591   592   592   593
                    594   608   610   612   627   628   628   671   672
                    675   676   681   683   685   686   688   690   691
                    693   695   696   698   704   737
       0  .R2.       ABSOLUTE. HEX VALUE(00000002)
                    307   308   309   310   311   324   326   328   329
                    393   397   399   403   403   404   405   406   408
                    465   467   468   482   495   496   504   525   527
                    529   530   592   595   628   629   635   653   654
                    660   661   670   672   676   685   690   695   701
                    704   738   746
       0  .R3.       ABSOLUTE. HEX VALUE(00000003)
                    295   296   297   298   299   300   301   302   303
                    304   394   400   450   453   467   469   470   471
                    478   493   494   499   502   518   521   529   533
                    534   534   535   536   536   567   575   580   587
                    602   610   615   623   631   651   652   653   700
                    701   702   713   722   723   724   731   739   741
                    745   746
       0  .R4.       ABSOLUTE. HEX VALUE(00000004)
                    441   446   452   459   726   729
       0  .R5.       ABSOLUTE. HEX VALUE(00000005)
                    294   297   302   314   314   316   334   334   346
                    346   392   412   414   414   422   426   426   492
                    494   496   666   666   668   702   711   711
       0  .R6.       ABSOLUTE. HEX VALUE(00000006)
                    453   455   456   458   459   460   460   460   460
                    462   473   476   507   509   551   552   555   556
                    559   560   563   564   641   642   723
       0  .R7.       ABSOLUTE. HEX VALUE(00000007)
                    212   213   312   318   322   330   332   339   343
                    344   350   354   356   357   359   365   384   386
                    390   409   411   417   423   424   438   439   442
                    445   448   461   468   480   485   487   488   489
                    506   513   514   515   522   523   538   540   541
                    542   543   568   568   569   579   580   581   583
                    596   603   604   614   615   616   618   622   632
                    632   650   656   662   664   669   673   674   682
                    683   684   687   688   689   692   693   694   697
                    698   699   700   705   709   714   715   718   725
                    732   743   742   749
     800  ADLOW      ADDRESS. HEX LOCATION(00002E9E) IN CSECT(F3420   ) LENGTH(2)
                    359
     255  ALTAS      ADDRESS. HEX LOCATION(000018CE) IN CSECT(F3420   ) LENGTH(1)
                    490   538
     110  ALTDV      ABSOLUTE. HEX VALUE(00000007)
                    488   541
     792  ALTMG      ADDRESS. HEX LOCATION(00002E8E) IN CSECT(F3420   ) LENGTH(2)
                    485
     828  ALT1       ADDRESS. HEX LOCATION(00002ED6) IN CSECT(F3420   ) LENGTH(11)
                    792
     831  ALT2       ADDRESS. HEX LOCATION(00002EE4) IN CSECT(F3420   ) LENGTH(10)
                    794
     809  ASKIT      ADDRESS. HEX LOCATION(00002EB0) IN CSECT(F3420   ) LENGTH(2)
                    318
     206  BYPAD      ADDRESS. HEX LOCATION(0000185E) IN CSECT(F3420   ) LENGTH(1)
                    594
     108  BYPAS      ABSOLUTE. HEX VALUE(00000001)
                    560   564
     202  BYPCD      ADDRESS. HEX LOCATION(0000185C) IN CSECT(F3420   ) LENGTH(4)
                    206   595
     558  BYPEP      ADDRESS. HEX LOCATION(00002C06) IN CSECT(F3420   ) LENGTH(1)
                    197
     121  CD0        ABSOLUTE. HEX VALUE(00003480)
                    882
     124  CD1A       ABSOLUTE. HEX VALUE(0000349A)
                    843
     125  CD1B       ABSOLUTE. HEX VALUE(0000349B)
                    840
     126  CD1C       ABSOLUTE. HEX VALUE(0000349C)
                    827
     127  CD1D       ABSOLUTE. HEX VALUE(0000349D)
                    830
     128  CD1E       ABSOLUTE. HEX VALUE(0000349E)
                    897
     122  CD13       ABSOLUTE. HEX VALUE(00003493)
                    915
     123  CD14       ABSOLUTE. HEX VALUE(00003494)
                    912
     135  CD3F       ABSOLUTE. HEX VALUE(000034BF)
                    918
     129  CD34       ABSOLUTE. HEX VALUE(000034B4)
                    903
     130  CD35       ABSOLUTE. HEX VALUE(000034B5)
                    906
     131  CD36       ABSOLUTE. HEX VALUE(000034B6)
                    900
     132  CD37       ABSOLUTE. HEX VALUE(000034B7)
                    837
     133  CD38       ABSOLUTE. HEX VALUE(000034B8)
                    909
     134  CD39       ABSOLUTE. HEX VALUE(000034B9)
                    921
     721  CHANG      ADDRESS. HEX LOCATION(00002DE6) IN CSECT(F3420   ) LENGTH(1)
                    192
     143  CKPT       ADDRESS. HEX LOCATION(0000180C) IN CSECT(F3420   ) LENGTH(2)
                    141
     216  CMEND      ADDRESS. HEX LOCATION(00001882) IN CSECT(F3420   ) LENGTH(2)
                    510   708   733
     286  CMNDP      ADDRESS. HEX LOCATION(00001916) IN CSECT(F3420   ) LENGTH(1)
                    740
     278  CSDEV      ADDRESS. HEX LOCATION(00001906) IN CSECT(F3420   ) LENGTH(1)
                    210
     248  CVSAV      ADDRESS. HEX LOCATION(000018C0) IN CSECT(F3420   ) LENGTH(2)
                    330   662
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CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
245	CVTYP	ADDRESS. HEX LOCATION(000018BA) IN CSECT(F3420) LENGTH(2) 409
947	DATAB	ADDRESS. HEX LOCATION(00003B0E) IN CSECT(F3420) LENGTH(1) 356 368
150	DCBPT	ADDRESS. HEX LOCATION(0000181A) IN CSECT(F3420) LENGTH(2) 377 692
926	DCBTB	ADDRESS. HEX LOCATION(0000320E) IN CSECT(F3420) LENGTH(1) 377 679 739
60	DCPIN	ABSOLUTE. HEX VALUE(00000234) 487 540
178	DEVC1	ADDRESS. HEX LOCATION(0000182E) IN CSECT(F3420) LENGTH(2) 311 382 393 465 525 573 608 675
59	DKAD	ABSOLUTE. HEX VALUE(00000233) 295
256	DONAS	ADDRESS. HEX LOCATION(000018CF) IN CSECT(F3420) LENGTH(1) 480 589 625
566	DRPDV	ADDRESS. HEX LOCATION(00002C16) IN CSECT(F3420) LENGTH(1) 190
571	DRP0	ADDRESS. HEX LOCATION(00002C28) IN CSECT(F3420) LENGTH(1) 582
574	DRP1	ADDRESS. HEX LOCATION(00002C30) IN CSECT(F3420) LENGTH(1) 578
586	DRP2	ADDRESS. HEX LOCATION(00002C50) IN CSECT(F3420) LENGTH(1) 576
590	DRP3	ADDRESS. HEX LOCATION(00002C5C) IN CSECT(F3420) LENGTH(1) 588
230	DSTRT	ADDRESS. HEX LOCATION(00001898) IN CSECT(F3420) LENGTH(2) 336 357 363 368 373 375 379 680 820
148	DTENT	ADDRESS. HEX LOCATION(00001816) IN CSECT(F3420) LENGTH(2) 379 697
883	DUM	ADDRESS. HEX LOCATION(0000306E) IN CSECT(F3420) LENGTH(10) 804
804	DUMMY	ADDRESS. HEX LOCATION(00002EA6) IN CSECT(F3420) LENGTH(2) 448
160	DVPNT	ADDRESS. HEX LOCATION(0000182C) IN CSECT(F3420) LENGTH(2) 382 408 431
65	ECP05	ABSOLUTE. HEX VALUE(00000258) 309
67	ECP08	ABSOLUTE. HEX VALUE(0000025E) 307
85	EGHTN	ABSOLUTE. HEX VALUE(00000012) 284
76	EIGHT	ABSOLUTE. HEX VALUE(00000008) 399 577 612
183	ENDAD	ADDRESS. HEX LOCATION(0000183A) IN CSECT(F3420) LENGTH(2) 375 376 434
182	EXDAT	ADDRESS. HEX LOCATION(00001838) IN CSECT(F3420) LENGTH(2) 373
113	FF00	ABSOLUTE. HEX VALUE(0000FF00) 469
83	FIFTN	ABSOLUTE. HEX VALUE(0000000F) 456
73	FIVE	ABSOLUTE. HEX VALUE(00000005) 504
82	FORTN	ABSOLUTE. HEX VALUE(0000000E) 282 506
91	FORTY	ABSOLUTE. HEX VALUE(00000028) 328 660
72	FOUR	ABSOLUTE. HEX VALUE(00000004) 445 591 627
137	FREND	ADDRESS. HEX LOCATION(00001800) IN CSECT(F3420) LENGTH(4) 263 290
236	FROVL	ADDRESS. HEX LOCATION(000018AB) IN CSECT(F3420) LENGTH(1) 411
237	FRTYP	ADDRESS. HEX LOCATION(000018AC) IN CSECT(F3420) LENGTH(2) 247
261	FSTSW	ADDRESS. HEX LOCATION(000018D4) IN CSECT(F3420) LENGTH(1) 570 581 605 616
260	FULL	ADDRESS. HEX LOCATION(000018D3) IN CSECT(F3420) LENGTH(1) 384 436
3	F3420	CSECT. START(00001800) LENGTH(9230) ESDID(0) 3
106	HALT1	ABSOLUTE. HEX VALUE(00000000) 213 514 523
157	HEXFF	ADDRESS. HEX LOCATION(00001828) IN CSECT(F3420) LENGTH(1) 436 490 570 589 599 605 637
258	HEX8	ADDRESS. HEX LOCATION(000018D1) IN CSECT(F3420) LENGTH(1) 326 654
48	HTOE	ABSOLUTE. HEX VALUE(0000001A) 331 410 663
254	IDCBS	ADDRESS. HEX LOCATION(000018CC) IN CSECT(F3420) LENGTH(2) 308 380 678 738
146	IDCPT	ADDRESS. HEX LOCATION(00001812) IN CSECT(F3420) LENGTH(2) 380 687
44	IDLE	ABSOLUTE. HEX VALUE(00000002) 475 520
231	INADR	ADDRESS. HEX LOCATION(0000189A) IN CSECT(F3420) LENGTH(2) 293 532
291	INIT	ADDRESS. HEX LOCATION(00002900) IN CSECT(F3420) LENGTH(1) 140
325	INITA	ADDRESS. HEX LOCATION(00002970) IN CSECT(F3420) LENGTH(1) 747
338	INITB	ADDRESS. HEX LOCATION(00002994) IN CSECT(F3420) LENGTH(1) 327 335
898	INMSG	ADDRESS. HEX LOCATION(0000312E) IN CSECT(F3420) LENGTH(12) 824
931	INSTR	ADDRESS. HEX LOCATION(0000340E) IN CSECT(F3420) LENGTH(1) 214 381 511 677 737
57	INTAD	ABSOLUTE. HEX VALUE(00000030) 294 492
282	INTLS	ADDRESS. HEX LOCATION(0000190E) IN CSECT(F3420) LENGTH(1) 180
233	INTOV	ADDRESS. HEX LOCATION(000018A3) IN CSECT(F3420) LENGTH(5) 344 424 709
209	INTR1	ADDRESS. HEX LOCATION(0000186E) IN CSECT(F3420) LENGTH(2) 502
210	INTR2	ADDRESS. HEX LOCATION(00001870) IN CSECT(F3420) LENGTH(2) 499
824	INVMG	ADDRESS. HEX LOCATION(00002ECE) IN CSECT(F3420) LENGTH(2) 417 583 618
814	ISTHR	ADDRESS. HEX LOCATION(00002EBA) IN CSECT(F3420) LENGTH(2)

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		350
204	JINST	ADDRESS. HEX LOCATION(00001864) IN CSECT(F3420) LENGTH(2) 629
154	KEYMD	ADDRESS. HEX LOCATION(00001820) IN CSECT(F3420) LENGTH(2) 378
155	KYMOD	ADDRESS. HEX LOCATION(00001824) IN CSECT(F3420) LENGTH(2) 378
58	LASAD	ABSOLUTE. HEX VALUE(00000230) 305 369
913	LOW	ADDRESS. HEX LOCATION(000031B2) IN CSECT(F3420) LENGTH(16) 800
212	LPIST	ADDRESS. HEX LOCATION(00001874) IN CSECT(F3420) LENGTH(4) 507
730	LSCOA	ADDRESS. HEX LOCATION(00002DFC) IN CSECT(F3420) LENGTH(1) 727
728	LSCOM	ADDRESS. HEX LOCATION(00002DFA) IN CSECT(F3420) LENGTH(1) 199
736	LSCO1	ADDRESS. HEX LOCATION(00002E0E) IN CSECT(F3420) LENGTH(1) 734
640	MENOF	ADDRESS. HEX LOCATION(00002CEE) IN CSECT(F3420) LENGTH(1) 201
758	MG10	ADDRESS. HEX LOCATION(00002E4A) IN CSECT(F3420) LENGTH(2) 442
753	MG6	ADDRESS. HEX LOCATION(00002E40) IN CSECT(F3420) LENGTH(2) 390
203	MKCOD	ADDRESS. HEX LOCATION(00001860) IN CSECT(F3420) LENGTH(4) 292
288	MKINT	ADDRESS. HEX LOCATION(0000191A) IN CSECT(F3420) LENGTH(1) 203
63	MKRET	ABSOLUTE. HEX VALUE(0000024E) 292
102	M1	ABSOLUTE. HEX VALUE(FFFFFFFF) 406 430 455 461 568 603 715
847	M10	ADDRESS. HEX LOCATION(00002F3E) IN CSECT(F3420) LENGTH(28) 758
868	M10A	ADDRESS. HEX LOCATION(00002FE8) IN CSECT(F3420) LENGTH(13) 760
874	M10B	ADDRESS. HEX LOCATION(00003010) IN CSECT(F3420) LENGTH(53) 762
871	M10C	ADDRESS. HEX LOCATION(00002FF8) IN CSECT(F3420) LENGTH(21) 764
862	M10D	ADDRESS. HEX LOCATION(00002FBA) IN CSECT(F3420) LENGTH(15) 766
865	M10E	ADDRESS. HEX LOCATION(00002FCC) IN CSECT(F3420) LENGTH(25) 768
895	M10F	ADDRESS. HEX LOCATION(000030FE) IN CSECT(F3420) LENGTH(44) 770
886	M10G	ADDRESS. HEX LOCATION(0000307C) IN CSECT(F3420) LENGTH(56) 772
889	M10H	ADDRESS. HEX LOCATION(000030B8) IN CSECT(F3420) LENGTH(38) 774
850	M10I	ADDRESS. HEX LOCATION(00002F5E) IN CSECT(F3420) LENGTH(14) 776
853	M10J	ADDRESS. HEX LOCATION(00002F70) IN CSECT(F3420) LENGTH(20) 778
856	M10K	ADDRESS. HEX LOCATION(00002F88) IN CSECT(F3420) LENGTH(19) 780
859	M10L	ADDRESS. HEX LOCATION(00002F9E) IN CSECT(F3420) LENGTH(25) 782
892	M10M	ADDRESS. HEX LOCATION(000030E2) IN CSECT(F3420) LENGTH(25) 784
877	M10N	ADDRESS. HEX LOCATION(00003048) IN CSECT(F3420) LENGTH(11) 786
880	M10O	ADDRESS. HEX LOCATION(00003056) IN CSECT(F3420) LENGTH(21) 788
103	M2	ABSOLUTE. HEX VALUE(FFFFFFFE) 725
844	M6	ADDRESS. HEX LOCATION(00002F2A) IN CSECT(F3420) LENGTH(16) 753
901	M7	ADDRESS. HEX LOCATION(0000313E) IN CSECT(F3420) LENGTH(29) 809
838	M7A	ADDRESS. HEX LOCATION(00002EFA) IN CSECT(F3420) LENGTH(17) 833
904	M7B	ADDRESS. HEX LOCATION(0000315E) IN CSECT(F3420) LENGTH(38) 814
907	M7C	ADDRESS. HEX LOCATION(00003188) IN CSECT(F3420) LENGTH(15) 819
910	M7D	ADDRESS. HEX LOCATION(0000319A) IN CSECT(F3420) LENGTH(20) 796
922	M7E	ADDRESS. HEX LOCATION(000031FC) IN CSECT(F3420) LENGTH(17) 798
104	M8	ABSOLUTE. HEX VALUE(FFFFFFF8) 431
280	NCCD7	ADDRESS. HEX LOCATION(0000190A) IN CSECT(F3420) LENGTH(1) 151
744	NEWTS	ADDRESS. HEX LOCATION(00002E2A) IN CSECT(F3420) LENGTH(1) 194
748	NGOOD	ADDRESS. HEX LOCATION(00002E34) IN CSECT(F3420) LENGTH(1) 457
257	NO	ADDRESS. HEX LOCATION(000018D0) IN CSECT(F3420) LENGTH(1) 320 352
790	NOGOD	ADDRESS. HEX LOCATION(00002E8A) IN CSECT(F3420) LENGTH(2) 749
111	NOMEN	ABSOLUTE. HEX VALUE(0000000F) 439 642
919	NOMO	ADDRESS. HEX LOCATION(000031D8) IN CSECT(F3420) LENGTH(33) 826
826	NOMOR	ADDRESS. HEX LOCATION(00002ED2) IN CSECT(F3420) LENGTH(2) 386
841	NOOGD	ADDRESS. HEX LOCATION(00002F0E) IN CSECT(F3420) LENGTH(24) 790
276	NOTCS	ADDRESS. HEX LOCATION(00001902) IN CSECT(F3420) LENGTH(1) 209
159	NUMDV	ADDRESS. HEX LOCATION(0000182A) IN CSECT(F3420) LENGTH(2) 394 402 430 464 524 572 607 635 673
69	ONE	ABSOLUTE. HEX VALUE(00000001) 246 296 301 402 404 458 482 493 495 567 602 631 651 722 724 729 745
61	OPADR	ABSOLUTE. HEX VALUE(00000240) 300 478 587 623
186	OPTAB	ADDRESS. HEX LOCATION(0000183E) IN CSECT(F3420) LENGTH(1)

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		452
144	OPTN1	ADDRESS. HEX LOCATION(0000180E) IN CSECT(F3420) LENGTH(2)
		212 513 522 548 671
145	OPTN2	ADDRESS. HEX LOCATION(00001810) IN CSECT(F3420) LENGTH(2)
		438 551 555 559 563 641
42	OUT	ABSOLUTE. HEX VALUE(00000000)
		340 360 366 387 418 444 486 544 584
		619 657 719 750
43	OUTIN	ABSOLUTE. HEX VALUE(00000001)
		319 323 351 355 391 449
265	OVLST	ADDRESS. HEX LOCATION(00001902) IN CSECT(F3420) LENGTH(4)
		343 423
264	PID	ADDRESS. HEX LOCATION(00001900) IN CSECT(F3420) LENGTH(2)
		252 276 278 280 282 284 286 288
225	PRADR	ADDRESS. HEX LOCATION(0000188F) IN CSECT(F3420) LENGTH(1)
		471
224	PREPR	ADDRESS. HEX LOCATION(0000188E) IN CSECT(F3420) LENGTH(1)
		477
284	PRINT	ADDRESS. HEX LOCATION(00001912) IN CSECT(F3420) LENGTH(1)
		179
49	READI	ABSOLUTE. HEX VALUE(0000001F)
		313 333 345 413 425 665 710
222	RESET	ADDRESS. HEX LOCATION(0000188B) IN CSECT(F3420) LENGTH(1)
		470
221	RSDEV	ADDRESS. HEX LOCATION(0000188A) IN CSECT(F3420) LENGTH(1)
		472
794	RTALT	ADDRESS. HEX LOCATION(00002E92) IN CSECT(F3420) LENGTH(2)
		543
601	RTDEV	ADDRESS. HEX LOCATION(00002C7C) IN CSECT(F3420) LENGTH(1)
		191
606	RTDV0	ADDRESS. HEX LOCATION(00002C8E) IN CSECT(F3420) LENGTH(1)
		617
609	RTDV1	ADDRESS. HEX LOCATION(00002C96) IN CSECT(F3420) LENGTH(1)
		613
621	RTDV2	ADDRESS. HEX LOCATION(00002CB6) IN CSECT(F3420) LENGTH(1)
		611
626	RTDV3	ADDRESS. HEX LOCATION(00002CC4) IN CSECT(F3420) LENGTH(1)
		624
630	RTDV4	ADDRESS. HEX LOCATION(00002CCE) IN CSECT(F3420) LENGTH(1)
		388 553 557 561 565 597 600 643 648
		716 743
634	RTDV5	ADDRESS. HEX LOCATION(00002CD8) IN CSECT(F3420) LENGTH(1)
		454
227	R3SAV	ADDRESS. HEX LOCATION(00001892) IN CSECT(F3420) LENGTH(2)
		652 713 731 741
228	R5SAV	ADDRESS. HEX LOCATION(00001894) IN CSECT(F3420) LENGTH(2)
		412 422
229	R7SAV	ADDRESS. HEX LOCATION(00001896) IN CSECT(F3420) LENGTH(2)
		569 596 604 622 650 714 732 742
251	SAVOL	ADDRESS. HEX LOCATION(000018C6) IN CSECT(F3420) LENGTH(2)
		705
649	SAVTS	ADDRESS. HEX LOCATION(00002D04) IN CSECT(F3420) LENGTH(1)
		193
659	SAVT1	ADDRESS. HEX LOCATION(00002D22) IN CSECT(F3420) LENGTH(1)
		655
707	SAVT2	ADDRESS. HEX LOCATION(00002DBC) IN CSECT(F3420) LENGTH(1)
		720
717	SAVT3	ADDRESS. HEX LOCATION(00002DDE) IN CSECT(F3420) LENGTH(1)
		703
66	SCHAD	ABSOLUTE. HEX VALUE(0000025C)
		516
75	SEVEN	ABSOLUTE. HEX VALUE(00000007)
		530 579 614
266	SINST	ADDRESS. HEX LOCATION(00001906) IN CSECT(F3420) LENGTH(2)
		670
74	SIX	ABSOLUTE. HEX VALUE(00000006)
		278 370 593
84	SIXTN	ABSOLUTE. HEX VALUE(00000010)
		441
107	SM	ABSOLUTE. HEX VALUE(00000001)
		537
342	STA	ADDRESS. HEX LOCATION(0000299E) IN CSECT(F3420) LENGTH(1)
		337
349	STAA	ADDRESS. HEX LOCATION(000029B0) IN CSECT(F3420) LENGTH(1)
		317 321
362	STAB	ADDRESS. HEX LOCATION(000029D6) IN CSECT(F3420) LENGTH(1)
		358
105	STERR	ABSOLUTE. HEX VALUE(00000000)
		552 556
217	STGND	ADDRESS. HEX LOCATION(00001884) IN CSECT(F3420) LENGTH(2)
		305 363
100	STH68	ABSOLUTE. HEX VALUE(00001C00)
		473 518
259	STIND	ADDRESS. HEX LOCATION(000018D2) IN CSECT(F3420) LENGTH(1)
		515 599 637
211	STIST	ADDRESS. HEX LOCATION(00001872) IN CSECT(F3420) LENGTH(2)
		646
644	STLOP	ADDRESS. HEX LOCATION(00002CF6) IN CSECT(F3420) LENGTH(1)
		188
550	STNER	ADDRESS. HEX LOCATION(00002BF6) IN CSECT(F3420) LENGTH(1)
		195
64	STOP	ABSOLUTE. HEX VALUE(00000250)
		306
109	STOP1	ABSOLUTE. HEX VALUE(00000006)
		489 542
598	STRTA	ADDRESS. HEX LOCATION(00002C74) IN CSECT(F3420) LENGTH(1)
		187
147	STRTB	ADDRESS. HEX LOCATION(00001814) IN CSECT(F3420) LENGTH(2)
		381 421 428 434 508 645 647 682 708
		735
184	STSAV	ADDRESS. HEX LOCATION(0000183C) IN CSECT(F3420) LENGTH(2)
		421 428
367	ST1A	ADDRESS. HEX LOCATION(000029E4) IN CSECT(F3420) LENGTH(1)
		353 361
374	ST1C	ADDRESS. HEX LOCATION(000029FA) IN CSECT(F3420) LENGTH(1)
		364 372
420	ST10	ADDRESS. HEX LOCATION(00002A90) IN CSECT(F3420) LENGTH(1)
		415
433	ST11	ADDRESS. HEX LOCATION(00002ABE) IN CSECT(F3420) LENGTH(1)
		429
437	ST12	ADDRESS. HEX LOCATION(00002ACC) IN CSECT(F3420) LENGTH(1)

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		341 348 432 435 546 585 620 636 639
		658 751
443	ST13	ADDRESS. HEX LOCATION(00002ADC) IN CSECT(F3420) LENGTH(1)
		446
447	ST13A	ADDRESS. HEX LOCATION(00002AE4) IN CSECT(F3420) LENGTH(1)
		440
451	ST14	ADDRESS. HEX LOCATION(00002AEE) IN CSECT(F3420) LENGTH(1)
		633
463	ST14A	ADDRESS. HEX LOCATION(00002B12) IN CSECT(F3420) LENGTH(1)
		181 638
466	ST15	ADDRESS. HEX LOCATION(00002B1A) IN CSECT(F3420) LENGTH(1)
		505
491	ST15A	ADDRESS. HEX LOCATION(00002B60) IN CSECT(F3420) LENGTH(1)
		479
501	ST15B	ADDRESS. HEX LOCATION(00002B78) IN CSECT(F3420) LENGTH(1)
		497 498
474	ST150	ADDRESS. HEX LOCATION(00002B32) IN CSECT(F3420) LENGTH(1)
		476
503	ST16	ADDRESS. HEX LOCATION(00002B7C) IN CSECT(F3420) LENGTH(1)
		483 500
383	ST2	ADDRESS. HEX LOCATION(00002A2A) IN CSECT(F3420) LENGTH(1)
		189
396	ST2A	ADDRESS. HEX LOCATION(00002A4E) IN CSECT(F3420) LENGTH(1)
		400
389	ST2AA	ADDRESS. HEX LOCATION(00002A3A) IN CSECT(F3420) LENGTH(1)
		385 419
512	ST20	ADDRESS. HEX LOCATION(00002B96) IN CSECT(F3420) LENGTH(1)
		306
517	ST21	ADDRESS. HEX LOCATION(00002BA4) IN CSECT(F3420) LENGTH(1)
		215
519	ST21A	ADDRESS. HEX LOCATION(00002BA8) IN CSECT(F3420) LENGTH(1)
		521
526	ST22	ADDRESS. HEX LOCATION(00002BBA) IN CSECT(F3420) LENGTH(1)
		531
545	ST24	ADDRESS. HEX LOCATION(00002BEC) IN CSECT(F3420) LENGTH(1)
		539
401	ST3	ADDRESS. HEX LOCATION(00002A5A) IN CSECT(F3420) LENGTH(1)
		395
407	ST4	ADDRESS. HEX LOCATION(00002A70) IN CSECT(F3420) LENGTH(1)
		398
416	ST6	ADDRESS. HEX LOCATION(00002A88) IN CSECT(F3420) LENGTH(1)
		315 347 427 667 712
240	SVADR	ADDRESS. HEX LOCATION(000018B2) IN CSECT(F3420) LENGTH(1)
		249 329 661
241	SVOVL	ADDRESS. HEX LOCATION(000018B3) IN CSECT(F3420) LENGTH(1)
		312 332 664
242	SVOV1	ADDRESS. HEX LOCATION(000018B4) IN CSECT(F3420) LENGTH(2)
		251
243	SVOV2	ADDRESS. HEX LOCATION(000018B6) IN CSECT(F3420) LENGTH(2)
		250
267	SVTS1	ADDRESS. HEX LOCATION(00001908) IN CSECT(F3420) LENGTH(2)
		316 677 681
268	SVTS2	ADDRESS. HEX LOCATION(0000190A) IN CSECT(F3420) LENGTH(2)
		684
269	SVTS3	ADDRESS. HEX LOCATION(0000190C) IN CSECT(F3420) LENGTH(2)
		678 686
270	SVTS4	ADDRESS. HEX LOCATION(0000190E) IN CSECT(F3420) LENGTH(2)
		689
271	SVTS5	ADDRESS. HEX LOCATION(00001910) IN CSECT(F3420) LENGTH(2)
		679 691
272	SVTS6	ADDRESS. HEX LOCATION(00001912) IN CSECT(F3420) LENGTH(2)
		694
273	SVTS7	ADDRESS. HEX LOCATION(00001914) IN CSECT(F3420) LENGTH(2)
		336 680 696
274	SVTS8	ADDRESS. HEX LOCATION(00001916) IN CSECT(F3420) LENGTH(2)
		699
484	S15	ADDRESS. HEX LOCATION(00002B4C) IN CSECT(F3420) LENGTH(1)
		481
78	TEN	ABSOLUTE. HEX VALUE(0000000A)
		280
46	TERM	ABSOLUTE. HEX VALUE(00000007)
		549
547	TERMN	ADDRESS. HEX LOCATION(00002BF0) IN CSECT(F3420) LENGTH(1)
		200
90	THIR4	ABSOLUTE. HEX VALUE(00000022)
		669
71	THREE	ABSOLUTE. HEX VALUE(00000003)
		674
802	TOBIG	ADDRESS. HEX LOCATION(00002EA2) IN CSECT(F3420) LENGTH(2)
		718
798	TOOHI	ADDRESS. HEX LOCATION(00002E9A) IN CSECT(F3420) LENGTH(2)
		339 656
916	TOOOB	ADDRESS. HEX LOCATION(000031C6) IN CSECT(F3420) LENGTH(14)
		802
86	TWEN2	ABSOLUTE. HEX VALUE(00000016)
		286
87	TWEN6	ABSOLUTE. HEX VALUE(0000001A)
		288
70	TWO	ABSOLUTE. HEX VALUE(00000002)
		204 205 206 276 310
98	TWO56	ABSOLUTE. HEX VALUE(00000100)
		376
101	TW8HN	ABSOLUTE. HEX VALUE(00002800)
		668
208	UBUFR	ADDRESS. HEX LOCATION(00001868) IN CSECT(F3420) LENGTH(2)
		246 320 324 352 392 397 403 450 754
		805 810 815 834
562	UNBYP	ADDRESS. HEX LOCATION(00002C0E) IN CSECT(F3420) LENGTH(1)
		198
218	UNPRE	ADDRESS. HEX LOCATION(00001886) IN CSECT(F3420) LENGTH(1)
		528
219	UNPRP	ADDRESS. HEX LOCATION(00001887) IN CSECT(F3420) LENGTH(1)
		527
554	UNSTP	ADDRESS. HEX LOCATION(00002BFE) IN CSECT(F3420) LENGTH(1)
		196
819	WHERE	ADDRESS. HEX LOCATION(00002EC4) IN CSECT(F3420) LENGTH(2)
		354
833	WHICH	ADDRESS. HEX LOCATION(00002EF0) IN CSECT(F3420) LENGTH(2)
		322
50	WRITI	ABSOLUTE. HEX VALUE(00000020)
		706

CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
   796    WRONG       ADDRESS. HEX LOCATION(00002E96) IN CSECT(F3420   ) LENGTH(2)
                      365
   158    ZEROS       ADDRESS. HEX LOCATION(00001829) IN CSECT(F3420   ) LENGTH(1)
                      405   726
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001900                       3 03421 START X'1900'
                             4 ************************************************************************
                             5 *                                                                      *
                             6 *                    ***       PREREQUISITES        ***               *
                             7 *                                                                      *
                             8 *                              NONE                                    *
                             9 *                                                                      *
                            10 ************************************************************************
                            11 *                                                                      *
                            12 *                    ***       MODIFICATIONS        ***               *
                            13 *                                                                      *
                            14 *                    1. MODIFICATIONS TO SUPPORT SENSOR I/O.           *
                            15 *                                                                      *
                            16 ************************************************************************
                            17 *                                                                      *
                            18 *                    ***     REA'S INCORPORATED     ***               *
                            19 *                                                                      *
                            20 *                              NONE                                    *
                            21 *                                                                      *
                            22 ************************************************************************
                            23 *                                                                      *
                            24 *                    ***    SPECIAL INSTRUCTIONS    ***               *
                            25 *                                                                      *
                            26 *                              NONE                                    *
                            27 *                                                                      *
                            28 ************************************************************************
                            29 *                                                                      *
                            30 *                    ***       E. C. HISTORY        ***               *
                            31 *                                                                      *
                            32 *          DATE 06MAY77  DATE 15SEP77  DATE          DATE              *
                            33 *          E.C. 578756   E.C. 754882   E.C.          E.C.              *
                            34 *                                                                      *
                            35 ************************************************************************
                            37 ************************************************************************
                            38 *                                                                      *
                            39 *      EQUATED NAMES FOR SUPPORTED SVC'S                               *
                            40 *                                                                      *
                            41 ************************************************************************
000000                      42 OUT   EQU   0                    OUT SVC
000001                      43 OUTIN EQU   1                    OUTIN SVC
000002                      44 IDLE  EQU   2                    IDLE SVC
000004                      45 CHNGE EQU   4                    CHANGE SVC
000007                      46 TERM  EQU   7                    TERMINATE SVC
00001A                      47 HTOE  EQU   26                   HEX TO EBCDIC
                            49 ************************************************************************
                            50 *                                                                      *
                            51 *      EQUATES FOR CODED STOPS USED BY THIS UTILITY MONITOR            *
                            52 *           (NORMAL AND ERROR)                                         *
                            53 *                                                                      *
                            54 ************************************************************************
00348F                      55 CDF   EQU   X'348F'              COMMANDS FOR PROGRAM PRINT
003495                      56 CD15  EQU   X'3495'              LOOP ON MCK,PCK,PTW
003497                      57 CD17  EQU   X'3497'              LOST INTERRUPT
003498                      58 CD18  EQU   X'3498'              WRONG CONDITION CODE RECEIVED
003499                      59 CD19  EQU   X'3499'              UNEXPECTED INTERRUPT
00349E                      60 CD1E  EQU   X'349E'              INVALID DEVICE
00349F                      61 CD1F  EQU   X'349F'              DID NOT REC CC 7 ON OIO INSTR
0034A0                      62 CD20  EQU   X'34A0'              READ I.D. MISMATCH
0034C0                      63 CD40  EQU   X'34C0'              LOST INTERRUPT ON CYCLE STEAL
0034C4                      64 CD44  EQU   X'34C4'              STOPPED ON AN ERROR
0034CA                      65 CD4A  EQU   X'34CA'              SENSOR I/O TIMED OUT
                            67 ************************************************************************
                            68 *                                                                      *
                            69 *      EQUATE TABLE                                                    *
                            70 *                                                                      *
                            71 ************************************************************************
00001E                      72 CONEP EQU   X'001E'              CONSOLE INTERRUPT SIA
00180E                      73 OPTN1 EQU   X'180E'              OPTION WORD 1 ADDRESS
001810                      74 OPTN2 EQU   X'1810'              OPTION WORD 2 ADDRESS
001812                      75 IDCPT EQU   X'1812'              POINTER TO IDCB BUILD AREA
001814                      76 STRTB EQU   X'1814'              POINTER TO I STREAM BUILD AREA
001816                      77 DTENT EQU   X'1816'              POINTER TO DATA BUILD AREA
001818                      78 DVCNT EQU   X'1818'              POINTER TO DEVICE UNDER TEST
00181A                      79 DCBPT EQU   X'181A'              POINTER TO DCB BUILD AREA
00181C                      80 BADCC EQU   X'181C'              POINTER TO BAD CODE ROUTINE
00181E                      81 KMODE EQU   X'181E'              POINTER TO DEVICE KEYING IN
00181F                      82 LPIND EQU   X'181F'              LOOP INDICATOR
001820                      83 KEYMD EQU   X'1820'              ADDRESS OF DEVICES KEYING
001824                      84 KYMOD EQU   X'1824'              INDICATOR A DEVICE IS KEYING IN
001826                      85 LOOPS EQU   X'1826'              ADDRESS OF LOOP START
001828                      86 HEXFF EQU   X'1828'
001829                      87 ZEROS EQU   X'1829'
00182A                      88 NUMDV EQU   X'182A'
00182C                      89 DVPNT EQU   X'182C'
00182E                      90 DEVC1 EQU   X'182E'
001834                      91 RETMK EQU   X'1834'
000001                      93 SM    EQU   1                    ENABLE SUMMARY MASK
000000                      94 ZERO  EQU   0                    VALUE OF 0
000001                      95 ONE   EQU   1                              1
000002                      96 TWO   EQU   2                              2
000003                      97 THREE EQU   3                              3
000004                      98 FOUR  EQU   4                              4
000005                      99 FIVE  EQU   5                              5
000006                     100 SIX   EQU   6                              6
000007                     101 SEVEN EQU   7                              7
000008                     102 EIGHT EQU   8                              8
00000A                     103 TEN   EQU   10                             10
00000B                     104 ELEVN EQU   11                             11
00000C                     105 TWELV EQU   12                             12
00000D                     106 THRTN EQU   13                             13
00000E                     107 FORTN EQU   14                             14
00000F                     108 FIFTN EQU   15                             15
000010                     109 SIXTN EQU   16                             16
000011                     110 SVNTN EQU   17                             17
000012                     111 EIGTN EQU   18                             18
000016                     112 TWEN2 EQU   22                             22
00001A                     113 TWEN6 EQU   26                             26
00001B                     114 TWEN7 EQU   27                             27
000020                     115 THIR6 EQU   32                             32
000028                     116 FORTY EQU   40                             40
00002A                     117 FORT2 EQU   42                             42
00002B                     118 FORT3 EQU   43                             43
000036                     119 FIFT4 EQU   54                             54
00003C                     120 SIXTY EQU   60                             60
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00003F                     121 SIXT3 EQU   63                             63
000040                     122 SIXT4 EQU   64                             64
000041                     123 SIXT5 EQU   65                             65
00007F                     124 ONE27 EQU   127                            127
000080                     125 ONE28 EQU   128                            128
000084                     126 ONE32 EQU   132                            132
000100                     127 TWO56 EQU   256                            256
000400                     128 OTH24 EQU   1024                           1024
004000                     129 SXTNK EQU   16384                          16384
FFFFFF                     130 M1    EQU   -1                           -1
FFFFFE                     131 M2    EQU   -2                           -2
FFFFFC                     132 M4    EQU   -4                           -4
FFFFF6                     133 M10   EQU   -10                          -10
FFFFF4                     134 M12   EQU   -12                          -12
FFFFEC                     135 M20   EQU   -20                          -20
000000                     136 STERR EQU   0
000001                     137 BYPAS EQU   1
000002                     138 INERR EQU   2
000008                     139 UXERR EQU   8
000009                     140 IOERR EQU   9
00000A                     141 CCERR EQU   10
00000E                     142 LOPMK EQU   14
001900 3421                143 PID   DC    X'3421'                PROGRAM I.D.
001902 6802 1C0C           145 NOTCS B     NOTC
001906 6802 1CB0           146 CSDEV B     CSDV
00190A 6802 1D68           147 NCC7D B     NCC7
00190E 6802 1DF2           148 INTLS B     INTL
001912 6802 1E5A           149 PRINT B     PRNT
001916 6802 234A           150 CMNDP B     COM00
00191A 6802 2874           151 MKRTN B     MKRTN
00191E 50                  152 TWDCB DC    X'50'                  TTY WRITE COMMAND
00191F 00                  153 TWADR DC    X'00'
001920 00                  154       DC    X'00'
001921 00                  155 TDCBW DC    X'00'
001922 10                  156 RIDCB DC    X'10'                  TTY READ COMMAND
001923 00                  157 RIDC1 DC    X'00'
001924 00                  158 RIDC2 DC    X'00'
001925 00                  159 RIDC3 DC    X'00'
001926 0D25                160 CRLF  DC    X'0D25'
001928 0000                161 RETSV DC    A(*-*)
00192A 0000                162 ERRAD DC    A(*-*)
00192C 0001                163 CADR1 DC    A(1)
00192E 192B                164       DC    A(ERRAD+ONE)
001930 1A57                165       DC    A(CCMG4)
001932 0001                166 CADR3 DC    A(1)
001934 192B                167       DC    A(ERRAD+ONE)
001936 1ABB                168       DC    A(CCMGA)
001938 0001                169 CVEX1 DC    A(1)
00193A 1B2D                170       DC    A(EXPCC)
00193C 1A36                171       DC    A(CCMG2)
00193E 0001                172 CVRC1 DC    A(1)
001940 19F9                173       DC    A(CCREC)
001942 1A48                174       DC    A(CCMG3)
001944 0001                175 CVRC3 DC    A(1)
001946 19F9                176       DC    A(CCREC)
001948 1AC1                177       DC    A(CCMGB)
00194A 0001                178 CVADR DC    A(1)
00194C 1B2C                179       DC    A(LSTAD)
00194E 1B17                180       DC    A(LSTM1)
001950 0002                181 CVDB1 DC    A(2)
001952 0000                182 CVDB2 DC    A(*-*)
001954 198B                183       DC    A(DBMG2)
001956 0002                184 CVDB4 DC    A(2)
001958 0000                185 CVDB5 DC    A(*-*)
00195A 1990                186       DC    A(DBMG3)
00195C 0002                187 CVDB6 DC    A(2)
00195E 1A0A                188 CVDB7 DC    A(ADFLD)
001960 1A57                189       DC    A(CCMG4)
001962 0002                190 CV1OP DC    A(2)
001964 1A0C                191 CV2OP DC    A(OP1FL)
001966 19BE                192 CV3OP DC    A(PRT06)
001968 0002                193 CVCS5 DC    A(2)
00196A 1BEC                194 CVCS1 DC    A(CSSDT)
00196C 19B8                195 CVCS2 DC    A(TNIRP)
00196E 0002                196 CVISB DC    A(2)
001970 192A                197       DC    A(ERRAD)
001972 199C                198       DC    A(DBMG4)
001974 0001                199 CVLST DC    A(1)
001976 19B8                200       DC    A(TNIRP)
001978 1A97                201       DC    A(LOST1)
00197A 0001                202 TIMOT DC    A(1)
00197C 1B2C                203       DC    A(LSTAD)
00197E 1B29                204       DC    A(TIMAD)
001980 0080                205       DC    X'0080'
001982 1986                206 DCBMG DC    A(DBMG1)
001984 0000                207       DC    A(0)
001986 C9C4C3C27E          208 DBMG1 DC    C'IDCB='
00198B E7E7E7E740          209 DBMG2 DC    C'XXXX '
001990 E7E7E7E740404040C   210 DBMG3 DC    C'XXXX    ISB='
00199C E7E7E7E7            211 DBMG4 DC    C'XXXX'
0019A0 0080                212       DC    X'0080'
0019A2 19A6                213 DCMSG DC    A(DCMG)
0019A4 0000                214       DC    A(0)
0019A6 C1C4D9404040C4C3C   215 DCMG  DC    C'ADR   DCB''S'
0019B1 00                  216       DC    X'00'
0019B2 0080                217       DC    X'0080'
0019B4 19B8                218 PRTLN DC    A(TNIRP)
0019B6 0000                219       DC    A(0)
0019B8 404040404040        220 TNIRP DC    C'      '
0019BE 40404040            221 PRT06 DC    C'    '
0019C2 4040404040          222 PRT10 DC    C'  '
0019C7 40404040            223 PRT12 DC    C'  '
0019C8 4040                224 PRT16 DC    C' '
0019CA 4040404040404040    225 PRT18 DC    C'        '
0019D0 4040404040404040    226 PRT24 DC    C'        '
0019D6 4040404040404040    227 PRT30 DC    C'        '
0019DC 4040404040404040    228 PRT36 DC    C'        '
0019E2 4040404040404040    229 PRT42 DC    C'        '
0019E8 4040404040404040    230 PRT48 DC    C'        '
0019EE 40404040404040404   231 PRT54 DC    C'        '
0019F8 00                  232       DC    X'00'
0019F9 00                  233 CCREC DC    X'00'
0019FA 0000                234 CONSV DC    A(*-*)
0019FC 0000                235 ROMSG DC    A(*-*)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

0019FE  0000               236 ROSAV DC    A(*-*)
001A00  0000               237 R1SAV DC    A(*-*)
001A02  0000               238 R2SAV DC    A(*-*)
001A04  0000               239 R3SAV DC    A(*-*)
001A06  0000               240 R4SAV DC    A(*-*)
001A08  0000               241 R7SAV DC    A(*-*)
001A0A  0000               242 ADFLD DC    A(*-*)
001A0C  0000               243 OP1FL DC    A(*-*)
001A0E  0000               244 OP2FL DC    A(*-*)
001A10  0000               245 OP3FL DC    A(*-*)
001A12  0000               246 OP4FL DC    A(*-*)
001A14  0000               247 OP5FL DC    A(*-*)
001A16  0000               248 OP6FL DC    A(*-*)
001A18  0000               249 OP7FL DC    A(*-*)
001A1A  0000               250 OP8FL DC    A(*-*)
001A1C  00C0               251       DC    X'00C0'
001A1E  1B1C               252 TIMEM DC    A(TIME1)
001A20  00C0               253       DC    X'00C0'
001A22  1A2A               254 CCMSG DC    A(CCMG1)
001A24  00C0               255       DC    X'00C0'
001A26  1A9C               256 UXIMG DC    A(CCMG9)
001A28  3498               257       DC    A(CD18)
001A2A  C5E7D7C5C3E3C5C44  258 CCMG1 DC    C'EXPECTED CC '
001A36  E7E740404040D9C5C  259 CCMG2 DC    C'XX    RECEIVED CC '
001A48  E7E740404040C9C4C  260 CCMG3 DC    C'XX    IDCB ADR='
001A57  E7E7E7E7           261 CCMG4 DC    C'XXXX'
001A5B  00                 262       DC    X'00'
001A5C  00C0               263       DC    X'00C0'
001A5E  1A62               264 CLOST DC    A(LOSTC)
001A60  34C0               265       DC    A(CD40)
001A62  D3D6E2E340C9D5E3C  266 LOSTC DC    C'LOST INTERRUPT WHILE TRYING TO CYCLE STEAL STATUS DA='
001A97  E7E7               267 LOST1 DC    C'XX'
001A99  00                 268       DC    X'00'
001A9A  3499               269       DC    A(CD19)
001A9C  D5D6E340C5E7D7C5C  270 CCMG9 DC    C'NOT EXPECTED INTERRUPT FROM DA '
001ABB  E7E740C3C37E       271 CCMGA DC    C'XX CC='
001AC1  E7E7               272 CCMGB DC    C'XX'
001AC3  00                 273       DC    X'00'
001AC4  349F               274       DC    A(CD1F)
001AC6  C5E7D7C5C3E3C5C44  275 NOT7  DC    C'EXPECTED CC 07,RECEIVED CC '
001AE1  404040D6D6D540     276 NOT7A DC    C'  ON '
001AE7  4040404040404040404 277 NOT7B DC    C'          TO DA '
001AF7  4040               278 NOT7C DC    C'  '
001AF9  00                 279       DC    X'00'
                           280       ALIGN WORD
001AFA  00C0               281       DC    X'00C0'
001AFC  1B00               282 LSTMG DC    A(LTMSG)
001AFE  3497               283       DC    A(CD17)
001B00  D3D6E2E340C9D5E3C  284 LTMSG DC    C'LOST INTERRUPT FROM DA '
001B17  E7E7               285 LSTM1 DC    C'XX'
001B19  00                 286       DC    X'00'
001B1A  34CA               287       DC    A(CD4A)
001B1C  E3C9D4C5C440D6E4E  288 TIME1 DC    C'TIMED OUT DA '
001B29  E7E7               289 TIMAD DC    C'XX'
001B2B  00                 290       DC    X'00'
001B2C  00                 291 LSTAD DC    X'00'
001B2D  00                 292 EXPCC DC    X'00'
                           293       ALIGN WORD
001B2E  0080               294       DC    X'0080'
001B30  1B34               295 CSMG1 DC    A(CMG2)
001B32  0000               296       DC    A(0)
001B34  D9E2C1C440C3E2F0F  297 CMG2  DC    C'RSAD CS02 CS03 CS04 CS05 CS06 CS07 CS08'
001B5B  40C3E2F0F940C3E2F  298       DC    C' CS09 CS10 CS11 CS12 CS13'
001B74  00                 299       DC    X'00'
001B75  80                 300       DC    X'80'
001B76  19B8               301 CSMG3 DC    A(TNIRP)
001B78  00C0               302       DC    X'00C0'
001B7A  1AC6               303 NOT7M DC    A(NOT7)
001B7C  4040D7D9C5D7C1D9C  304 PREPA DC    C'  PREPARE '
001B86  4040D9C5C1C440C9C  305 REDMG DC    C'  READ ID '
001B90  4040D9C5E2C5E3404  306 RESMG DC    C'  RESET   '
001B9A  4040E6D9C9E3C5404  307 WRITE DC    C'  WRITE   '
001BA4  4040D9C5C1C440404  308 READT DC    C'  READ    '
001BAE  E2E3C1D9E340C3E2E  309 STARC DC    C'START CSS '
001BB8  E2E3C1D9E340C961D  310 STARI DC    C'START I/O '
001BC2  0000               311 LSR   DC    A(*-*)
001BC4  60                 312 PRPCD DC    X'60'
001BC5  20                 313 RIDCD DC    X'20'
001BC6  6F                 314 RSTCD DC    X'6F'
001BC7  50                 315 W7OFC DC    X'50'
001BC8  10                 316 R7OFC DC    X'10'
001BC9  7F                 317 SSSCD DC    X'7F'
001BCA  70                 318 SIOCD DC    X'70'
001BCB  00                 319 XPIND DC    X'00'
001BCC  0001               320 CCLSR DC    A(1)
001BCE  1BC2               321       DC    A(LSR)
001BD0  1AE1               322       DC    A(NOT7A)
001BD2  0001               323 CVTAD DC    A(1)
001BD4  1BC2               324       DC    A(LSR)
001BD6  1AF7               325       DC    A(NOT7C)
001BD8  7F00               326 CSSIO DC    X'7F00'
001BDA  1BDC               327       DC    A(CSSDC)
001BDC  2000               328 CSSDC DC    X'2000'
001BDE  0000000000000000   329       DC    5A(0)
001BE8  0000               330 BYCNT DC    A(0)
001BEA  1BEC               331       DC    A(CSSDT)
001BEC  0000000000000000   332 CSSDT DC    13A(0)
001C06  00                 333 RECCS DC    X'00'
001C07  00                 334 DVTYP DC    X'00'
001C08  00                 335 NOCSS DC    X'00'
001C09  03                 336 HEX03 DC    X'03'
001C0A  04                 337 HEX04 DC    X'04'
001C0B  07                 338 HEX07 DC    X'07'
                           339       ALIGN WORD
                           341 ********************************************************************
                           342 *                                                                  *
                           343 *     THE FOLLOWING ROUTINE HANDLES INTERRUPTS FROM NON-CSS DEVICES *
                           344 *                                                                  *
                           345 ********************************************************************
001C0C                     347 NOTC  EQU   *
001C0C  6201               348       EN    SM
001C0E  700E               349       CPLSR R0                    GET THE INTERRUPT LEVEL
001C10  6908 182A          350       MVW   NUMDV,R1              GET THE NUMBER OF DEVICES
001C14  C220 181E          351       MVB   KMODE,R2              IS THERE DEVICES KEYING IN DATA
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

001C18  1007               352       JZ    TT55                  J-NO
001C1A  4224 1820          353       MVWI  KEYMD,R2              ADR OF THE DEVICES TO KEY IN DATA
001C1E                     354 TT50  EQU   *
001C1E  C784               355       CB    (R2),R7               IS THIS A DEVICE KEYING IN DATA
001C20  1018               356       JE    TT60                  J-YES
001C22  7A41 0008          357       AWI   EIGHT,R2              BUMP THE POINTER
001C26  B9FB               358       JCT   TT50,R1               GO CHECK THE NEXT ADR
001C28                     359 TT55  EQU   *
001C28  4224 182E          360       MVWI  DEVC1,R2              DEVICE TABLE
001C2C  CA80               361       MVW   (R2),R2               GET THE REAL ADDRESS
001C2E                     362 TT56  EQU   *
001C2E  C794               363       CB    (R2)+,R7              IS THIS THE INTERRUPTING DEVICE
001C30  1004               364       JE    TT58                  J-YES
001C32                     365 TT566 EQU   *
001C32  7A41 0007          366       AWI   SEVEN,R2              BUMP THE POINTER
001C36  B9FB               367       JCT   TT56,R1               TRY THE NEXT DEVICE
001C38                     368 TT57  EQU   *
001C38  5071               369       J     UEXIO
001C3A                     370 TT58  EQU   *
001C3A  4A80               371       TBTR  (R2,ZERO)             THIS DEVICE EXPECTING TO INTERRUPT
001C3C  10FA               372       JZ    TT566
001C3E  306A               373       SRL   THRTN,R0              POSITION THE CONDITION CODE
001C40  C024 1C09          374       CB    HEX03,R0              WAS IT CC 3
001C44  1006               375       JE    TT60                  J-YES
001C46  C024 1C0A          376       CB    HEX04,R0              CC 4 ?
001C4A  1004               377       JE    TT80                  J-YES
001C4C  C024 1C0B          378       CB    HEX07,R0              CC 7 ?
001C50  181E               379       JNE   TTYNG                 J-NO
001C52                     380 TT60  EQU   *
001C52  6100               381       LEX   ZERO
001C54                     382 TT80  EQU   *
001C54  4A10               383       TBT   (R2,SIXTN)            IS THIS A SENSOR I/O
001C56  12FD               384       JON   TT60                  J-YES
001C58  C728 1923          385       MVB   R7,RIDC1              ADR OF DEVICE
001C5C  680C 1922          386       IO    RIDCB                 READ THE CHARACTER
001C60  6F05 1C7A          387       BNCC  SEVEN,TT100           B-NOT GOOD CONDITION CODE
001C64                     388 TT90  EQU   *
001C64  C125 1824          389       MVBZ  KYMOD,R1              CLEAR THE IND
001C68  C728 191F          390       MVB   R7,TWADR              ADR OF THE DEVICE TO WRITE
001C6C  8028 1925 1921     391       MVB   RIDC3,TDCBW           DATA TO WRITE
001C72  680C 191E          392       IO    TWDCB                 ISSUE READ COMMAND
001C76  6F04 1C52          393       BCC   SEVEN,TT60            BR/RETURN ON GOOD COND
001C7A                     394 TT100 EQU   *
001C7A  700E               395       CPLSR R0                    GET THE LSR
001C7C  4224 1810          396       MVWI  OPTN2,R2              ADR OF OPTION BITS
001C80  4A4A               397       TBTS  (R2,IOERR)            SET THE INDICATOR
001C82  8028 1C0B 1B2D     398       MVB   HEX07,EXPCC           SAVE THE EXPECTED CC
001C88  4124 0001          399       MVWI  ONE,R1                ERROR TYPE INDICATOR
001C8C  5008               400       J     TTYNO                 RETURN
001C8E                     401 TTYNG EQU   *
001C8E  4224 1810          402       MVWI  OPTN2,R2              ADR OF OPTION BITS
001C92  4A4A               403       TBTS  (R2,CCERR)            TYPE OF ERROR
001C94  8028 1C09 1B2D     404       MVB   HEX03,EXPCC           SAVE THE EXPECTED CC
001C9A  4124 0002          405       MVWI  TWO,R1                ERROR TYPE INDICATOR
001C9E                     406 TTYNO EQU   *
001C9E  4A42               407       TBTS  (R2,INERR)            IND AN ERROR RECEIVED
001CA0  6F0D 192A          408       MVW   R7,ERRAD              SAVE THE DEV ADR
001CA4  306A               409       SRL   THRTN,R0              POSITION THE BITS
001CA6  C028 19F9          410       MVB   R0,CCREC              SAVE THE RECEIVED CC
001CAA  4A00               411       TBT   (R2,STERR)            IS STOP ON ERROR ON
001CAC  123D               412       JON   STPRT                 J-YES
001CAE                     413 TTYN1 EQU   *
001CAE  50D1               414       J     TT60
                           416 ********************************************************************
                           417 *                                                                  *
                           418 *     THE FOLLOWING ROUTINE HANDLES INTERRUPTS FROM CSS DEVICES    *
                           419 *                                                                  *
                           420 ********************************************************************
001CB0                     422 CSDV  EQU   *
001CB0  700E               423       CPLSR R0                    GET THE CONDITION CODE
001CB2  6201               424       EN    SM
001CB4  6B05 1CDC          425       BNCC  THREE,HERNG           BR/IF NOT DEV END INTERRUPT
001CB8  C225 1BCB          426       MVBZ  XPIND,R2              IS THE INDICATOR ON
001CBC  180E               427       JNZ   HER1                  J-YES
001CBE  6908 182A          428       MVW   NUMDV,R1              GET THE NUMBER OF DEVICES
001CC2  4224 182E          429       MVWI  DEVC1,R2              DEVICE TABLE
001CC6  CA80               430       MVW   (R2),R2               GET THE REAL ADDRESS
001CC8                     431 HERA  EQU   *
001CC8  C794               432       CB    (R2)+,R7              IS THIS THE INTERRUPTING DEVICE
001CCA  1005               433       JE    HERB                  J-YES
001CCC  7A41 0007          434       AWI   SEVEN,R2              BUMP THE POINTER
001CD0  B9FB               435       JCT   HERA,R1               TRY THE NEXT DEVICE
001CD2  6802 1D1C          436       B     UEXIO
001CD6                     437 HERB  EQU   *
001CD6  4A80               438       TBTR  (R2,ZERO)             THIS DEVICE EXPECTING TO INTERRUPT
001CD8  1021               439       JZ    UEXIO
001CDA                     440 HER1  EQU   *
001CDA  6100               441       LEX   ZERO
001CDC                     442 HERNG EQU   *
001CDC  6C04 1D02          443       BCC   FOUR,HERN3
001CE0  C225 1BCB          444       MVBZ  XPIND,R2              IS THE INDICATOR ON
001CE4  18FA               445       JNZ   HER1                  J-YES
001CE6  6908 182A          446       MVW   NUMDV,R1              GET THE NUMBER OF DEVICES
001CEA  4224 182E          447       MVWI  DEVC1,R2              DEVICE TABLE
001CEE  CA80               448       MVW   (R2),R2               GET THE REAL ADDRESS
001CF0                     449 HERN1 EQU   *
001CF0  C794               450       CB    (R2)+,R7              IS THIS THE INTERRUPTING DEVICE
001CF2  1004               451       JE    HERN2                 J-YES
001CF4  7A41 0007          452       AWI   SEVEN,R2              BUMP THE POINTER
001CF8  B9FB               453       JCT   HERN1,R1              TRY THE NEXT DEVICE
001CFA  5010               454       J     UEXIO
001CFC                     455 HERN2 EQU   *
001CFC  4A80               456       TBTR  (R2,ZERO)             THIS DEVICE EXPECTING TO INTERRUPT
001CFE  100E               457       JZ    UEXIO
001D00  50C6               458       J     TTYNG
001D02                     459 HERN3 EQU   *
001D02  6908 182A          460       MVW   NUMDV,R1              GET THE NUMBER OF DEVICES
001D06  4224 182E          461       MVWI  DEVC1,R2              DEVICE TABLE
001D0A  CA80               462       MVW   (R2),R2               GET THE REAL ADDRESS
001D0C                     463 HERN4 EQU   *
001D0C  C794               464       CB    (R2)+,R7              IS THIS THE INTERRUPTING DEVICE
001D0E  1004               465       JE    HERN5                 J-YES
001D10  7A41 0007          466       AWI   SEVEN,R2              BUMP THE POINTER
001D14  B9FB               467       JCT   HERN4,R1              TRY THE NEXT DEVICE
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001D16  5002              468      J     UEXIO
001D18                    469 HERN5  EQU   *
001D18  4A41              470      TBTS  (R2,ONE)                 IS THIS DEVICE INTERRUPTING
001D1A  50DF              471      J     HER1
001D1C                    472 UEXIO  EQU   *
001D1C  4224 1810         473      MVWI  OPTN2,R2                 ADR OF OPTION BITS
001D20  4A48              474      TBTS  (R2,UXERR)               TYPE OF ERROR
001D22  4124 0003         475      MVWI  THREE,R1                 ERROR TYPE
001D26  50BB              476      J     TTYN0
001D28                    477 STPRT  EQU   *
001D28  8828 001E 19FA    478      MVW   CONEP,CONSV              SAVE THE POINTER
001D2E  4020 001E 1D3E    479      MVA   CONRT,CONEP              NEW POINTER
001D34  4524 34C4         480      MVWI  CD44,R5                  STOP CODE
001D38  78B0              481      SECON R5                       PUT THE CODE IN THE LIGHTS
001D3A  6201              482      EN    SM                       ENABLE THE SUMMARY MASK
001D3C  50FF              483      J     *
001D3E                    484 CONRT  EQU   *
001D3E  8828 19FA 001E    485      MVW   CONSV,CONEP              RESTORE THE POINTER
001D44  7906 0001         486      CWI   ONE,R1                   TEST FOR ERROR TYPE
001D48  10B2              487      JE    TTYN1                    J-IF EQUAL
001D4A  7906 0002         488      CWI   TWO,R1                   TEST FOR ERROR TYPE
001D4E  10AF              489      JE    TTYN1                    J-IF EQUAL
001D50  7906 0003         490      CWI   THREE,R1                 TEST FOR ERROR TYPE
001D54  10AC              491      JE    TTYN1                    J-IF EQUAL
001D56  7906 0004         492      CWI   FOUR,R1                  TEST FOR ERROR TYPE
001D5A  1031              493      JE    NCD70                    J-IF EQUAL
001D5C  4524 1810         494      MVWI  OPTN2,R5                 RESTORE R5
001D60  7906 0005         495      CWI   FIVE,R1                  TEST FOR ERROR TYPE
001D64  105A              496      JE    INTLO                    J-IF EQUAL
001D66  5070              497      J     INTLC
                          499 ********************************************************************
                          500 *                                                                  *
                          501 *     THE FOLLOWING ROUTINE ISSUES A MESSAGE FOR THE BAD CONDITION *
                          502 *     CODE ON AN OIO INSTRUCTION.                                  *
                          503 *                                                                  *
                          504 ********************************************************************
001D68                    506 NCC7   EQU   *
001D68  700E              507      CPLSR R0                       GET THE CURRENT LSR
001D6A  6F0D 1928         508      MVW   R7,RETSV                 SAVE REGISTERS
001D6E  7744              509      MVW   R7,R2                    SAVE R7 FOR LATER
001D70  306A              510      SRL   THETN,R0                 POSITION CC BITS
001D72  C028 1BC2         511      MVB   R0,LSR                   SAVE FOR CONVERTING
001D76  4724 1BCC         512      MVA   CCLSR,R7                 CONVERT CONTROL BLOCK
001D7A  601A              513      SVC   HTOE                     CONVERT IT
001D7C  7A42 000A         514      SWI   TEN,R2                   BACK UP THE POINTER
001D80  4524 1B7C         515      MVA   PREPA,P5                 PREPARE ADDRESS
001D84  4124 0006         516      MVWI  SIX,R1                   NUMBER OF COMMANDS
001D88  4324 1BC4         517      MVA   PRPCD,R3                 COMMAND LIST
001D8C                    518 NCCD1  EQU   *
001D8C  82F3 0000         519      CB    (R2)*,(R3)               WAS IT A COMPARE
001D90  1005              520      JE    NCD71                    J-YES
001D92  7DA1 000A         521      AWI   TEN,R5                   BUMP THE POINTER
001D96  7B61 0001         522      AWI   ONE,R3                   BUMP THE COMMAND POINTER
001D9A  B9F8              523      JCT   NCCD1,R1                 TEST THE REST
001D9C                    524 NCD71  EQU   *
001D9C  0F0A              525      MVBI  TEN,R7                   NUMBER OF BYTES
001D9E  4324 1AE7         526      MVA   NOMT,R3                  WHERE TO PUT THE BYTES
001DA2  2D64              527      MVFN  (R5),(R3)                MOVE THEM
001DA4  6D58 0000         528      MVW   (R2),R5                  GET THE DEVICE ADDPESS
001DA8  C528 1BC2         529      MVB   R5,LSR                   DEVICE ADDRESS
001DAC  77EA              530      SW    R7,R7                    CLEAR R7
001DAE  C720 1BC2         531      MVB   LSR,R7                   SAVE THE DEVICE ADDRESS
001DB2  4124 0004         532      MVWI  FOUR,R1                  ERROR TYPE
001DB6  4224 1810         533      MVWI  OPTN2,R2                 ADR OF OPTION BITS
001DBA  4A00              534      TBT   (R2,STERR)               IS STOP ON ERROR ON
001DBC  12B5              535      JON   STPRT                    J-YES
001DBE                    536 NCD70  EQU   *
001DBE  4A01              537      TBT   (R2,BYPAS)               IS BYPASS ERR PRINT ON
001DC0  120A              538      JON   NCD7B                    J-YES
001DC2  4724 4000         539      MVWI  SXTNK,R7
001DC6                    540 NCD7A  EQU   *
001DC6  6002              541      SVC   IDLE
001DC8  BFFE              542      JCT   NCD7A,R7
001DCA  4724 1BD2         543      MVA   CVTAD,R7                 CONVERT CONTROL BLOCK
001DCE  601A              544      SVC   HTOE                     CONVERT THE ADDRESS
001DD0  4724 1B7A         545      MVA   NOT7M,R7                 CONTROL BLOCK FOR THE MESSAGE
001DD4  6000              546      SVC   OUT
001DD6                    547 NCD7B  EQU   *
001DD6  6908 182A         548      MVW   NUMDV,R1                 GET THE NUMBER OF DEVICES
001DDA  4224 182E         549      MVWI  DEVC1,R2                 DEVICE TABLE
001DDE  CA80              550      MVW   (R2),R2                  GET THE REAL ADDRESS
001DE0                    551 NCD72  EQU   *
001DE0  821B 1BC2         552      CB    (R2)+,LSR                IS THIS THE INTERRUPTING DEVICE
001DE4  1003              553      JE    NCD73                    J-YES
001DE6  7A41 0007         554      AWI   SEVEN,R2                 BUMP THE POINTER
001DEA  B9FA              555      JCT   NCD72,R1                 TRY THE NEXT DEVICE
001DEC                    556 NCD73  EQU   *
001DEC  4A80              557      TBTR  (R2,ZERO)                RESET THE INDICATOR
001DEE  6812 1928         558      B     RETSV*                   RETURN
                          560 ********************************************************************
                          561 *                                                                  *
                          562 *     THE FOLLOWING ROUTINE IS USED TO PRINT A MESSAGE             *
                          563 *     FOR A LOST INTERRUPT.                                        *
                          564 *                                                                  *
                          565 ********************************************************************
001DF2                    567 INTL   EQU   *
001DF2  6301              568      DIS   SM                       DISABLE INTERRUPTS
001DF4  6F0D 1928         569      MVW   R7,RETSV                 SAVE RETURN ADR
001DF8  7024              570      MVW   R0,R1                    USE R1
001DFA  7922 0001         571      SWI   ONE,R1                   BUMP THE POINTER
001DFE  77EA              572      SW    R7,R7                    CLEAR R7
001E00  C740              573      MVB   (R1),R7                  GET THE DEV ADR
001E02  8108 1B2C         574      MVB   (R1),LSTAD               GET THE DEV ADR
001E06  4810              575      TBT   (R0,SIXTN)               IS THIS SENSOR I/O
001E08  1002              576      JOFF  INT                      J-NO
001E0A  4811              577      TBT   (R0,SVNTN)               IS THIS SENSOR I/O DI/PI
001E0C  1216              578      JON   INTLB                    J-YES
001E0E                    579 INT    EQU   *
001E0E  4124 0005         580      MVWI  FIVE,R1                  ERROR TYPE
001E12  4524 1810         581      MVWI  OPTN2,R5                 ADR OF OPTION BITS
001E16  4D00              582      TBT   (R5,STERR)               IS STOP ON ERROR ON
001E18  1287              583      JON   STPRT                    J-YES
001E1A                    584 INTLO  EQU   *
001E1A  4D01              585      TBT   (R5,BYPAS)               IS BYPASS ERROR ON
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001E1C  120A              586      JON   INTLA                    B-YES
001E1E  4724 4000         587      MVWI  SXTNK,R7
001E22                    588 INTL1  EQU   *
001E22  6002              589      SVC   IDLE
001E24  BFFE              590      JCT   INTL1,R7
001E26  4724 194A         591      MVA   CVADR,R7                 CONTROL BLOCK
001E2A  601A              592      SVC   HTOE
001E2C  4724 1AFC         593      MVA   LSTMG,R7                 MSG ADR
001E30  6000              594      SVC   OUT
001E32                    595 INTLA  EQU   *
001E32  4880              596      TBTR  (R0,ZERO)                CLEAR THE IND
001E34  6201              597      EN    SM
001E36  6812 1928         598      B     RETSV*                   RETURN TO SENDER
001E3A                    599 INTLB  EQU   *
001E3A  4124 0006         600      MVWI  SIX,R1                   ERROR TYPE
001E3E  4524 1810         601      MVWI  OPTN2,R5                 ADR OF OPTION BITS
001E42  4D00              602      TBT   (R5,STERR)               IS STOP ON ERROR ON
001E44  6A00 1D28         603      BON   STPRT                    J-YES
001E48                    604 INTLC  EQU   *
001E48  4D01              605      TBT   (R5,BYPAS)               IS BYPASS ERROR ON
001E4A  12F3              606      JON   INTLA                    B-YES
001E4C  4724 197A         607      MVA   TIMOT,R7                 CONTROL BLOCK
001E50  601A              608      SVC   HTOE
001E52  4724 1A1E         609      MVA   TIMEM,R7                 MSG ADR
001E56  6000              610      SVC   OUT
001E58  50EC              611      J     INTLA
                          613 ********************************************************************
                          614 *                                                                  *
                          615 *     THE FOLLOWING ROUTINE IS USED TO PRINT AN ERROR MESSAGE      *
                          616 *     THAT WAS ENCOUNTERED ON A DEVICE INTERRUPT.                  *
                          617 *                                                                  *
                          618 ********************************************************************
001E5A                    620 PRNT   EQU   *
001E5A  680D 19FE         621      MVW   R0,R0SAV                 SAVE THE CONTENTS
001E5E  4624 1810         622      MVWI  OPTN2,R6                 ADR OF OPTION BITS
001E62  6F0D 1928         623      MVW   R7,RETSV                 SAVE THE RETURN ADR
001E66  4E01              624      TBT   (R6,BYPAS)               IS BYPASS PRINT ON
001E68  6A00 2034         625      BON   RETRN                    J-IF ON
001E6C  4724 2270         626      MVA   DUM2,R7                  BLANK LINE
001E70  6000              627      SVC   OUT
001E72  6908 182A         628      MVW   NUMDV,R1                 GET THE NUMBER OF DEVICES
001E76  4224 182E         629      MVWI  DEVC1,R2                 DEVICE TABLE
001E7A  CA80              630      MVW   (R2),R2                  GET THE REAL ADDRESS
001E7C                    631 PRNT1  EQU   *
001E7C  820B 192B         632      CB    (R2),ERRAD+ONE           IS THIS THE ERRANT DEVICE
001E80  1004              633      JE    PRNT2                    J-YES
001E82  7A41 0008         634      AWI   EIGHT,R2                 BUMP THE POINTER
001E86  B9FA              635      JCT   PRNT1,R1                 TRY THE NEXT DEVICE
001E88  5021              636      J     PRNT4
001E8A                    637 PRNT2  EQU   *
001E8A  8208 1BD9         638      MVB   (R2),CSSIO+ONE           PUT THE ADR IN THE IDCB
001E8E  7A41 0002         639      AWI   TWO,R2                   BUMP THE POINTER
001E92  8218 1C07         640      MVB   (R2)+,DVTYP              SAVE THE DEVICE TYPE
001E96  8208 1BE9         641      MVB   (R2),BYCNT+ONE           SAVE THE BYTE COUNT
001E9A  1103              642      JP    PRNT3                    J-CSS DEV
001E9C  8028 1828 1C08    643      MVB   HEXFF,NOCSS              IND NOT CSS DEV
001EA2                    644 PRNT3  EQU   *
001EA2  7A41 0003         645      AWI   THREE,R2                 BUMP THE POINTER
001EA6  8A08 1A0A         646      MVW   (R2),ADFLD               SAVE THE ADR
001EAA  8A08 1952         647      MVW   (R2),CVDB2               SAVE THE IDCB
001EAE  8A08 1958         648      MVW   (R2),CVDB5               AGAIN
001EB2  4029 1958 0002    649      AWI   TWO,CVDB5                MAKE IT THE RIGHT ADDRESS
001EB8  C720 1C08         650      MVB   NOCSS,R7                 IS THE IND ON
001EBC  1813              651      JNZ   PRN4                     J-NO
001EBE  8028 1828 1BCB    652      MVB   HEXFF,XPIND              T/ON THE IND
001EC4  4724 4000         653      MVWI  SXTNK,R7                 WAIT COUNT
001EC8  680C 1BD8         654      IO    CSSIO                    ISSUE THE IO
001ECC                    655 PRNT4  EQU   *
001ECC  6002              656      SVC   IDLE                     WAIT
001ECE  C220 1BCB         657      MVB   XPIND,R2                 HAS THE INTERRUPT OCCURED
001ED2  1005              658      JZ    PRN3                     J-NO
001ED4  BFFB              659      JCT   PRNT4,R7                 JUST WAIT
001ED6  C725 1BCB         660      MVBZ  XPIND,R7                 RESET THE IND
001EDA  6802 2042         661      B     CSLOS
001EDE                    662 PRN3   EQU   *
001EDE  8028 1828 1C06    663      MVB   HEXFF,RECCS              T/ON IND
001EE4                    664 PRN4   EQU   *
001EE4  4724 4000         665      MVWI  SXTNK,R7
001EE8                    666 PRNT5  EQU   *
001EE8  6002              667      SVC   IDLE
001EEA  BFFE              668      JCT   PRNT5,R7
001EEC  4E88              669      TBTR  (R6,UXERR)               IS NOT EXPECTED IND ON
001EEE  6A00 2022         670      BON   IOER2                    J-YES
001EF2  4E89              671      TBTR  (R6,IOERR)               IS IO ERROR ON
001EF4  6A00 2008         672      BON   IOER1                    J-YES
001EF8  4E8A              673      TBTR  (R6,CCERR)               IS COND CODE ERROR ON
001EFA  10FF              674      JOFF  *                        I'M LOST IF NOT
001EFC  4724 193E         675      MVA   CVRC1,R7                 CONTROL BLOCK
001F00  601A              676      SVC   HTOE
001F02  4724 1938         677      MVA   CVEX1,R7                 CONTROL BLOCK
001F06  601A              678      SVC   HTOE
001F08  4724 195C         679      MVA   CVDB6,R7                 CVT CONTROL BLOCK
001F0C  601A              680      SVC   HTOE
001F0E  4724 1A22         681      MVA   CCMSG,R7                 MSG CONTROL BLOCK
001F12  6000              682      SVC   OUT
001F14  4724 1950         683      MVA   CVDB1,R7                 CONTROL BLOCK
001F18  601A              684      SVC   HTOE
001F1A  4724 1956         685      MVA   CVDB4,R7                 CONTROL BLOCK
001F1E  601A              686      SVC   HTOE
001F20  4724 196E         687      MVA   CVISB,R7                 CONVERT CONTROL BLOCK
001F24  601A              688      SVC   HTOE
001F26  4724 1982         689      MVA   DCBMG,R7                 MSG CONTROL BLOCK
001F2A  6000              690      SVC   OUT
001F2C  C725 1C08         691      MVBZ  NOCSS,R7                 IS THE IND ON
001F30  6801 2034         692      BNZ   RETRN                    J-YES
001F34  C725 1C06         693      MVBZ  RECCS,R7                 WAS CSS RECEIVED
001F38  1033              694      JZ    PRN5                     J-NO
001F3A  C520 1BE9         695      MVB   BYCNT+ONE,R5             NUMBER OF CSS BYTES
001F3E  350A              696      SRL   ONE,P5                   CSS WORDS
001F40  75C4              697      MVW   R5,R6                    SAVE R5
001F42  4024 1B33         698      MVA   CMG2-ONE,R0              ADR OF THE CSS DATA
001F46                    699 PR1    EQU   *
001F46  7801 0005         700      AWI   FIVE,R0                  BUMP BY FIVE
001F4A  BEFD              701      JCT   PR1,R6
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001F4C  680D 19FC          702         MVW   R0,ROMSG          SAVE R0
001F50  C705               703         MVBZ  (R0),R7           SET THE END OF MSG IND
001F52  75C4               704         MVW   R5,R6             SAVE R5
001F54  4024 19B7          705         MVA   TNIRP-ONE,R0      MESSAGE ADDRESS
001F58                     706 PR2     EQU   *
001F58  7801 0005          707         AWI   FIVE,R0           BUMP BY FIVE
001F5C  BEFD               708         JCT   PR2,R6
001F5E  C705               709         MVBZ  (R0),R7           ZERO THE BYTE
001F60  4020 196A 1BEC     710         MVA   CSSDT,CVCS1       PROPER ADDRESS
001F66  4020 196C 19B8     711         MVA   TNIRP,CVCS2       FOR THE CONTROL BLOCK
001F6C                     712 PR5     EQU   *
001F6C  4724 1968          713         MVA   CVCSS,R7          CONVERT CONTROL BLOCK
001F70  601A               714         SVC   HTOE
001F72  4029 196A 0002     715         AWI   TWO,CVCS1         BUMP THE ADDRESS
001F78  4029 196C 0005     716         AWI   FIVE,CVCS2        SAME HERE
001F7E  BDF6               717         JCT   PR5,R5            CONVERT THE NEXT WORD
001F80  4724 1B30          718         MVA   CSMG1,R7          MSG CONTROL BLOCK
001F84  6000               719         SVC   OUT
001F86  802C 2082 19FC     720         MVB   BLANK,ROMSG*      RESTORE THE BLANK
001F8C  4724 1B76          721         MVA   CSMG3,R7          MSG CONTROL BLOCK
001F90  6000               722         SVC   OUT
001F92  C220 2082          723         MVB   BLANK,R2          BLANK CHARACTER
001F96  0F40               724         MVBI  SIXTY4,R7         NUM OF BYTES TO BLANK
001F98  4524 19B8          725         MVA   TNIRP,R5          AREA TO BLANK
001F9C  2AAC               726         FFN   R2,(R5)           BLANK THE AREA
001F9E                     727 PRN5    EQU   *
001F9E  4724 19A2          728         MVA   DCMSG,R7          CONTROL BLOCK
001FA2  6000               729         SVC   OUT
001FA4  6D08 1958          730         MVW   CVDB5,R5          GET THE DCB ADR
001FA8  8D08 1A0A          731         MVW   (R5),ADFLD        MOVE IN THE DCB ADDRESS
001FAC                     732 PRNT6   EQU   *
001FAC  6D08 1A0A          733         MVW   ADFLD,R5          GET THE DCB ADR
001FB0  4724 0010          734         MVWI  SIXTN,R7          BYTE COUNT
001FB4  4224 1A0C          735         MVA   OP1FL,R2          SAVE AREA
001FB8  2D44               736         MVFN  (R5),(R2)         MOVE THE DATA
001FBA  4724 20AC          737         MVA   ADCVT,R7          CONTROL BLOCK
001FBE  601A               738         SVC   HTOE
001FC0  4020 1964 1A0C     739         MVA   OP1FL,CV2OP       SET THE
001FC6  4020 1966 19BE     740         MVA   PRT06,CV3OP       CONTROL BLOCK
001FCC  4624 0008          741         MVWI  EIGHT,R6
001FD0                     742 PR6     EQU   *
001FD0  4724 1962          743         MVA   CV1OP,R7          CONTROL BLOCK
001FD4  601A               744         SVC   HTOE
001FD6  4029 1964 0002     745         AWI   TWO,CV2OP         BUMP THE POINTER
001FDC  4029 1966 0006     746         AWI   SIX,CV3OP         SAME HERE
001FE2  BEF6               747         JCT   PR6,R6
001FE4  4724 19B4          748         MVA   PRTLN,R7          MSG CONTROL BLOCK
001FE8  6000               749         SVC   OUT
001FEA  6D08 1A0A          750         MVW   ADFLD,R5          GET THE START OF DCB
001FEE  4D00               751         TBT   (R5,ZERO)         IS THE CHAIN FLAG ON
001FF0  1004               752         JOFF  PRNT7             J-NO
001FF2  4029 1A0A 0010     753         AWI   SIXTN,ADFLD       NEXT DCB
001FF8  50D9               754         J     PRNT6
001FFA                     755 PRNT7   EQU   *
001FFA  C220 2082          756         MVB   BLANK,R2          BLANK CHARACTER
001FFE  0F40               757         MVBI  SIXTY4,R7         NUM OF BYTES TO BLANK
002000  4524 19B8          758         MVA   TNIRP,R5          AREA TO BLANK
002004  2AAC               759         FFN   R2,(R5)           BLANK THE AREA
002006  5016               760         J     RETRN
002008                     761 IOER1   EQU   *
002008  4724 192C          762         MVA   CADR1,R7          CONTROL BLOCK
00200C  601A               763         SVC   HTOE
00200E  4724 193E          764         MVA   CVRC1,R7          CONTROL BLOCK
002012  601A               765         SVC   HTOE
002014  4724 1938          766         MVA   CVEX1,R7          CONTROL BLOCK
002018  601A               767         SVC   HTOE
00201A  4724 1A22          768         MVA   CCMSG,R7          MSG CONTROL BLOCK
00201E  6000               769         SVC   OUT
002020  5009               770         J     RETRN
002022                     771 IOER2   EQU   *
002022  4724 1932          772         MVA   CADR3,R7          CONTROL BLOCK
002026  601A               773         SVC   HTOE
002028  4724 1944          774         MVA   CVRC3,R7          CONTROL BLOCK
00202C  601A               775         SVC   HTOE
00202E  4724 1A26          776         MVA   UXIMG,R7          MSG CONTROL BLOCK
002032  6000               777         SVC   OUT
002034                     778 RETRN   EQU   *
002034  6808 19FE          779         MVW   ROSAV,R0          RESTORE R0
002038  4624 1810          780         MVWI  OPTN2,R6          ADR OF OPTION BITS
00203C  4E82               781         TBTR  (R6,INERR)        RESET THE IND
00203E  6812 1928          782         B     RETSV*            RETURN TO SENDER
002042                     783 CSLOS   EQU   *
002042  8028 1BD9 19B8     784         MVB   CSSIO+ONE,TNIRP   GET THE DEVICE ADR
002048  4724 1974          785         MVA   CVLST,R7          CONVERT BLOCK
00204C  601A               786         SVC   HTOE
00204E  4724 1A5E          787         MVA   CLOST,R7          MSG CONTROL BLOCK
002052  6000               788         SVC   OUT
002054  6802 1EE4          789         B     PRN4              GO FINISH THE ANALYSIS
002058  0080               791         DC    X'0080'
00205A  205E               792 MESAG   DC    A(MSG)
00205C  0000               793         DC    A(0)
00205E  C1C4D9404040D6D74  794 MSG     DC    C'ADR   OP    OP1   OP2   MACH  CODE'
002080  00                 795         DC    X'00'
002081  D5                 796 NO      DC    C'N'
                           797         ALIGN WORD
002082  40404040           798 BLANK   DC    4C' '
002086  5C                 799 SPLAT   DC    C'*'
002088  0000               800 WORKA   DC    A(*-*)
00208A  0000               801 COMSV   DC    A(*-*)
00208C  0000               802 MKFL1   DC    A(*-*)
00208E  0000               803 MKFL2   DC    A(*-*)
002090  0000               804 MKFL3   DC    A(*-*)
002092  0000               805 MASK0   DC    X'0000'
002094  7800               806 MASK1   DC    X'7800'
002096  1000               807 MASK2   DC    X'1000'
002098  5800               808 MASK3   DC    X'5800'
00209A  5000               809 MASK4   DC    X'5000'
00209C  60                 810 PRPRE   DC    X'60'
00209D  00                 811 PRADR   DC    X'00'
00209E  0005               812         DC    X'0005'
0020A0  D9F2               813 R2REG   DC    C'R2'
0020A2  D9F3               814 R3REG   DC    C'R3'
0020A4  D9F0               815 R0REG   DC    C'R0'
0020A6  D9F7               816 R7REG   DC    C'R7'
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
0020A8  4DD9F25D           817 PARN2   DC    C'(R2)'
0020AC  0002               818 ADCVT   DC    A(2)
0020AE  1A0A               819         DC    A(ADFLD)
0020B0  19B8               820         DC    A(TNIRP)
0020B2  0002               821 CVOP1   DC    A(2)
0020B4  1A0C               822         DC    A(OP1FL)
0020B6  1924               823         DC    A(PRT12)
0020B8  0002               824 CVOP2   DC    A(2)
0020BA  1A0E               825         DC    A(OP2FL)
0020BC  19CA               826         DC    A(PRT18)
0020BE  0002               827 CVMK1   DC    A(2)
0020C0  208C               828         DC    A(MKFL1)
0020C2  19D0               829         DC    A(PRT24)
0020C4  0002               830 CVMK2   DC    A(2)
0020C6  208E               831         DC    A(MKFL2)
0020C8  19D6               832         DC    A(PRT30)
0020CA  0002               833 CVMK3   DC    A(2)
0020CC  2090               834         DC    A(MKFL3)
0020CE  19DC               835         DC    A(PRT36)
0020D0  0002               836 CVRID   DC    A(2)
0020D2  20DE               837         DC    A(RDCOD)
0020D4  2337               838         DC    A(IDMG3)
0020D6  0002               839 CVEXP   DC    A(2)
0020D8  20E0               840         DC    A(CHAID)
0020DA  2329               841         DC    A(IDMG2)
0020DC  20                 842 RDID    DC    X'20'
0020DD  00                 843 RDADR   DC    X'00'
0020DE  0000               844 RDCOD   DC    X'0000'
0020E0  0010               845 CHAID   DC    X'0010'
0020E2  802B               846 COMTB   DC    X'802B'           COMPARE BYTE
0020E4  23CE               847         DC    A(CB)
0020E6  C3C24040           848         DC    C'CB  '
0020EA  1802               849         DC    X'1802'           JUMP NOT EQUAL
0020EC  23EC               850         DC    A(JNE1)
0020EE  D1D5C540           851         DC    C'JNE '
0020F2  1804               852         DC    X'1804'           JUMP NOT EQUAL
0020F4  23FE               853         DC    A(JE2)
0020F6  D1D5C540           854         DC    C'JNE '
0020FA  6002               855         DC    X'6002'           SVC IDLE
0020FC  2410               856         DC    A(SVC1)
0020FE  E2E5C340           857         DC    C'SVC '
002102  50FA               858         DC    X'50FA'           JUMP
002104  2422               859         DC    A(J1)
002106  D1404040           860         DC    C'J   '
00210A  8028               861         DC    X'8028'           MOVE BYTE
00210C  23CE               862         DC    A(CB)
00210E  D4E5C240           863         DC    C'MVB '
002112  680C               864         DC    X'680C'           I/O
002114  2434               865         DC    A(IO)
002116  C9D64040           866         DC    C'IO  '
00211A  6F04               867         DC    X'6F04'           BRANCH CONDITION CODE
00211C  2448               868         DC    A(BCC1)
00211E  C2C3C340           869         DC    C'BCC '
002122  6F13               870         DC    X'6F13'           BRANCH AND LINK (INDIRECT)
002124  2462               871         DC    A(BAL1)
002126  C2C1D340           872         DC    C'BAL '
00212A  4724               873         DC    X'4724'           MOVE ADR -R7
00212C  248A               874         DC    A(MVA1)
00212E  D4E5C140           875         DC    C'MVA '
002132  4000               876         DC    X'4000'           MOVE ADR -R0
002134  249C               877         DC    A(MVA2)
002136  D4E5C140           878         DC    C'MVA '
00213A  4F00               879         DC    X'4F00'           TEST BIT-R7
00213C  2524               880         DC    A(TBT1)
00213E  E3C2E340           881         DC    C'TBT '
002142  4F02               882         DC    X'4F02'           TEST BIT-R7
002144  2524               883         DC    A(TBT1)
002146  E3C2E340           884         DC    C'TBT '
00214A  4024               885         DC    X'4024'           MOVE WORD IMMED-R0
00214C  25E2               886         DC    A(MVWI2)
00214E  D4E5E6C9           887         DC    C'MVWI'
002152  4800               888         DC    X'4800'           TEST BIT-R0
002154  2562               889         DC    A(TBT4)
002156  E3C2E340           890         DC    C'TBT '
00215A  4840               891         DC    X'4840'           TEST BIT AND SET-R0
00215C  253C               892         DC    A(TBT2)
00215E  E3C2E3E2           893         DC    C'TBTS'
002162  4881               894         DC    X'4881'           TEST BIT AND RESET-R0
002164  254E               895         DC    A(TBT3)
002166  E3C5E3D9           896         DC    C'TBTR'
00216A  6800               897         DC    X'6800'           BRANCH ZERO
00216C  2434               898         DC    A(IO)
00216E  C2E94040           899         DC    C'BZ  '
002172  6400               900         DC    X'6400'           STOP
002174  264C               901         DC    A(NOP)
002176  E2E3D6D7           902         DC    C'STOP'
00217A  4029               903         DC    X'4029'           ADD WORD IMMEDIATE
00217C  23CE               904         DC    A(CB)
00217E  C1E6C940           905         DC    C'AWI '
002182  0005               906         DC    X'0005'           ADD BYTE IMMEDIATE
002184  265A               907         DC    A(ABI)
002186  C1C2C940           908         DC    C'ABI '
00218A  00FB               909         DC    X'00FB'           ADD BYTE IMMEDIATE
00218C  265A               910         DC    A(ABI)
00218E  C1C2C940           911         DC    C'ABI '
002192  1004               912         DC    X'1004'           JUMP ZERO
002194  24C8               913         DC    A(JZ2)
002196  D1E94040           914         DC    C'JZ  '
00219A  1002               915         DC    X'1002'           JUMP ZERO
00219C  24B6               916         DC    A(JZ1)
00219E  D1E94040           917         DC    C'JZ  '
0021A2  10FE               918         DC    X'10FE'           JUMP ZERO
0021A4  24DA               919         DC    A(JZ3)
0021A6  D1E94040           920         DC    C'JZ  '
0021AA  6802               921         DC    X'6802'           BRANCH
0021AC  2434               922         DC    A(IO)
0021AE  C2404040           923         DC    C'B   '
0021B2  8828               924         DC    X'8828'           MOVE WORD STG-STG
0021B4  23C2               925         DC    A(CB)
0021B6  D4E5E640           926         DC    C'MVW '
0021BA  6F08               927         DC    X'6F08'           MOVE WORD STG-REG7
0021BC  2462               928         DC    A(BAL1)
0021BE  D4E5E640           929         DC    C'MVW '
0021C2  BFFE               930         DC    X'BFFE'           JUMP ON COUNT-R7
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0021C4  2626             931          DC    A(JCT4)
0021C6  D1C3E340         932          DC    C'JCT '
0021CA  BFFF             933          DC    X'BFFF'              JUMP ON COUNT-R7
0021CC  24FE             934          DC    A(JCT1)
0021CE  D1C3E340         935          DC    C'JCT '
0021D2  BBFA             936          DC    X'BBFA'              JUMP ON COUNT-R3
0021D4  2610             937          DC    A(JCT3)
0021D6  D1C3E340         938          DC    C'JCT '
0021DA  BBFC             939          DC    X'BBFC'              JUMP ON COUNT-R3
0021DC  2610             940          DC    A(JCT3)
0021DE  D1C3E340         941          DC    C'JCT '
0021E2  5001             942          DC    X'5001'              JUMP+FOUR
0021E4  2512             943          DC    A(J2)
0021E6  D1404040         944          DC    C'J   '
0021EA  78F0             945          DC    X'78F0'              SET CONSOLE LED''S
0021EC  2670             946          DC    A(SECON)
0021EE  E2C5C3D6         947          DC    C'SECO'              MOVE WORD STG-REG
0021F2  6A08             948          DC    X'6A08'
0021F4  257A             949          DC    A(MVW3)
0021F6  D4E5E640         950          DC    C'MVW '              ADD WORD IMMED-R2
0021FA  7A41             951          DC    X'7A41'
0021FC  2594             952          DC    A(AWI2)
0021FE  C1E6C940         953          DC    C'AWI '              MOVE BYTE IMMED-STG
002202  80B0             954          DC    X'80B0'
002204  25AC             955          DC    A(MVB2)
002206  D4E5C240         956          DC    C'MVB '              JUMP NOT ZERO
00220A  180A             957          DC    X'180A'
00220C  24EC             958          DC    A(JZ4)
00220E  D1D5E940         959          DC    C'JNZ '              MOVE WORD IMMED-R3
002212  4324             960          DC    X'4324'
002214  25CA             961          DC    A(MVWI1)
002216  D4E5E6C9         962          DC    C'MVWI'              JUMP ON COUNT-R3
00221A  BBFE             963          DC    X'BBFE'
00221C  25FA             964          DC    A(JCT2)
00221E  D1C3E340         965          DC    C'JCT '
002222  50F5             966          DC    X'50F5'              JUMP
002224  263C             967          DC    A(J3)
002226  D1404040         968          DC    C'J   '
00222A  5000             969          DC    X'5000'              NOP
00222C  264C             970          DC    A(NOP)
00222E  D5D6D740         971          DC    C'NOP '              DC
002232  C4C34040         972  DCCMD   DC    C'DC  '              SECO
002236  E2C5C3D6         973  SECO1   DC    C'SECO'
00223A  D540             974  SECO2   DC    C'N   '
00223C  00000000         975  UBUFR   DC    2A(*-*)
002240  239A             976  CMDTB   DC    A(COM0C)
002242  2702             977          DC    A(IDCBS)
002244  2758             978          DC    A(DCBTB)
002246  0080             979          DC    X'0080'
002248  22A0             980  MSG1    DC    A(MG1)
00224A  0080             981          DC    X'0080'
00224C  22C6             982          DC    A(MG2)
00224E  0080             983          DC    X'0080'
002250  22D8             984          DC    A(MG3)
002252  0080             985          DC    X'0080'
002254  22EE             986          DC    A(MG4)
002256  00C0             987          DC    X'00C0'
002258  2302             988  NODEV   DC    A(MG5)
00225A  00C0             989          DC    X'00C0'
00225C  2316             990  DIMSG   DC    A(IDMG1)
00225E  2088             991          DC    A(WORKA)
002260  0001             992          DC    A(1)
002262  0000             993          DC    A(0)
002264  00C0             994          DC    X'00C0'
002266  228C             995  DUMMY   DC    A(DUM)
002268  223C             996          DC    A(UBUFR)
00226A  0004             997          DC    A(4)
00226C  0001             998          DC    A(1)
00226E  0080             999          DC    X'0080'
002270  2274            1000  DUM2    DC    A(DUM3)
002272  0000            1001          DC    A(0)
002274  4040            1002  DUM3    DC    C'    '
002276  0080            1003          DC    X'0080'
002278  227C            1004  IDMSG   DC    A(IDMG)
00227A  0000            1005          DC    A(0)
00227C  C1C4D9404040C9C4C 1006  IDMG    DC    C'ADR   IDCB''S'
002288  00              1007          DC    X'00'
002289  348F            1008          DC    A(CDF)
00228C  00              1009  DUM     DC    X'00'
00228D  80              1010          DC    X'80'
00228E  2292            1011  DMSG1   DC    A(DMSG2)
002290  0000            1012          DC    A(0)
002292  C1C4D9404040C4C3C 1013  DMSG2   DC    C'ADR   DCB''S'
00229D  00              1014          DC    X'00'
00229E  0000            1015          DC    A(0)
0022A0  E2C5D3C5C3E340C1D 1016  MG1     DC    C'SELECT AN OPTION'
0022B0  00              1017          DC    X'00'
0022B1  80              1018          DC    X'80'
0022B2  22B6            1019  NODCB   DC    A(NDCB)
0022B4  0000            1020          DC    A(0)
0022B6  D5D640C4C3C240E3C 1021  NDCB    DC    C'NO DCB TABLE'
0022C2  00              1022          DC    X'00'
0022C4  0000            1023          DC    A(0)
0022C6  F0F140D3C9E2E340D 1024  MG2     DC    C'01 LIST PROGRAM'
0022D5  00              1025          DC    X'00'
0022D6  0000            1026          DC    A(0)
0022D8  F0F240D3C9E2E340C 1027  MG3     DC    C'02 LIST IDCB TABLE'
0022EA  00              1028          DC    X'00'
0022EC  0000            1029          DC    A(0)
0022EE  F0F340D3C9E2E340C 1030  MG4     DC    C'03 LIST DCB TABLE'
0022FF  00              1031          DC    X'00'
002300  349E            1032          DC    A(CD1E)
002302  E6D9D6D5C740C4C5E 1033  MG5     DC    C'WRONG DEVICE ADR'
002312  00              1034          DC    X'00'
002314  34A0            1035          DC    A(CD20)
002316  D9C5C1C440C9C440C 1036  IDMG1   DC    C'READ ID EXPECTED   '
002329  E7E7E7E740C9C440E 1037  IDMG2   DC    C'XXXX ID WAS  '
002337  E7E7E7E740C9E240E 1038  IDMG3   DC    C'XXXX IS THIS O.K.?'
002349  00              1039          DC    X'00'
                        1040          ALIGN WORD
00234A                  1041  COM00   EQU   *
00234A  6F0D 1928       1042          MVW   R7,RETSV             SAVE THE RETURN ADR
00234E  7487            1043          IR    R4,R4                CHECK IND
002350  6800 27EA       1044          BZ    CHANG                B-CHANGE DEV ADR
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002354  680D 19FE       1045          MVW   R0,R0SAV              SAVE REGS
002358  D128 1A00       1046          MVD   R1,R1SAV                   ' '
00235C  D328 1A04       1047          MVD   R3,R3SAV                   ' '
002360  4724 2248       1048          MVA   MSG1,R7              CONTROL BLOCK
002364  4624 0004       1049          MVWI  FOUR,R6              NUMBER OF MSGS
002368                  1050  COM0A   EQU   *
002368  6000            1051          SVC   OUT
00236A  7FE1 0004       1052          AWI   FOUR,R7              PUMP THE ADR
00236E  BEFC            1053          JCT   COM0A,R6
002370  4724 2266       1054          MVA   DUMMY,R7
002374  6001            1055          SVC   OUTIN
002376  4124 223C       1056          MVA   UBUFR,R1             ADR OF INPUT DATA
00237A                  1057  COM0B   EQU   *
00237A  6F0D 1A08       1058          MVW   R7,R7SAV             SAVE R7
00237E  4624 2240       1059          MVA   CMDTB,R6             ADR OF COMMAND TABLE
002382  C240            1060          MVB   (R1),R2              GET THE COMMAND
002384  6810 1928       1061          BZ    RETSV*               RETURN THIS IS THE END
002388  7A42 0001       1062          SWI   ONE,R2
00238C  690D 208A       1063          MVW   R1,OMSV              SAVE R1
002390  3209            1064          SLL   ONE,R2               DOUBLE FOR TABLE REFERENCE
002392  72C8            1065          AW    R2,R6                DISPL INTO TABLE
002394  6EC8 0000       1066          MVW   (R6),R6
002398  5600            1067          BXS   (R6)
00239A                  1068  COM0C   EQU   *
00239A  6908 1A00       1069          MVW   R1SAV,R1             GET THE DATA
00239E  4724 205A       1070          MVA   MESAG,R7             MESSAGE ADDRESS
0023A2  6000            1071          SVC   OUT
0023A4  C325 19E2       1072          MVBZ  PRT42,R3             SET THE END CHAR
0023A8                  1073  COM01   EQU   *
0023A8  690D 1A0A       1074          MVW   R1,ADFLD             ADR OF INSTR'S
0023AC  4224 20E2       1075          MVA   COMTB,R2             COMMAND TABLE
0023B0  4724 002B       1076          MVWI  FORT3,R7             NUMBER OF COMMANDS
0023B4                  1077  COM02   EQU   *
0023B4  8987            1078          CW    (R1),(R2)+           IS THIS THE COMMAND
0023B6  1005            1079          JE    COM03                J-YES
0023B8  7A41 0006       1080          AWI   SIX,R2               BUMP THE POINTER
0023BC  BFFB            1081          JCT   COM02,R7             CHECK ALL COMMAND CODES
0023BE  6802 268C       1082          B     DATA                 MUST BE DATA
0023C2                  1083  COM03   EQU   *
0023C2  6E08 2096       1084          MVW   MASK2,R6             MASK FOR CONVERSIONS
0023C6  CB90            1085          MVW   (R2)+,R3             GET THE ADR TO BR TO
0023C8  9208 19BE       1086          MVD   (R2),PRT06           COMMAND LANGUAGE
0023CC  5300            1087          BXS   (R3)
0023CE                  1088  CB      EQU   *
0023CE  7104            1089          MVW   R1,R0                SAVE R1
0023D0  9018 208C       1090          MVD   (R0)+,MKFL1          MOVE MACHINE CODE
0023D4  8808 2090       1091          MVW   (R0),MKFL3                 ' '
0023D8  7921 0002       1092          AWI   TWO,R1               BUMP THE ADR
0023DC  8918 1A0C       1093          MVW   (R1)+,OP1FL          MOVE IN OP1
0023E0  8918 1A0E       1094          MVW   (R1)+,OP2FL          MOVE IN OP2
0023E4  6E08 2094       1095          MVW   MASK1,R6             CONVERT MASK
0023E8  6802 269E       1096          B     PRTNO                B-PRINT
0023EC                  1097  JNE1    EQU   *
0023EC  7164            1098          MVW   R1,R3                MOVE IN OP1
0023EE  8918 208C       1099          MVW   (R1)+,MKFL1          BUMP THE POINTER
0023F2  7B61 0006       1100          AWI   SIX,R3               NEW ADR
0023F6  6B0D 1A0C       1101          MVW   R3,OP1FL             OP1 ADR
0023FA  6802 269E       1102          B     PRTNO                B-PRINT
0023FE                  1103  JNE2    EQU   *
0023FE  7164            1104          MVW   R1,R3                MOVE IN OP1
002400  8918 208C       1105          MVW   (R1)+,MKFL1          BUMP THE POINTER
002404  7B61 0008       1106          AWI   EIGHT,R3             NEW ADR
002408  6B0D 1A0C       1107          MVW   R3,OP1FL             OP1 ADR
00240C  6802 269E       1108          B     PRTNO                B-PRINT
002410                  1109  SVC1    EQU   *
002410  CB50            1110          MVW   (R1)+,R3             MOVE IN OP1
002412  6B0D 208C       1111          MVW   R3,MKFL1             MOVE INTO MK CODE
002416  C025 1A0C       1112          MVBZ  OP1FL,R0             ZERO THE FIRST BYTE
00241A  C328 1A0D       1113          MVB   R3,OP1FL+ONE         OP1
00241E  6802 269E       1114          B     PRTNO                B-PRINT
002422                  1115  J1      EQU   *
002422  7164            1116          MVW   R1,R3                MOVE IN OP1
002424  8918 208C       1117          MVW   (R1)+,MKFL1          BUMP THE POINTER
002428  7B61 FFF6       1118          AWI   M10,R3               NEW ADR
00242C  6B0D 1A0C       1119          MVW   R3,OP1FL             OP1 ADR
002430  6802 269E       1120          B     PRTNO                B-PRINT
002434                  1121  IO      EQU   *
002434  8918 208C       1122          MVW   (R1)+,MKFL1          BUMP THE ADR
002438  8908 208E       1123          MVW   (R1),MKFL2                 ' '
00243C  8918 1A0C       1124          MVW   (R1)+,OP1FL          MOVE IN OP1
002440  6E08 209A       1125          MVW   MASK4,R6             CONVERT MASK
002444  6802 269E       1126          B     PRTNO                B-PRINT
002448                  1127  BCC1    EQU   *
002448  8918 208C       1128          MVW   (R1)+,MKFL1          BUMP THE ADR
00244C  4020 1A0C 0007  1129          MVWI  SEVEN,OP1FL          MOVE IN OP1
002452  8908 208E       1130          MVW   (R1),MKFL2           BUMP THE ADR
002456  8918 1A0E       1131          MVW   (R1)+,OP2FL          MOVE IN OP2
00245A  6E08 2098       1132          MVW   MASK3,R6             CONVERT MASK
00245E  6802 269E       1133          B     PRTNO                B-PRINT
002462                  1134  BAL1    EQU   *
002462  8918 208C       1135          MVW   (R1)+,MKFL1          BUMP THE ADR
002466  8908 208E       1136          MVW   (R1),MKFL2                 ' '
00246A  8918 1A0C       1137          MVW   (R1)+,OP1FL          MOVE IN OP1
00246E  8028 2086 19C8  1138          MVB   SPLAT,PRT16          SHOW INDIRECT ADR
002474  8828 20A6 19CA  1139          MVW   R7REG,PRT18          MOVE IN OP2
00247A  6E08 209A       1140          MVW   MASK4,R6             CONVERT MASK
00247E  6802 269E       1141          B     PRTNO                B-PRINT
002482                  1142  MVA1    EQU   *
002482  8918 208C       1143          MVW   (R1)+,MKFL1          BUMP THE ADR
002486  8908 208E       1144          MVW   (R1),MKFL2                 ' '
00248A  8918 1A0C       1145          MVW   (R1)+,OP1FL          MOVE IN OP1
00248E  8828 20A6 19CA  1146          MVW   R7REG,PRT18          MOVE IN OP2
002494  6E08 209A       1147          MVW   MASK4,R6             CONVERT MASK
002498  6802 269E       1148          B     PRTNO                B-PRINT
00249C                  1149  MVA2    EQU   *
00249C  8918 208C       1150          MVW   (R1)+,MKFL1          BUMP THE ADR
0024A0  8908 208E       1151          MVW   (R1),MKFL2                 ' '
0024A4  8918 1A0C       1152          MVW   (R1)+,OP1FL          MOVE IN OP1
0024A8  8828 20A4 19CA  1153          MVW   ROREG,PRT18          MOVE IN OP2
0024AE  6E08 209A       1154          MVW   MASK4,R6             CONVERT MASK
0024B2  6802 269E       1155          B     PRTNO                B-PRINT
0024B6                  1156  JZ1     EQU   *
0024B6  7164            1157          MVW   R1,R3                MOVE IN OP1
0024B8  8918 208C       1158          MVW   (R1)+,MKFL1          BUMP THE POINTER
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0024BC  7B61 0006        1159        AWI   SIX,R3                 NEW ADR
0024C0  6B0D 1A0C        1160        MVW   R3,OP1FL               OP1 ADR
0024C4  6802 269E        1161        B     PRTN0                  B-PRINT
0024C8                   1162 JZ2    EQU   *
0024C8  7164             1163        MVW   R1,R3                  MOVE IN OP1
0024CA  8918 208C        1164        MVW   (R1)+,MKFL1            BUMP THE POINTER
0024CE  7B61 000A        1165        AWI   TEN,R3                 NEW ADR
0024D2  6B0D 1A0C        1166        MVW   R3,OP1FL               OP1 ADR
0024D6  6802 269E        1167        B     PRTN0                  B-PRINT
0024DA                   1168 JZ3    EQU   *
0024DA  7164             1169        MVW   R1,R3                  MOVE IN OP1
0024DC  8918 208C        1170        MVW   (R1)+,MKFL1            BUMP THE POINTER
0024E0  7B61 FFFE        1171        AWI   M2,R3                  NEW ADR
0024E4  6B0D 1A0C        1172        MVW   R3,OP1FL               OP1 ADR
0024E8  6802 269E        1173        B     PRTN0                  B-PRINT
0024EC                   1174 JZ4    EQU   *
0024EC  7164             1175        MVW   R1,R3                  MOVE IN OP1
0024EE  8918 208C        1176        MVW   (R1)+,MKFL1            BUMP THE POINTER
0024F2  7B61 0016        1177        AWI   TWEN2,R3               NEW ADR
0024F6  6B0D 1A0C        1178        MVW   R3,OP1FL               OP1 ADR
0024FA  6802 269E        1179        B     PRTN0                  B-PRINT
0024FE                   1180 JCT1   EQU   *
0024FE  7164             1181        MVW   R1,R3                  MOVE IN OP1
002500  8918 208C        1182        MVW   (R1)+,MKFL1            BUMP THE POINTER
002504  6B0D 1A0C        1183        MVW   R3,OP1FL               OP1
002508  8828 20A6 19CA   1184        MVW   R7REG,PRT18            OP2
00250E  6802 269E        1185        B     PRTN0                  B-PRINT
002512                   1186 J2     EQU   *
002512  7164             1187        MVW   R1,R3                  SAVE R1
002514  8918 208C        1188        MVW   (R1)+,MKFL1            BUMP THE POINTER
002518  7B61 0004        1189        AWI   FOUR,R3                BUMP THE ADR
00251C  6B0D 1A0C        1190        MVW   R3,OP1FL               OP1
002520  6802 269E        1191        B     PRTN0                  B-PRINT
002524                   1192 TBT1   EQU   *
002524  8918 208C        1193        MVW   (R1)+,MKFL1
002528  8028 208D 1A0D   1194        MVB   MKFL1+ONE,OP1FL+ONE    MOVE IN THE BIT
00252E  C025 1A0C        1195        MVBZ  OP1FL,R0               ZERO THE FIRST BYTE
002532  8828 20A6 19CA   1196        MVW   R7REG,PRT18
002538  6802 269E        1197        B     PRTN0
00253C                   1198 TBT2   EQU   *
00253C  8918 208C        1199        MVW   (R1)+,MKFL1
002540  C825 1A0C        1200        MVWZ  OP1FL,R0               ZERO THE WORD
002544  8828 20A4 19CA   1201        MVW   R0REG,PRT18
00254A  6802 269E        1202        B     PRTN0
00254E                   1203 TBT3   EQU   *
00254E  8918 208C        1204        MVW   (R1)+,MKFL1
002552  4020 1A0C 0001   1205        MVWI  ONE,OP1FL              BIT ONE
002558  8828 20A4 19CA   1206        MVW   R0REG,PRT18
00255E  6802 269E        1207        B     PRTN0
002562                   1208 TBT4   EQU   *
002562  8918 208C        1209        MVW   (R1)+,MKFL1
002566  8028 208D 1A0D   1210        MVB   MKFL1+ONE,OP1FL+ONE    MOVE IN THE BIT
00256C  C025 1A0C        1211        MVBZ  OP1FL,R0               ZERO THE FIRST BYTE
002570  8828 20A4 19CA   1212        MVW   R0REG,PRT18
002576  6802 269E        1213        B     PRTN0
00257A                   1214 MVW3   EQU   *
00257A  8918 208C        1215        MVW   (R1)+,MKFL1            BUMP THE ADR
00257E  8908 208E        1216        MVW   (R1),MKFL2             ''
002582  8918 1A0C        1217        MVW   (R1)+,OP1FL            MOVE IN OP1
002586  8828 20A0 19CA   1218        MVW   R2REG,PRT18            MOVE IN OP2
00258C  6E08 209A        1219        MVW   MASK4,R6               CONVERT MASK
002590  6802 269E        1220        B     PRTN0                  B-PRINT
002594                   1221 AWI2   EQU   *
002594  9118 208C        1222        MVD   (R1)+,MKFL1            BUMP THE ADR
002598  4020 1A0C 0003   1223        MVWI  THREE,OP1FL            MOVE IN OP1
00259E  8828 20A0 19CA   1224        MVW   R2REG,PRT18            MOVE IN OP2
0025A4  6E08 209A        1225        MVW   MASK4,R6               CONVERT MASK
0025A8  6802 269E        1226        B     PRTN0                  B-PRINT
0025AC                   1227 MVB2   EQU   *
0025AC  8918 208C        1228        MVW   (R1)+,MKFL1            BUMP THE ADR
0025B0  8908 208E        1229        MVW   (R1),MKFL2             ''
0025B4  8918 1A0C        1230        MVW   (R1)+,OP1FL            MOVE IN OP1
0025B8  8028 2086 19C8   1231        MVB   SPLAT,PRT16            SHOW INDIRECT ADR
0025BE  9028 20A8 19CA   1232        MVD   PARN2,PRT18            MOVE IN OP2
0025C4  6E08 209A        1233        MVW   MASK4,R6               CONVERT MASK
0025C8  506A             1234        J     PRTN0                  B-PRINT
0025CA                   1235 MVWI1  EQU   *
0025CA  8918 208C        1236        MVW   (R1)+,MKFL1            BUMP THE ADR
0025CE  8908 1A0C        1237        MVW   (R1),OP1FL             MOVE IN OP1
0025D2  8918 208E        1238        MVW   (R1)+,MKFL2            ''
0025D6  8828 20A2 19CA   1239        MVW   R3REG,PRT18            MOVE IN OP2
0025DC  6E08 209A        1240        MVW   MASK4,R6               CONVERT MASK
0025E0  505E             1241        J     PRTN0                  B-PRINT
0025E2                   1242 MVWI2  EQU   *
0025E2  8918 208C        1243        MVW   (R1)+,MKFL1            BUMP THE ADR
0025E6  8908 208E        1244        MVW   (R1),MKFL2             ''
0025EA  8918 1A0C        1245        MVW   (R1)+,OP1FL            MOVE IN OP1
0025EE  8828 20A4 19CA   1246        MVW   R0REG,PRT18            MOVE IN OP2
0025F4  6E08 209A        1247        MVW   MASK4,R6               CONVERT MASK
0025F8  5052             1248        J     PRTN0                  B-PRINT
0025FA                   1249 JCT2   EQU   *
0025FA  7164             1250        MVW   R1,R3                  MOVE IN OP1
0025FC  8918 208C        1251        MVW   (R1)+,MKFL1            BUMP THE POINTER
002600  7B61 FFFE        1252        AWI   M2,R3                  RESET THE ADR
002604  6B0D 1A0C        1253        MVW   R3,OP1FL               OP1
002608  8828 20A2 19CA   1254        MVW   R3REG,PRT18            OP2
00260E  5047             1255        J     PRTN0                  B-PRINT
002610                   1256 JCT3   EQU   *
002610  7164             1257        MVW   R1,R3                  MOVE IN OP1
002612  8918 208C        1258        MVW   (R1)+,MKFL1            BUMP THE POINTER
002616  7B61 FFF6        1259        AWI   M10,R3                 RESET THE ADR
00261A  6B0D 1A0C        1260        MVW   R3,OP1FL               OP1
00261E  8828 20A2 19CA   1261        MVW   R3REG,PRT18            OP2
002624  503C             1262        J     PRTN0                  B-PRINT
002626                   1263 JCT4   EQU   *
002626  7164             1264        MVW   R1,R3                  MOVE IN OP1
002628  8918 208C        1265        MVW   (R1)+,MKFL1            BUMP THE POINTER
00262C  7B61 FFFC        1266        AWI   M4,R3                  RESET THE ADR
002630  6B0D 1A0C        1267        MVW   R3,OP1FL               OP1
002634  8828 20A6 19CA   1268        MVW   R7REG,PRT18            OP2
00263A  5031             1269        J     PRTN0                  B-PRINT
00263C                   1270 J3     EQU   *
00263C  7164             1271        MVW   R1,R3                  MOVE IN OP1
00263E  8918 208C        1272        MVW   (R1)+,MKFL1            BUMP THE POINTER
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002642  7B61 FFEC        1273        AWI   M20,R3                 RESET THE ADR
002646  6B0D 1A0C        1274        MVW   R3,OP1FL               OP1
00264A  5029             1275        J     PRTN0                  B-PRINT
00264C                   1276 NOP    EQU   *
00264C  690D 1A0C        1277        MVW   R1,OP1FL               OP1
002650  8918 208C        1278        MVW   (R1)+,MKFL1            BUMP THE ADR
002654  6E08 2092        1279        MVW   MASK0,R6               CONVERT MASK
002658  5022             1280        J     PRTN0                  B-PRINT
00265A                   1281 ABI    EQU   *
00265A  8918 208C        1282        MVW   (R1)+,MKFL1
00265E  8028 208D 1A0D   1283        MVB   MKFL1+ONE,OP1FL+ONE    MOVE IN THE BIT
002664  C025 1A0C        1284        MVBZ  OP1FL,R0               ZERO THE FIRST BYTE
002668  8828 20A4 19CA   1285        MVW   R0REG,PRT18
00266E  5017             1286        J     PRTN0
002670                   1287 SECON  EQU   *
002670  9028 2236 19BE   1288        MVD   SEC01,PRT06            OP1
002676  8828 223A 19C2   1289        MVW   SEC02,PRT10
00267C  8828 20A6 19C4   1290        MVW   R7REG,PRT12            REGISTER 7
002682  6E08 2092        1291        MVW   MASK0,R6               PRINT MASK
002686  8918 208C        1292        MVW   (R1)+,MKFL1            BUMP THE POINTER
00268A  5009             1293        J     PRTN0                  B-PRINT
00268C                   1294 DATA   EQU   *
00268C  9028 2232 19BE   1295        MVD   DCCMD,PRT06            DC STATEMENT
002692  8908 1A0C        1296        MVW   (R1),OP1FL             OP1
002696  8918 208C        1297        MVW   (R1)+,MKFL1            BUMP THE ADR
00269A  6E08 2096        1298        MVW   MASK2,R6               CONVERT MASK
00269E                   1299 PRTN0  EQU   *
00269E  4724 20BE        1300        MVA   CVMK1,R7               CONTROL BLOCK
0026A2  601A             1301        SVC   HTOE
0026A4  3609             1302        SLL   ONE,R6                 TEST FOR NEXT CVT
0026A6  1A03             1303        JNN   PRTN1
0026A8  4724 20C4        1304        MVA   CVMK2,R7               CONTROL BLOCK
0026AC  601A             1305        SVC   HTOE
0026AE                   1306 PRTN1  EQU   *
0026AE  3609             1307        SLL   ONE,R6                 TEST FOR NEXT CVT
0026B0  1A03             1308        JNN   PRTN2
0026B2  4724 20CA        1309        MVA   CVMK3,R7               CONTROL BLOCK
0026B6  601A             1310        SVC   HTOE
0026B8                   1311 PRTN2  EQU   *
0026B8  4724 20AC        1312        MVA   ADCVT,R7               CONTROL BLOCK
0026BC  601A             1313        SVC   HTOE
0026BE  3609             1314        SLL   ONE,R6                 TEST FOR NEXT CVT
0026C0  1A03             1315        JNN   PRTN3
0026C2  4724 20B2        1316        MVA   CVOP1,R7               CONTROL BLOCK
0026C6  601A             1317        SVC   HTOE
0026C8                   1318 PRTN3  EQU   *
0026C8  3609             1319        SLL   ONE,R6                 TEST FOR NEXT CVT
0026CA  1A03             1320        JNN   PRTN4
0026CC  4724 20B8        1321        MVA   CVOP2,R7               CONTROL BLOCK
0026D0  601A             1322        SVC   HTOE
0026D2                   1323 PRTN4  EQU   *
0026D2  C725 19E2        1324        MVBZ  PRT42,R7               SET THE IND
0026D6  4724 19B4        1325        MVA   PRTLN,R7               MSG CONTROL BLOCK
0026DA  6000             1326        SVC   OUT
0026DC  0F40             1327        MVBI  SIXT4,R7               NUM OF BLANKS
0026DE  4424 19B8        1328        MVA   TNIRP,R4               AREA TO CLEAR
0026E2  C020 2082        1329        MVB   BLANK,R0
0026E6  FFFA             1330        FFN   R0,(R4)
0026E8  9028 2082 1A0C   1331        MVD   BLANK,OP1FL            BLANK THE DATA FIELD
0026EE  9028 2082 208E   1332        MVD   BLANK,MKFL2            ''
0026F4  6808 19FE        1333        MVW   R0SAV,R0               END OF INSTRS
0026F8  7105             1334        CW    R1,R0                  IS THIS THE END
0026FA  6801 23A8        1335        BNE   COM01                  B-NO
0026FE  6802 27BA        1336        B     CRTN
002702                   1337 IDCBS  EQU   *
002702  4724 2278        1338        MVA   IDMSG,R7               CONTROL BLOCK
002706  6000             1339        SVC   OUT
002708  6A08 1A02        1340        MVW   R2SAV,R2               GET THE POINTERS
00270C  6E08 1812        1341        MVW   IDCPT,R6               GET THE END ADR
002710                   1342 IDCB1  EQU   *
002710  6A0D 1A0A        1343        MVW   R2,ADFLD               ADR OF IDCB
002714  8A18 1A0C        1344        MVW   (R2)+,OP1FL            FIRST WORD
002718  8A18 1A0E        1345        MVW   (R2)+,OP2FL            SECOND WORD
00271C  4724 20AC        1346        MVA   ADCVT,R7               CONTROL BLOCK
002720  601A             1347        SVC   HTOE
002722  4020 1964 1A0C   1348        MVA   OP1FL,CV2OP            SET THE
002728  4020 1966 19BE   1349        MVA   PRT06,CV3OP            CONTROL BLOCK
00272E  4524 0002        1350        MVWI  TWO,R5
002732                   1351 IDCB2  EQU   *
002732  4724 1962        1352        MVA   CV1OP,R7               CONTROL BLOCK
002736  601A             1353        SVC   HTOE
002738  4029 1964 0002   1354        AWI   TWO,CV2OP              BUMP THE POINTER
00273E  4029 1966 0006   1355        AWI   SIX,CV3OP             SAME HERE
002744  BDF6             1356        JCT   IDCB2,R5
002746  C325 19C8        1357        MVBZ  PRT16,R3               SET THE END CHAR
00274A  4724 19B4        1358        MVA   PRTLN,R7               MSG CONTROL BLOCK
00274E  6000             1359        SVC   OUT
002750  7645             1360        CW    R6,R2                  IS THIS THE END
002752  18DE             1361        JNE   IDCB1                  J-NO
002754  6802 27BA        1362        B     CRTN
002758                   1363 DCBTB  EQU   *
002758  6B08 1A04        1364        MVW   R3SAV,R3               GET THE POINTERS
00275C  6E08 181A        1365        MVW   DCBPT,R6               GET THE END ADR
002760  7305             1366        CW    R3,R6                  IS THERE A DCB
002762  1805             1367        JNE   DCBA                   J-YES
002764  4724 22B2        1368        MVA   NODCB,R7               MSG CONTROL BLOCK
002768  6000             1369        SVC   OUT
00276A  6802 27BA        1370        B     CRTN
00276E                   1371 DCBA   EQU   *
00276E  4724 228E        1372        MVA   DMSG1,R7               CONTROL BLOCK
002772  6000             1373        SVC   OUT
002774                   1374 DCB1   EQU   *
002774  6B0D 1A0A        1375        MVW   R3,ADFLD               ADR OF IDCB
002778  4724 0010        1376        MVWI  SIXTN,R7               BYTE COUNT
00277C  4224 1A0C        1377        MVA   OP1FL,R2               SAVE AREA
002780  2B44             1378        MVFN  (R3),(R2)              MOVE THE DATA
002782  4724 20AC        1379        MVA   ADCVT,R7               CONTROL BLOCK
002786  601A             1380        SVC   HTOE
002788  4020 1964 1A0C   1381        MVA   OP1FL,CV2OP            SET THE
00278E  4020 1966 19BE   1382        MVA   PRT06,CV3OP            CONTROL BLOCK
002794  4524 0008        1383        MVWI  EIGHT,R5
002798                   1384 DCB2   EQU   *
002798  4724 1962        1385        MVA   CV1OP,R7               CONTROL BLOCK
00279C  601A             1386        SVC   HTOE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00279E  4029 1964 0002     1387         AWI   TWO,CV2OP          BUMP THE POINTER
0027A4  4029 1966 0006     1388         AWI   SIX,CV3OP          SAME HERE
0027AA  BDF6               1389         JCT   DCB2,R5
0027AC  C725 19EE          1390         MVBZ  PRTS,R7            SET THE IND
0027B0  4724 19B4          1391         MVA   PRTLN,R7           MSG CONTROL BLOCK
0027B4  6000               1392         SVC   OUT
0027B6  7665               1393         CW    R6,R3              IS THIS THE END
0027B8  18DD               1394         JNE   DCB1               J-NO
0027BA                     1395 CRTN    EQU   *
0027BA  0F40               1396         MVBI  SIXT4,R7           NUM OF BLANKS
0027BC  4424 19B8          1397         MVA   TNIRP,R4           AREA TO CLEAR
0027C0  C020 2082          1398         MVB   BLANK,R0
0027C4  288C               1399         FFN   R0,(R4)
0027C6  9028 2082 1A0C     1400         MVD   BLANK,OP1FL        BLANK THE DATA FIELD
0027CC  9028 2082 208E     1401         MVD   BLANK,MKFL2        ''
0027D2  6908 208A          1402         MVW   COMSV,R1           GET THE SAVED POINTER
0027D6  7921 0001          1403         AWI   ONE,R1             BUMP TO THE NEXT COMMAND
0027DA  6F08 1A08          1404         MVW   R7SAV,R7           RESTORE R7
0027DE  7FE1 FFFF          1405         AWI   M1,R7              REDUCE COUNTER
0027E2  6801 237A          1406         BNZ   COM0B              GO DO THE NEXT COMMAND
0027E6  6812 1928          1407         B     RETSV*
0027EA                     1409 CHANG   EQU   *
0027EA  4724 0002          1410         MVWI  TWO,R7             NUMBER OF DEV ADR TO CHECK
0027EE                     1411 CAAGN   EQU   *
0027EE  8608 20DD          1412         MVB   (R6),RDADR         PUT THE DEVICE ADR IN READ I.D.
0027F2  680C 20DC          1413         IO    RDID               DO A READ I.D.
0027F6  7F06 0001          1414         CWI   ONE,R7             HAS THERE BEEN ONE READ I.D.
0027FA  1006               1415         JE    CAAAN              J-YES
0027FC  8828 20DE 20E0     1416         MVW   RDCOD,CHAID        SAVE THE CODE
002802  7EC1 0001          1417         AWI   ONE,R6             BUMP THE POINTER
002806  BFF3               1418         JCT   CAAGN,R7
002808                     1419 CAAAN   EQU   *
002808  7EC1 FFFF          1420         AWI   M1,R6              RESET THE POINTER
00280C  882B 20DE 20E0     1421         CW    RDCOD,CHAID        IS IT O.K.
002812  100F               1422         JE    CAGAN              J-YES
002814  4724 20D0          1423         MVA   CVRID,R7           CONVERT CONTROL BLOCK
002818  601A               1424         SVC   HTOE
00281A  4724 20D6          1425         MVA   CVEXP,R7           CONVEPT CONTROL BLOCK
00281E  601A               1426         SVC   HTOE
002820  4724 225C          1427         MVA   DIMSG,R7           ADR OF MSG
002824  6001               1428         SVC   OUTIN
002826  802B 2088 2081     1429         CB    WORKA,NO           WAS THE ANSWER NO
00282C  1802               1430         JNE   CAGAN              J-NO
00282E  6812 1928          1431         B     RETSV*             RETURN TO SENDER
002832                     1432 CAGAN   EQU   *
002832  7224               1433         MVW   R2,R1              SAVE POINTER
002834  7A41 0001          1434         AWI   ONE,R2             BUMP TO NEW ADR
002838  76A4               1435         MVW   R6,R5              SAVE THE IDCB POINTER
00283A  7EC1 0001          1436         AWI   ONE,R6             BUMP TO DEV ADR IN IDCB
00283E  6B08 1812          1437         MVW   IDCPT,R3           END OF IDCB POINTER
002842                     1438 CHAN1   EQU   *
002842  8583               1439         CB    (R5),(R2)          IS THIS THE DEVICE
002844  1801               1440         JNE   CHAN2              J-NO
002846  8680               1441         MVB   (R6),(R2)          CHANGE THE ADR
002848                     1442 CHAN2   EQU   *
002848  7921 0004          1443         AWI   FOUR,R1            BUMP THE POINTER
00284C  7A41 0004          1444         AWI   FOUR,R2            AGAIN
002850  7165               1445         CW    R1,R3              HAVE WE REACHED THE END
002852  18F7               1446         JNE   CHAN1              J-NOT YET
002854  4124 182E          1447         MVWI  DEVC1,R1           ADR TO CHANGE INTERRUPT
002858  6A08 182A          1448         MVW   NUMDV,R2           NUM OF DEVICES IN TEST
00285C                     1449 CHAN3   EQU   *
00285C  8543               1450         CB    (R5),(R1)          IS THIS THE DEVICE
00285E  1802               1451         JNE   CHAN4              J-NO
002860  8640               1452         MVB   (R6),(R1)          CHANGE THE DEVICE ADR
002862  5006               1453         J     CHAN6
002864                     1454 CHAN4   EQU   *
002864  7921 0008          1455         AWI   EIGHT,R1           BUMP POINTER TO NEXT ONE
002868  BAF9               1456         JCT   CHAN3,R2
00286A  4724 2258          1457         MVA   NODEV,R7           CAN'T FIND THE DEVICE
00286E  6000               1458         SVC   OUT
002870                     1459 CHAN6   EQU   *
002870  6812 1928          1460         B     RETSV*             RETURN TO SENDER
                           1462 *********************************************************************
                           1463 *                                                                   *
                           1464 *     THE FOLLOWING ROUTINE IS USED FOR PROGRAM CHECK, MACHINE      *
                           1465 *     CHECK AND POWER THERMAL WARNING INTERRUPTS.                   *
                           1466 *                                                                   *
                           1467 *********************************************************************
002874                     1469 MKRTN   EQU   *
002874  0F03               1470         MVBI  THREE,R7           LEVEL THREE
002876  6004               1471         SVC   CHNGE
002878  4624 1810          1472         MVWI  OPTN2,R6           OPTION WORD ADR
00287C  4E0E               1473         TBT   (R6,LOPMK)         IS THE LOOP BIT ON
00287E  1208               1474         JON   MKR01              J-YES
002880  4724 28A0          1475         MVA   MKQUS,R7           MESSAGE CONTROL BLOCK
002884  6001               1476         SVC   OUTIN
002886  802B 2088 2081     1477         CB    WORKA,NO           IS THIS A NEGATIVE
00288C  1007               1478         JE    MKR15              J-YES
00288E  4E4E               1479         TBTS  (R6,LOPMK)         T/ON THE BIT
002890                     1480 MKR01   EQU   *
002890  4624 4000          1481         MVWI  SXTNK,R6           WAIT FOR THE RESET TO SETTLE
002894                     1482 MKR02   EQU   *
002894  6002               1483         SVC   IDLE
002896  BEFE               1484         JCT   MKR02,R6           WAIT
002898  6802 1834          1485         B     RETMK              START THE INSTRUCTIONS
00289C                     1486 MKR15   EQU   *
00289C  6007               1487         SVC   TERM
00289E  00C0               1488         DC    X'00C0'
0028A0  28AA               1489 MKQUS   DC    A(MKQES)
0028A2  2088               1490         DC    A(WORKA)
0028A4  0001               1491         DC    A(1)
0028A6  0000               1492         DC    A(0)
0028A8  3495               1493         DC    A(CD15)
0028AA  C4D640E8D6E440E6C  1494 MKQES   DC    C'DO YOU WISH TO LOOP ON MCK,PCK,PTW?'
0028CD  00                 1495         DC    X'00'
000000                     1496         END
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DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R0.     ABSOLUTE. HEX VALUE(00000000)
                   349  373  374  376  378  395  409  410  423
                   507  510  511  570  575  577  596  621  698
                   700  702  703  705  707  709  779 1045 1089
                  1090 1091 1112 1195 1200 1211 1284 1329 1330
                  1333 1334 1398 1399
       0  .R1.     ABSOLUTE. HEX VALUE(00000001)
                   350  358  367  389  399  405  428  435  446
                   453  460  467  475  486  488  490  492  495
                   516  523  532  548  555  570  571  573  574
                   580  600  628  635 1046 1056 1060 1063 1069
                  1074 1078 1089 1092 1093 1094 1098 1099 1104
                  1105 1110 1110 1116 1117 1122 1123 1124 1128
                  1130 1131 1135 1136 1137 1143 1144 1145 1150
                  1151 1152 1157 1158 1163 1164 1169 1170 1175
                  1176 1181 1182 1187 1188 1193 1199 1204 1209
                  1214 1216 1217 1222 1228 1229 1230 1235 1237
                  1238 1243 1244 1245 1250 1251 1257 1258 1264
                  1265 1271 1272 1277 1278 1282 1292 1296 1297
                  1334 1402 1403 1433 1443 1445 1447 1450 1452
                  1455
       0  .R2.     ABSOLUTE. HEX VALUE(00000002)
                   351  353  355  357  360  361  361  361  361
                   363  366  371  383  396  397  403  403  407
                   411  426  429  430  430  430  430  432  434
                   438  444  447  448  448  448  448  450  452
                   456  461  462  462  462  462  464  466  470
                   473  474  509  514  519  528  533  534  537
                   549  550  550  550  550  552  554  557  629
                   630  630  630  630  632  634  638  639  640
                   641  645  646  647  648  657  723  726  735
                   736  756  759 1060 1062 1064 1065 1075 1078
                  1080 1085 1085 1086 1340 1343 1344 1345 1360
                  1377 1378 1433 1434 1439 1441 1444 1448 1456
       0  .R3.     ABSOLUTE. HEX VALUE(00000003)
                   517  519  522  526  527 1047 1072 1085 1087
                  1098 1100 1101 1104 1106 1107 1110 1111 1113
                  1116 1118 1119 1157 1159 1160 1163 1165 1166
                  1169 1171 1172 1175 1178 1181 1183 1187
                  1189 1190 1250 1252 1253 1257 1259 1260 1264
                  1266 1267 1271 1273 1274 1357 1364 1366 1375
                  1378 1393 1437 1445
       0  .R4.     ABSOLUTE. HEX VALUE(00000004)
                  1043 1043 1328 1330 1397 1399
       0  .R5.     ABSOLUTE. HEX VALUE(00000005)
                   480  481  494  515  521  527  528  529  581
                   582  585  601  602  605  695  696  697  704
                   717  725  726  730  731  733  736  750  751
                   758  759 1350 1356 1383 1389 1435 1439 1450
       0  .R6.     ABSOLUTE. HEX VALUE(00000006)
                   622  624  669  671  673  697  701  704  708
                   741  747  780  781 1049 1053 1059 1065 1066
                  1068 1066 1066 1084 1097 1095 1125 1132 1140
                  1147 1154 1219 1225 1233 1240 1247 1279 1291
                  1298 1302 1307 1314 1319 1341 1360 1365 1366
                  1393 1412 1417 1420 1435 1436 1441 1452 1472
                  1473 1479 1481 1484
       0  .R7.     ABSOLUTE. HEX VALUE(00000007)
                   355  363  385  390  408  432  450  464  508
                   509  512  525  530  530  531  539  542  543
                   545  569  572  572  573  587  590  591  593
                   607  609  623  626  650  653  659  660  665
                   668  675  677  679  681  683  685  687  689
                   691  693  703  709  713  718  721  724  728
                   734  737  743  748  757  762  764  766  768
                   772  774  776  785  787 1042 1048 1052 1054
                  1058 1070 1076 1081 1300 1304 1309 1312 1316
                  1321 1324 1325 1327 1338 1346 1352 1358 1368
                  1372 1376 1379 1385 1390 1391 1396 1404 1405
                  1410 1414 1418 1423 1425 1427 1457 1470 1475
    1281  ABI      ADDRESS. HEX LOCATION(0000265A) IN CSECT(03421   ) LENGTH(1)
                   907  910
     818  ADCVT    ADDRESS. HEX LOCATION(000020AC) IN CSECT(03421   ) LENGTH(2)
                   737 1312 1346 1379
     242  ADFLD    ADDRESS. HEX LOCATION(00001A0A) IN CSECT(03421   ) LENGTH(2)
                   188  646  731  733  750  753  819 1074 1343
                  1375
    1221  AWI2     ADDRESS. HEX LOCATION(00002594) IN CSECT(03421   ) LENGTH(1)
                   252
    1134  BAL1     ADDRESS. HEX LOCATION(00002462) IN CSECT(03421   ) LENGTH(1)
                   871  928
    1127  BCC1     ADDRESS. HEX LOCATION(00002448) IN CSECT(03421   ) LENGTH(1)
                   868
     798  BLANK    ADDRESS. HEX LOCATION(00002082) IN CSECT(03421   ) LENGTH(1)
                   720  723  756 1329 1331 1332 1398 1400 1401
     330  BYCNT    ADDRESS. HEX LOCATION(00001BE8) IN CSECT(03421   ) LENGTH(2)
                   641  695
     137  BYPAS    ABSOLUTE. HEX VALUE(00000001)
                   537  585  605  624
    1419  CAAAN    ADDRESS. HEX LOCATION(00002808) IN CSECT(03421   ) LENGTH(1)
                  1415
    1411  CAAGN    ADDRESS. HEX LOCATION(000027EE) IN CSECT(03421   ) LENGTH(1)
                  1418
     163  CADR1    ADDRESS. HEX LOCATION(0000192C) IN CSECT(03421   ) LENGTH(2)
                   762
     166  CADR3    ADDRESS. HEX LOCATION(00001932) IN CSECT(03421   ) LENGTH(2)
                   772
    1432  CAGAN    ADDRESS. HEX LOCATION(00002832) IN CSECT(03421   ) LENGTH(1)
                  1422 1430
    1088  CB       ADDRESS. HEX LOCATION(000023CE) IN CSECT(03421   ) LENGTH(1)
                   847  862  904  925
     141  CCERR    ABSOLUTE. HEX VALUE(0000000A)
                   403  673
     320  CCLSR    ADDRESS. HEX LOCATION(00001BCC) IN CSECT(03421   ) LENGTH(2)
                   512
     271  CCMGA    ADDRESS. HEX LOCATION(00001ABB) IN CSECT(03421   ) LENGTH(6)
                   168
     272  CCMGB    ADDRESS. HEX LOCATION(00001AC1) IN CSECT(03421   ) LENGTH(2)
                   177
     258  CCMG1    ADDRESS. HEX LOCATION(00001A2A) IN CSECT(03421   ) LENGTH(12)
                   254
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DECLARED  NAME     ATTRIBUTES AND REFERENCES
     259  CCMG2      ADDRESS. HEX LOCATION(00001A36) IN CSECT(03421   ) LENGTH(18)
                     171
     260  CCMG3      ADDRESS. HEX LOCATION(00001A48) IN CSECT(03421   ) LENGTH(15)
                     174
     261  CCMG4      ADDRESS. HEX LOCATION(00001A57) IN CSECT(03421   ) LENGTH(4)
                     165   189
     270  CCMG9      ADDRESS. HEX LOCATION(00001A9C) IN CSECT(03421   ) LENGTH(31)
                     256
     254  CCMSG      ADDRESS. HEX LOCATION(00001A22) IN CSECT(03421   ) LENGTH(2)
                     681   768
     233  CCREC      ADDRESS. HEX LOCATION(000019F9) IN CSECT(03421   ) LENGTH(1)
                     173   176   410
      55  CDF        ABSOLUTE. HEX VALUE(0000348F)
                    1008
      60  CD1E       ABSOLUTE. HEX VALUE(0000349E)
                    1032
      61  CD1F       ABSOLUTE. HEX VALUE(0000349F)
                     274
      56  CD15       ABSOLUTE. HEX VALUE(00003495)
                    1493
      57  CD17       ABSOLUTE. HEX VALUE(00003497)
                     283
      58  CD18       ABSOLUTE. HEX VALUE(00003498)
                     257
      59  CD19       ABSOLUTE. HEX VALUE(00003499)
                     269
      62  CD20       ABSOLUTE. HEX VALUE(000034A0)
                    1035
      65  CD4A       ABSOLUTE. HEX VALUE(000034CA)
                     287
      63  CD40       ABSOLUTE. HEX VALUE(000034C0)
                     265
      64  CD44       ABSOLUTE. HEX VALUE(000034C4)
                     480
     845  CHAID      ADDRESS. HEX LOCATION(000020E0) IN CSECT(03421   ) LENGTH(2)
                     840  1416  1421
    1409  CHANG      ADDRESS. HEX LOCATION(000027EA) IN CSECT(03421   ) LENGTH(1)
                    1044
    1438  CHAN1      ADDRESS. HEX LOCATION(00002842) IN CSECT(03421   ) LENGTH(1)
                    1446
    1442  CHAN2      ADDRESS. HEX LOCATION(00002848) IN CSECT(03421   ) LENGTH(1)
                    1440
    1449  CHAN3      ADDRESS. HEX LOCATION(0000285C) IN CSECT(03421   ) LENGTH(1)
                    1456
    1454  CHAN4      ADDRESS. HEX LOCATION(00002864) IN CSECT(03421   ) LENGTH(1)
                    1451
    1459  CHAN6      ADDRESS. HEX LOCATION(00002870) IN CSECT(03421   ) LENGTH(1)
                    1453
      45  CHNGE      ABSOLUTE. HEX VALUE(00000004)
                    1471
     264  CLOST      ADDRESS. HEX LOCATION(00001A5E) IN CSECT(03421   ) LENGTH(2)
                     787
     976  CMDTB      ADDRESS. HEX LOCATION(00002240) IN CSECT(03421   ) LENGTH(2)
                    1059
     297  CMG2       ADDRESS. HEX LOCATION(00001B34) IN CSECT(03421   ) LENGTH(39)
                     295   698
     801  COMSV      ADDRESS. HEX LOCATION(0000208A) IN CSECT(03421   ) LENGTH(2)
                    1063  1402
     846  COMTB      ADDRESS. HEX LOCATION(000020E2) IN CSECT(03421   ) LENGTH(2)
                    1075
    1050  COM0A      ADDRESS. HEX LOCATION(00002368) IN CSECT(03421   ) LENGTH(1)
                    1053
    1057  COM0B      ADDRESS. HEX LOCATION(0000237A) IN CSECT(03421   ) LENGTH(1)
                    1406
    1068  COM0C      ADDRESS. HEX LOCATION(0000239A) IN CSECT(03421   ) LENGTH(1)
                     976
    1041  COM00      ADDRESS. HEX LOCATION(0000234A) IN CSECT(03421   ) LENGTH(1)
                     150
    1073  COM01      ADDRESS. HEX LOCATION(000023A8) IN CSECT(03421   ) LENGTH(1)
                    1335
    1077  COM02      ADDRESS. HEX LOCATION(000023B4) IN CSECT(03421   ) LENGTH(1)
                    1081
    1083  COM03      ADDRESS. HEX LOCATION(000023C2) IN CSECT(03421   ) LENGTH(1)
                    1079
      72  CONEP      ABSOLUTE. HEX VALUE(0000001E)
                     478   479   485
     484  CONRT      ADDRESS. HEX LOCATION(00001D3E) IN CSECT(03421   ) LENGTH(1)
                     479
     234  CONSV      ADDRESS. HEX LOCATION(000019FA) IN CSECT(03421   ) LENGTH(2)
                     478   485
    1395  CRTN       ADDRESS. HEX LOCATION(000027BA) IN CSECT(03421   ) LENGTH(1)
                    1336  1362  1370
     422  CSDV       ADDRESS. HEX LOCATION(00001CB0) IN CSECT(03421   ) LENGTH(1)
                     146
     783  CSLOS      ADDRESS. HEX LOCATION(00002042) IN CSECT(03421   ) LENGTH(1)
                     661
     295  CSMG1      ADDRESS. HEX LOCATION(00001B30) IN CSECT(03421   ) LENGTH(2)
                     718
     301  CSMG3      ADDRESS. HEX LOCATION(00001B76) IN CSECT(03421   ) LENGTH(2)
                     721
     328  CSSDC      ADDRESS. HEX LOCATION(00001BDC) IN CSECT(03421   ) LENGTH(2)
                     327
     332  CSSDT      ADDRESS. HEX LOCATION(00001BEC) IN CSECT(03421   ) LENGTH(2)
                     194   331   710
     326  CSSIO      ADDRESS. HEX LOCATION(00001BD8) IN CSECT(03421   ) LENGTH(2)
                     638   654   784
     178  CVADR      ADDRESS. HEX LOCATION(0000194A) IN CSECT(03421   ) LENGTH(2)
                     591
     193  CVCSS      ADDRESS. HEX LOCATION(00001968) IN CSECT(03421   ) LENGTH(2)
                     713
     194  CVCS1      ADDRESS. HEX LOCATION(0000196A) IN CSECT(03421   ) LENGTH(2)
                     710   715
     195  CVCS2      ADDRESS. HEX LOCATION(0000196C) IN CSECT(03421   ) LENGTH(2)
                     711   716
     181  CVDB1      ADDRESS. HEX LOCATION(00001950) IN CSECT(03421   ) LENGTH(2)
                     683
     182  CVDB2      ADDRESS. HEX LOCATION(00001952) IN CSECT(03421   ) LENGTH(2)
                     647
     184  CVDB4      ADDRESS. HEX LOCATION(00001956) IN CSECT(03421   ) LENGTH(2)
                     685
     185  CVDB5      ADDRESS. HEX LOCATION(00001958) IN CSECT(03421   ) LENGTH(2)
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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                     648   649   730
     187  CVDB6      ADDRESS. HEX LOCATION(0000195C) IN CSECT(03421   ) LENGTH(2)
                     679
     839  CVEXP      ADDRESS. HEX LOCATION(000020D6) IN CSECT(03421   ) LENGTH(2)
                    1425
     169  CVEX1      ADDRESS. HEX LOCATION(00001938) IN CSECT(03421   ) LENGTH(2)
                     677   766
     196  CVISB      ADDRESS. HEX LOCATION(0000196E) IN CSECT(03421   ) LENGTH(2)
                     687
     199  CVLST      ADDRESS. HEX LOCATION(00001974) IN CSECT(03421   ) LENGTH(2)
                     785
     827  CVMK1      ADDRESS. HEX LOCATION(000020BE) IN CSECT(03421   ) LENGTH(2)
                    1300
     830  CVMK2      ADDRESS. HEX LOCATION(000020C4) IN CSECT(03421   ) LENGTH(2)
                    1304
     833  CVMK3      ADDRESS. HEX LOCATION(000020CA) IN CSECT(03421   ) LENGTH(2)
                    1309
     821  CVOP1      ADDRESS. HEX LOCATION(000020B2) IN CSECT(03421   ) LENGTH(2)
                    1316
     824  CVOP2      ADDRESS. HEX LOCATION(000020B8) IN CSECT(03421   ) LENGTH(2)
                    1321
     172  CVRC1      ADDRESS. HEX LOCATION(0000193E) IN CSECT(03421   ) LENGTH(2)
                     675   764
     175  CVRC3      ADDRESS. HEX LOCATION(00001944) IN CSECT(03421   ) LENGTH(2)
                     774
     836  CVRID      ADDRESS. HEX LOCATION(000020D0) IN CSECT(03421   ) LENGTH(2)
                    1423
     323  CVTAD      ADDRESS. HEX LOCATION(00001BD2) IN CSECT(03421   ) LENGTH(2)
                     543
     190  CV1OP      ADDRESS. HEX LOCATION(00001962) IN CSECT(03421   ) LENGTH(2)
                     743  1352  1385
     191  CV2OP      ADDRESS. HEX LOCATION(00001964) IN CSECT(03421   ) LENGTH(2)
                     739   745  1348  1354  1381  1387
     192  CV3OP      ADDRESS. HEX LOCATION(00001966) IN CSECT(03421   ) LENGTH(2)
                     740   746  1349  1355  1382  1388
    1294  DATA       ADDRESS. HEX LOCATION(0000268C) IN CSECT(03421   ) LENGTH(1)
                    1082
     208  DBMG1      ADDRESS. HEX LOCATION(00001986) IN CSECT(03421   ) LENGTH(5)
                     206
     209  DBMG2      ADDRESS. HEX LOCATION(0000198B) IN CSECT(03421   ) LENGTH(5)
                     183
     210  DBMG3      ADDRESS. HEX LOCATION(00001990) IN CSECT(03421   ) LENGTH(12)
                     186
     211  DBMG4      ADDRESS. HEX LOCATION(0000199C) IN CSECT(03421   ) LENGTH(4)
                     198
    1371  DCBA       ADDRESS. HEX LOCATION(0000276E) IN CSECT(03421   ) LENGTH(1)
                    1367
     206  DCBMG      ADDRESS. HEX LOCATION(00001982) IN CSECT(03421   ) LENGTH(2)
                     689
      79  DCBPT     ABSOLUTE. HEX VALUE(0000181A)
                    1365
    1363  DCBTB      ADDRESS. HEX LOCATION(00002758) IN CSECT(03421   ) LENGTH(1)
                     978
    1374  DCB1       ADDRESS. HEX LOCATION(00002774) IN CSECT(03421   ) LENGTH(1)
                    1394
    1384  DCB2       ADDRESS. HEX LOCATION(00002798) IN CSECT(03421   ) LENGTH(1)
                    1389
     972  DCCMD      ADDRESS. HEX LOCATION(00002232) IN CSECT(03421   ) LENGTH(4)
                    1295
     215  DCMG       ADDRESS. HEX LOCATION(000019A6) IN CSECT(03421   ) LENGTH(11)
                     213
     213  DCMSG      ADDRESS. HEX LOCATION(000019A2) IN CSECT(03421   ) LENGTH(2)
                     728
      90  DEVC1     ABSOLUTE. HEX VALUE(0000182E)
                     360   429   447   461   549   629  1447
     990  DIMSG      ADDRESS. HEX LOCATION(0000225C) IN CSECT(03421   ) LENGTH(2)
                    1427
    1011  DMSG1      ADDRESS. HEX LOCATION(0000228E) IN CSECT(03421   ) LENGTH(2)
                    1372
    1013  DMSG2      ADDRESS. HEX LOCATION(00002292) IN CSECT(03421   ) LENGTH(11)
                    1011
    1009  DUM        ADDRESS. HEX LOCATION(0000228C) IN CSECT(03421   ) LENGTH(1)
                     995
     995  DUMMY      ADDRESS. HEX LOCATION(00002266) IN CSECT(03421   ) LENGTH(2)
                    1054
    1000  DUM2       ADDRESS. HEX LOCATION(00002270) IN CSECT(03421   ) LENGTH(2)
                     626
    1002  DUM3       ADDRESS. HEX LOCATION(00002274) IN CSECT(03421   ) LENGTH(2)
                    1000
     334  DVTYP      ADDRESS. HEX LOCATION(00001C07) IN CSECT(03421   ) LENGTH(1)
                     640
     102  EIGHT     ABSOLUTE. HEX VALUE(00000008)
                     357   634   741  1106  1383  1455
     162  ERRAD      ADDRESS. HEX LOCATION(0000192A) IN CSECT(03421   ) LENGTH(2)
                     164   167   197   408   632
     292  EXPCC      ADDRESS. HEX LOCATION(00001B2D) IN CSECT(03421   ) LENGTH(1)
                     170   398   404
      99  FIVE      ABSOLUTE. HEX VALUE(00000005)
                     495   580   700   707   716
     118  FORT3     ABSOLUTE. HEX VALUE(0000002B)
                    1076
      98  FOUR      ABSOLUTE. HEX VALUE(00000004)
                     443   492   532  1049  1052  1189  1443  1444
     431  HERA       ADDRESS. HEX LOCATION(00001CC8) IN CSECT(03421   ) LENGTH(1)
                     435
     437  HERB       ADDRESS. HEX LOCATION(00001CD6) IN CSECT(03421   ) LENGTH(1)
                     433
     442  HERNG      ADDRESS. HEX LOCATION(00001CDC) IN CSECT(03421   ) LENGTH(1)
                     425
     449  HERN1      ADDRESS. HEX LOCATION(00001CF0) IN CSECT(03421   ) LENGTH(1)
                     453
     455  HERN2      ADDRESS. HEX LOCATION(00001CFC) IN CSECT(03421   ) LENGTH(1)
                     451
     459  HERN3      ADDRESS. HEX LOCATION(00001D02) IN CSECT(03421   ) LENGTH(1)
                     443
     463  HERN4      ADDRESS. HEX LOCATION(00001D0C) IN CSECT(03421   ) LENGTH(1)
                     467
     469  HERN5      ADDRESS. HEX LOCATION(00001D18) IN CSECT(03421   ) LENGTH(1)
                     465
     440  HER1       ADDRESS. HEX LOCATION(00001CDA) IN CSECT(03421   ) LENGTH(1)
                     427   445   471
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CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
86	HEXFF	ABSOLUTE. HEX VALUE(00001828) 643 652 663
336	HEX03	ADDRESS. HEX LOCATION(00001C09) IN CSECT(03421) LENGTH(1) 374 404
337	HEX04	ADDRESS. HEX LOCATION(00001C0A) IN CSECT(03421) LENGTH(1) 376
338	HEX07	ADDRESS. HEX LOCATION(00001C0B) IN CSECT(03421) LENGTH(1) 378 398
47	HTOE	ABSOLUTE. HEX VALUE(0000001A) 513 544 592 608 676 678 680 684 686 688 714 738 744 763 765 767 773 775 786 1301 1305 1310 1313 1317 1322 1347 1353 1380 1386 1424 1426
1337	IDCBS	ADDRESS. HEX LOCATION(00002702) IN CSECT(03421) LENGTH(1) 977
1342	IDCB1	ADDRESS. HEX LOCATION(00002710) IN CSECT(03421) LENGTH(1) 1361
1351	IDCB2	ADDRESS. HEX LOCATION(00002732) IN CSECT(03421) LENGTH(1) 1356
75	IDCPT	ABSOLUTE. HEX VALUE(00001812) 1341 1437
44	IDLE	ABSOLUTE. HEX VALUE(00000002) 541 589 656 667 1483
1006	IDMG	ADDRESS. HEX LOCATION(0000227C) IN CSECT(03421) LENGTH(12) 1004
1036	IDMG1	ADDRESS. HEX LOCATION(00002316) IN CSECT(03421) LENGTH(19) 990
1037	IDMG2	ADDRESS. HEX LOCATION(00002329) IN CSECT(03421) LENGTH(14) 841
1038	IDMG3	ADDRESS. HEX LOCATION(00002337) IN CSECT(03421) LENGTH(18) 838
1004	IDMSG	ADDRESS. HEX LOCATION(00002278) IN CSECT(03421) LENGTH(2) 1338
138	INERR	ABSOLUTE. HEX VALUE(00000002) 407 781
579	INT	ADDRESS. HEX LOCATION(00001E0E) IN CSECT(03421) LENGTH(1) 576
567	INTL	ADDRESS. HEX LOCATION(00001DF2) IN CSECT(03421) LENGTH(1) 148
595	INTLA	ADDRESS. HEX LOCATION(00001E32) IN CSECT(03421) LENGTH(1) 586 606 611
599	INTLB	ADDRESS. HEX LOCATION(00001E3A) IN CSECT(03421) LENGTH(1) 578
604	INTLC	ADDRESS. HEX LOCATION(00001E48) IN CSECT(03421) LENGTH(1) 497
584	INTL0	ADDRESS. HEX LOCATION(00001E1A) IN CSECT(03421) LENGTH(1) 496
588	INTL1	ADDRESS. HEX LOCATION(00001E22) IN CSECT(03421) LENGTH(1) 590
1121	IO	ADDRESS. HEX LOCATION(00002434) IN CSECT(03421) LENGTH(1) 865 898 922
140	IOERR	ABSOLUTE. HEX VALUE(00000009) 397 671
761	IOER1	ADDRESS. HEX LOCATION(00002008) IN CSECT(03421) LENGTH(1) 672
771	IOER2	ADDRESS. HEX LOCATION(00002022) IN CSECT(03421) LENGTH(1) 670
1180	JCT1	ADDRESS. HEX LOCATION(000024FE) IN CSECT(03421) LENGTH(1) 934
1249	JCT2	ADDRESS. HEX LOCATION(000025FA) IN CSECT(03421) LENGTH(1) 964
1256	JCT3	ADDRESS. HEX LOCATION(00002610) IN CSECT(03421) LENGTH(1) 937 940
1263	JCT4	ADDRESS. HEX LOCATION(00002626) IN CSECT(03421) LENGTH(1) 931
1097	JNE1	ADDRESS. HEX LOCATION(000023EC) IN CSECT(03421) LENGTH(1) 850
1103	JNE2	ADDRESS. HEX LOCATION(000023FE) IN CSECT(03421) LENGTH(1) 853
1156	JZ1	ADDRESS. HEX LOCATION(000024B6) IN CSECT(03421) LENGTH(1) 916
1162	JZ2	ADDRESS. HEX LOCATION(000024C8) IN CSECT(03421) LENGTH(1) 913
1168	JZ3	ADDRESS. HEX LOCATION(000024DA) IN CSECT(03421) LENGTH(1) 919
1174	JZ4	ADDRESS. HEX LOCATION(000024EC) IN CSECT(03421) LENGTH(1) 958
1115	J1	ADDRESS. HEX LOCATION(00002422) IN CSECT(03421) LENGTH(1) 859
1186	J2	ADDRESS. HEX LOCATION(00002512) IN CSECT(03421) LENGTH(1) 943
1270	J3	ADDRESS. HEX LOCATION(0000263C) IN CSECT(03421) LENGTH(1) 967
83	KEYMD	ABSOLUTE. HEX VALUE(00001820) 353
81	KMODE	ABSOLUTE. HEX VALUE(0000181E) 351
84	KYMOD	ABSOLUTE. HEX VALUE(00001824) 389
142	LOPMK	ABSOLUTE. HEX VALUE(0000000E) 1473 1479
266	LOSTC	ADDRESS. HEX LOCATION(00001A62) IN CSECT(03421) LENGTH(53) 264
267	LOST1	ADDRESS. HEX LOCATION(00001A97) IN CSECT(03421) LENGTH(2) 201
311	LSR	ADDRESS. HEX LOCATION(00001BC2) IN CSECT(03421) LENGTH(2) 321 324 511 529 531 552
291	LSTAD	ADDRESS. HEX LOCATION(00001B2C) IN CSECT(03421) LENGTH(1) 179 203 574
282	LSTMG	ADDRESS. HEX LOCATION(00001AFC) IN CSECT(03421) LENGTH(2) 593
285	LSTM1	ADDRESS. HEX LOCATION(00001B17) IN CSECT(03421) LENGTH(2) 180
284	LTMSG	ADDRESS. HEX LOCATION(00001B00) IN CSECT(03421) LENGTH(23) 282
805	MASK0	ADDRESS. HEX LOCATION(00002092) IN CSECT(03421) LENGTH(2) 1279 1291
806	MASK1	ADDRESS. HEX LOCATION(00002094) IN CSECT(03421) LENGTH(2) 1095
807	MASK2	ADDRESS. HEX LOCATION(00002096) IN CSECT(03421) LENGTH(2) 1084 1298

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
808	MASK3	ADDRESS. HEX LOCATION(00002098) IN CSECT(03421) LENGTH(2) 1132
809	MASK4	ADDRESS. HEX LOCATION(0000209A) IN CSECT(03421) LENGTH(2) 1125 1140 1147 1154 1219 1225 1233 1240 1247
792	MESAG	ADDRESS. HEX LOCATION(0000205A) IN CSECT(03421) LENGTH(2) 1070
1016	MG1	ADDRESS. HEX LOCATION(000022A0) IN CSECT(03421) LENGTH(16) 980
1024	MG2	ADDRESS. HEX LOCATION(000022C6) IN CSECT(03421) LENGTH(15) 982
1027	MG3	ADDRESS. HEX LOCATION(000022D8) IN CSECT(03421) LENGTH(18) 984
1030	MG4	ADDRESS. HEX LOCATION(000022EE) IN CSECT(03421) LENGTH(17) 986
1033	MG5	ADDRESS. HEX LOCATION(00002302) IN CSECT(03421) LENGTH(16) 988
802	MKFL1	ADDRESS. HEX LOCATION(0000208C) IN CSECT(03421) LENGTH(2) 828 1090 1099 1105 1111 1117 1122 1128 1135 1143 1150 1158 1164 1170 1176 1182 1188 1193 1194 1199 1204 1209 1210 1215 1222 1228 1236 1243 1251 1258 1265 1272 1278 1282 1283 1292 1297
803	MKFL2	ADDRESS. HEX LOCATION(0000208E) IN CSECT(03421) LENGTH(2) 831 1123 1130 1136 1144 1151 1216 1229 1238 1244 1332 1401
804	MKFL3	ADDRESS. HEX LOCATION(00002090) IN CSECT(03421) LENGTH(2) 834 1051
1494	MKQES	ADDRESS. HEX LOCATION(000028AA) IN CSECT(03421) LENGTH(35) 1489
1489	MKQUS	ADDRESS. HEX LOCATION(000028A0) IN CSECT(03421) LENGTH(2) 1475
1469	MKRTN	ADDRESS. HEX LOCATION(00002874) IN CSECT(03421) LENGTH(1) 151
1480	MKR01	ADDRESS. HEX LOCATION(00002890) IN CSECT(03421) LENGTH(1) 1474
1482	MKR02	ADDRESS. HEX LOCATION(00002894) IN CSECT(03421) LENGTH(1) 1484
1486	MKR15	ADDRESS. HEX LOCATION(0000289C) IN CSECT(03421) LENGTH(1) 1478
794	MSG	ADDRESS. HEX LOCATION(0000205E) IN CSECT(03421) LENGTH(34) 792
980	MSG1	ADDRESS. HEX LOCATION(00002248) IN CSECT(03421) LENGTH(2) 1048
1142	MVA1	ADDRESS. HEX LOCATION(00002482) IN CSECT(03421) LENGTH(1) 874
1149	MVA2	ADDRESS. HEX LOCATION(0000249C) IN CSECT(03421) LENGTH(1) 877
1227	MVB2	ADDRESS. HEX LOCATION(000025AC) IN CSECT(03421) LENGTH(1) 955
1235	MVWI1	ADDRESS. HEX LOCATION(000025CA) IN CSECT(03421) LENGTH(1) 961
1242	MVWI2	ADDRESS. HEX LOCATION(000025E2) IN CSECT(03421) LENGTH(1) 886
1214	MVW3	ADDRESS. HEX LOCATION(0000257A) IN CSECT(03421) LENGTH(1) 949
130	M1	ABSOLUTE. HEX VALUE(FFFFFFFF) 1405 1420
133	M10	ABSOLUTE. HEX VALUE(FFFFFFF6) 1118 1259
131	M2	ABSOLUTE. HEX VALUE(FFFFFFFE) 1171 1252
135	M20	ABSOLUTE. HEX VALUE(FFFFFFEC) 1273
132	M4	ABSOLUTE. HEX VALUE(FFFFFFFC) 1266
518	NCCD1	ADDRESS. HEX LOCATION(00001D8C) IN CSECT(03421) LENGTH(1) 523
506	NCC7	ADDRESS. HEX LOCATION(00001D68) IN CSECT(03421) LENGTH(1) 147
540	NCD7A	ADDRESS. HEX LOCATION(00001DC6) IN CSECT(03421) LENGTH(1) 542
547	NCD7B	ADDRESS. HEX LOCATION(00001DD6) IN CSECT(03421) LENGTH(1) 538
536	NCD70	ADDRESS. HEX LOCATION(00001DBE) IN CSECT(03421) LENGTH(1) 493
524	NCD71	ADDRESS. HEX LOCATION(00001D9C) IN CSECT(03421) LENGTH(1) 520
551	NCD72	ADDRESS. HEX LOCATION(00001DE0) IN CSECT(03421) LENGTH(1) 555
556	NCD73	ADDRESS. HEX LOCATION(00001DEC) IN CSECT(03421) LENGTH(1) 553
1021	NDCB	ADDRESS. HEX LOCATION(000022B6) IN CSECT(03421) LENGTH(12) 1019
796	NO	ADDRESS. HEX LOCATION(00002081) IN CSECT(03421) LENGTH(1) 1429 1477
335	NOCSS	ADDRESS. HEX LOCATION(00001C08) IN CSECT(03421) LENGTH(1) 643 650 691
1019	NODCB	ADDRESS. HEX LOCATION(000022B2) IN CSECT(03421) LENGTH(2) 1368
988	NODEV	ADDRESS. HEX LOCATION(00002258) IN CSECT(03421) LENGTH(2) 1457
1276	NOP	ADDRESS. HEX LOCATION(0000264C) IN CSECT(03421) LENGTH(1) 901 970
347	NOTC	ADDRESS. HEX LOCATION(00001C0C) IN CSECT(03421) LENGTH(1) 145
275	NOT7	ADDRESS. HEX LOCATION(00001AC6) IN CSECT(03421) LENGTH(27) 303
276	NOT7A	ADDRESS. HEX LOCATION(00001AE1) IN CSECT(03421) LENGTH(6) 322
277	NOT7B	ADDRESS. HEX LOCATION(00001AE7) IN CSECT(03421) LENGTH(16) 526
278	NOT7C	ADDRESS. HEX LOCATION(00001AF7) IN CSECT(03421) LENGTH(2) 325
303	NOT7M	ADDRESS. HEX LOCATION(00001B7A) IN CSECT(03421) LENGTH(2) 545
88	NUMDV	ABSOLUTE. HEX VALUE(0000182A) 350 428 446 460 548 628 1448
95	ONE	ABSOLUTE. HEX VALUE(00000001) 164 167 399 470 486 522 571 632 638 641 695 696 698 705 784 1062 1064 1113 1194 1194 1205 1210 1210 1283 1283 1302 1307 1314 1319 1403 1414 1417 1434 1436

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
74	OPTN2	ABSOLUTE. HEX VALUE(00001810) 396 402 473 494 533 581 601 622 780 1472
243	OP1FL	ADDRESS. HEX LOCATION(00001A0C) IN CSECT(03421) LENGTH(2) 191 735 739 822 1093 1101 1107 1112 1113 1119 1124 1129 1137 1145 1152 1160 1166 1172 1178 1183 1190 1194 1195 1200 1205 1210 1211 1217 1223 1230 1237 1245 1253 1260 1267 1274 1277 1283 1284 1296 1331 1344 1348 1377 1381 1400
244	OP2FL	ADDRESS. HEX LOCATION(00001A0E) IN CSECT(03421) LENGTH(2) 825 1094 1131 1345
42	OUT	ABSOLUTE. HEX VALUE(00000000) 546 594 610 627 682 690 719 722 729 749 769 777 788 1051 1071 1326 1339 1359 1369 1373 1392 1458
43	OUTIN	ABSOLUTE. HEX VALUE(00000001) 1055 1428 1476
3	O3421	CSECT. START(00001900) LENGTH(4046) ESDID(0) 3
817	PARN2	ADDRESS. HEX LOCATION(000020A8) IN CSECT(03421) LENGTH(4) 1232
304	PREPA	ADDRESS. HEX LOCATION(00001B7C) IN CSECT(03421) LENGTH(10) 515
620	PRNT	ADDRESS. HEX LOCATION(00001E5A) IN CSECT(03421) LENGTH(1) 149
631	PRNT1	ADDRESS. HEX LOCATION(00001E7C) IN CSECT(03421) LENGTH(1) 635
637	PRNT2	ADDRESS. HEX LOCATION(00001E8A) IN CSECT(03421) LENGTH(1) 633
644	PRNT3	ADDRESS. HEX LOCATION(00001EA2) IN CSECT(03421) LENGTH(1) 642
655	PRNT4	ADDRESS. HEX LOCATION(00001ECC) IN CSECT(03421) LENGTH(1) 636 659
666	PRNT5	ADDRESS. HEX LOCATION(00001EE8) IN CSECT(03421) LENGTH(1) 668
732	PRNT6	ADDRESS. HEX LOCATION(00001FAC) IN CSECT(03421) LENGTH(1) 754
755	PRNT7	ADDRESS. HEX LOCATION(00001FFA) IN CSECT(03421) LENGTH(1) 752
662	PRN3	ADDRESS. HEX LOCATION(00001EDE) IN CSECT(03421) LENGTH(1) 658
664	PRN4	ADDRESS. HEX LOCATION(00001EE4) IN CSECT(03421) LENGTH(1) 651 789
727	PRN5	ADDRESS. HEX LOCATION(00001F9E) IN CSECT(03421) LENGTH(1) 694
312	PRPCD	ADDRESS. HEX LOCATION(00001BC4) IN CSECT(03421) LENGTH(1) 517
218	PRTLN	ADDRESS. HEX LOCATION(000019B4) IN CSECT(03421) LENGTH(2) 748 1325 1358 1391
1299	PRTN0	ADDRESS. HEX LOCATION(0000269E) IN CSECT(03421) LENGTH(1) 1096 1102 1108 1114 1120 1126 1133 1141 1148 1155 1161 1167 1173 1179 1185 1191 1197 1202 1207 1213 1220 1226 1234 1241 1248 1255 1262 1269 1275 1280 1286 1293
1306	PRTN1	ADDRESS. HEX LOCATION(000026AE) IN CSECT(03421) LENGTH(1) 1303
1311	PRTN2	ADDRESS. HEX LOCATION(000026B8) IN CSECT(03421) LENGTH(1) 1308
1318	PRTN3	ADDRESS. HEX LOCATION(000026C8) IN CSECT(03421) LENGTH(1) 1315
1323	PRTN4	ADDRESS. HEX LOCATION(000026D2) IN CSECT(03421) LENGTH(1) 1320
221	PRT06	ADDRESS. HEX LOCATION(000019BE) IN CSECT(03421) LENGTH(4) 192 740 1086 1288 1295 1349 1382
222	PRT10	ADDRESS. HEX LOCATION(000019C2) IN CSECT(03421) LENGTH(2) 1289
223	PRT12	ADDRESS. HEX LOCATION(000019C4) IN CSECT(03421) LENGTH(4) 823 1290
224	PRT16	ADDRESS. HEX LOCATION(000019C8) IN CSECT(03421) LENGTH(2) 1138 1231 1357
225	PRT18	ADDRESS. HEX LOCATION(000019CA) IN CSECT(03421) LENGTH(6) 826 1139 1146 1153 1184 1196 1201 1206 1212 1218 1224 1232 1239 1246 1254 1261 1268 1285
226	PRT24	ADDRESS. HEX LOCATION(000019D0) IN CSECT(03421) LENGTH(6) 829
227	PRT30	ADDRESS. HEX LOCATION(000019D6) IN CSECT(03421) LENGTH(6) 832
228	PRT36	ADDRESS. HEX LOCATION(000019DC) IN CSECT(03421) LENGTH(6) 835
229	PRT42	ADDRESS. HEX LOCATION(000019E2) IN CSECT(03421) LENGTH(6) 1072 1324
231	PRT54	ADDRESS. HEX LOCATION(000019EE) IN CSECT(03421) LENGTH(10) 1390
699	PR1	ADDRESS. HEX LOCATION(00001F46) IN CSECT(03421) LENGTH(1) 701
706	PR2	ADDRESS. HEX LOCATION(00001F58) IN CSECT(03421) LENGTH(1) 708
712	PR5	ADDRESS. HEX LOCATION(00001F6C) IN CSECT(03421) LENGTH(1) 717
742	PR6	ADDRESS. HEX LOCATION(00001FD0) IN CSECT(03421) LENGTH(1) 747
843	RDADR	ADDRESS. HEX LOCATION(000020DD) IN CSECT(03421) LENGTH(1) 1412
844	RDCOD	ADDRESS. HEX LOCATION(000020DE) IN CSECT(03421) LENGTH(2) 837 1416 1421
842	RDID	ADDRESS. HEX LOCATION(000020DC) IN CSECT(03421) LENGTH(1) 1413
333	RECCS	ADDRESS. HEX LOCATION(00001C06) IN CSECT(03421) LENGTH(1) 663 693
91	RETMK	ABSOLUTE. HEX VALUE(00001834) 1405
778	RETRN	ADDRESS. HEX LOCATION(00002034) IN CSECT(03421) LENGTH(1) 625 692 760 770
161	RETSV	ADDRESS. HEX LOCATION(00001928) IN CSECT(03421) LENGTH(2) 508 558 569 598 623 782 1042 1061 1407 1431 1460
156	RIDCB	ADDRESS. HEX LOCATION(00001922) IN CSECT(03421) LENGTH(1) 386
157	RIDC1	ADDRESS. HEX LOCATION(00001923) IN CSECT(03421) LENGTH(1) 385

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
159	RIDC3	ADDRESS. HEX LOCATION(00001925) IN CSECT(03421) LENGTH(1) 391
235	R0MSG	ADDRESS. HEX LOCATION(000019FC) IN CSECT(03421) LENGTH(2) 702 720
815	R0REG	ADDRESS. HEX LOCATION(000020A4) IN CSECT(03421) LENGTH(2) 1153 1201 1206 1212 1246 1285
236	R0SAV	ADDRESS. HEX LOCATION(000019FE) IN CSECT(03421) LENGTH(2) 621 779 1045 1333
237	R1SAV	ADDRESS. HEX LOCATION(00001A00) IN CSECT(03421) LENGTH(2) 1046 1069
813	R2REG	ADDRESS. HEX LOCATION(000020A0) IN CSECT(03421) LENGTH(2) 1218 1224
238	R2SAV	ADDRESS. HEX LOCATION(00001A02) IN CSECT(03421) LENGTH(2) 1340
814	R3REG	ADDRESS. HEX LOCATION(000020A2) IN CSECT(03421) LENGTH(2) 1239 1254 1261
239	R3SAV	ADDRESS. HEX LOCATION(00001A04) IN CSECT(03421) LENGTH(2) 1047 1364
816	R7REG	ADDRESS. HEX LOCATION(000020A6) IN CSECT(03421) LENGTH(2) 1139 1146 1184 1196 1268 1290
241	R7SAV	ADDRESS. HEX LOCATION(00001A08) IN CSECT(03421) LENGTH(2) 1058 1404
1287	SECON	ADDRESS. HEX LOCATION(00002670) IN CSECT(03421) LENGTH(1) 946
973	SECO1	ADDRESS. HEX LOCATION(00002236) IN CSECT(03421) LENGTH(4) 1288
974	SECO2	ADDRESS. HEX LOCATION(0000223A) IN CSECT(03421) LENGTH(2) 1289
101	SEVEN	ABSOLUTE. HEX VALUE(00000007) 366 387 393 434 452 466 554 1129
100	SIX	ABSOLUTE. HEX VALUE(00000006) 516 600 746 1080 1100 1159 1355 1388
109	SIXTN	ABSOLUTE. HEX VALUE(00000010) 383 575 734 753 1376
122	SIXT4	ABSOLUTE. HEX VALUE(00000040) 724 757 1327 1396
93	SM	ABSOLUTE. HEX VALUE(00000001) 348 424 482 568 597
799	SPLAT	ADDRESS. HEX LOCATION(00002086) IN CSECT(03421) LENGTH(1) 1138 1231
136	STERR	ABSOLUTE. HEX VALUE(00000000) 411 534 582 602
477	STPRT	ADDRESS. HEX LOCATION(00001D28) IN CSECT(03421) LENGTH(1) 412 535 583 603
1109	SVC1	ADDRESS. HEX LOCATION(00002410) IN CSECT(03421) LENGTH(1) 856
110	SVNTN	ABSOLUTE. HEX VALUE(00000011) 577
129	SXTNK	ABSOLUTE. HEX VALUE(00004000) 539 587 653 665 1481
1192	TBT1	ADDRESS. HEX LOCATION(00002524) IN CSECT(03421) LENGTH(1) 880 883
1198	TBT2	ADDRESS. HEX LOCATION(0000253C) IN CSECT(03421) LENGTH(1) 892
1203	TBT3	ADDRESS. HEX LOCATION(0000254E) IN CSECT(03421) LENGTH(1) 895
1208	TBT4	ADDRESS. HEX LOCATION(00002562) IN CSECT(03421) LENGTH(1) 889
155	TDCBW	ADDRESS. HEX LOCATION(00001921) IN CSECT(03421) LENGTH(1) 391
103	TEN	ABSOLUTE. HEX VALUE(0000000A) 514 521 525 1165
46	TERM	ABSOLUTE. HEX VALUE(00000007) 1487
97	THREE	ABSOLUTE. HEX VALUE(00000003) 425 475 490 645 1223 1470
106	THRTN	ABSOLUTE. HEX VALUE(0000000D) 373 409 510
289	TIMAD	ADDRESS. HEX LOCATION(00001B29) IN CSECT(03421) LENGTH(2) 204
252	TIMEM	ADDRESS. HEX LOCATION(00001A1E) IN CSECT(03421) LENGTH(2) 609
288	TIME1	ADDRESS. HEX LOCATION(00001B1C) IN CSECT(03421) LENGTH(13) 252
202	TIMOT	ADDRESS. HEX LOCATION(0000197A) IN CSECT(03421) LENGTH(2) 607
220	TNIRP	ADDRESS. HEX LOCATION(000019B8) IN CSECT(03421) LENGTH(6) 195 200 218 301 705 711 725 758 784 820 1328 1397
401	TTYNG	ADDRESS. HEX LOCATION(00001C8E) IN CSECT(03421) LENGTH(1) 379 458
406	TTYNO	ADDRESS. HEX LOCATION(00001C9E) IN CSECT(03421) LENGTH(1) 400 476
413	TTYN1	ADDRESS. HEX LOCATION(00001CAE) IN CSECT(03421) LENGTH(1) 487 489 491
394	TT100	ADDRESS. HEX LOCATION(00001C7A) IN CSECT(03421) LENGTH(1) 387
354	TT50	ADDRESS. HEX LOCATION(00001C1E) IN CSECT(03421) LENGTH(1) 358
359	TT55	ADDRESS. HEX LOCATION(00001C28) IN CSECT(03421) LENGTH(1) 352
362	TT56	ADDRESS. HEX LOCATION(00001C2E) IN CSECT(03421) LENGTH(1) 367
365	TT566	ADDRESS. HEX LOCATION(00001C32) IN CSECT(03421) LENGTH(1) 372
370	TT58	ADDRESS. HEX LOCATION(00001C3A) IN CSECT(03421) LENGTH(1) 364
380	TT60	ADDRESS. HEX LOCATION(00001C52) IN CSECT(03421) LENGTH(1) 356 375 384 393 414
382	TT80	ADDRESS. HEX LOCATION(00001C54) IN CSECT(03421) LENGTH(1) 377
153	TWADR	ADDRESS. HEX LOCATION(0000191F) IN CSECT(03421) LENGTH(1) 390
152	TWDCB	ADDRESS. HEX LOCATION(0000191E) IN CSECT(03421) LENGTH(1) 392
112	TWEN2	ABSOLUTE. HEX VALUE(00000016) 1177
96	TWO	ABSOLUTE. HEX VALUE(00000002) 405 488 639 649 715 745 1092 1350 1354 1387 1410
975	UBUFR	ADDRESS. HEX LOCATION(0000223C) IN CSECT(03421) LENGTH(2)

CROSS-REFERENCE LISTING

```
DECLARED  NAME     ATTRIBUTES AND REFERENCES
                     996  1056
   472    UEXIO     ADDRESS. HEX LOCATION(00001D1C) IN CSECT(03421   ) LENGTH(1)
                    369   436   439   454   457   468
   139    UXERR     ABSOLUTE. HEX VALUE(00000008)
                    474   669
   256    UXIMG     ADDRESS. HEX LOCATION(00001A26) IN CSECT(03421   ) LENGTH(2)
                    776
   800    WORKA     ADDRESS. HEX LOCATION(00002088) IN CSECT(03421   ) LENGTH(2)
                    991  1429  1477  1490
   319    XPIND     ADDRESS. HEX LOCATION(00001BCB) IN CSECT(03421   ) LENGTH(1)
                    426   444   652   657   660
    94    ZERO      ABSOLUTE. HEX VALUE(00000000)
                    371   381   438   441   456   557   596   751
```

********** LAST PAGE **********

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                          COPYRIGHT IBM CORP 1976
001900                       3 03428 START X'1900'
                             4 ********************************************************************
                             5 *                                                                  *
                             6 *                    ***       PREREQUISITES        ***           *
                             7 *                                                                  *
                             8 *                              NONE                                *
                             9 *                                                                  *
                            10 ********************************************************************
                            11 *                                                                  *
                            12 *                    ***       MODIFICATIONS        ***           *
                            13 *                                                                  *
                            14 *                    1. MODIFICATIONS TO SUPPORT SENSOR I/O.       *
                            15 *                                                                  *
                            16 ********************************************************************
                            17 *                                                                  *
                            18 *                    ***     REA'S INCORPORATED     ***           *
                            19 *                                                                  *
                            20 *                              NONE                                *
                            21 *                                                                  *
                            22 ********************************************************************
                            23 *                                                                  *
                            24 *                    ***    SPECIAL INSTRUCTIONS    ***           *
                            25 *                                                                  *
                            26 *                              NONE                                *
                            27 *                                                                  *
                            28 ********************************************************************
                            29 *                                                                  *
                            30 *                    ***       E. C. HISTORY        ***           *
                            31 *                                                                  *
                            32 *         DATE 06MAY77  DATE 15SEP77  DATE          DATE          *
                            33 *         E.C. 578756   E.C. 754882   E.C.          E.C.          *
                            34 *                                                                  *
                            35 ********************************************************************
                            37 ********************************************************************
                            38 *                                                                  *
                            39 *     EQUATE TABLE                                                 *
                            40 *                                                                  *
                            41 ********************************************************************
00180E                      42 OPTN1 EQU   X'180E'
00182A                      43 NUMDV EQU   X'182A'
00182E                      44 DEVC1 EQU   X'182E'
000003                      45 THREE EQU   3                          3
000022                      46 THIR4 EQU   34                         34
001900 3428                 48 PID   DC    X'3428'                   PROGRAM IDENTIFIER
001902 6802 191A            49 OVLST B     OVSTR                     BRANCH TO PGM START
001906 1968                 50 SINST DC    A(INSTR)
001908 0000                 51 SVTS1 DC    A(*-*)                    INSTRUCTION STREAM START
00190A 0000                 52 SVTS2 DC    A(*-*)                    LENGTH
00190C 0000                 53 SVTS3 DC    A(*-*)                    IDCB TABLE START
00190E 0000                 54 SVTS4 DC    A(*-*)                    LENGTH
001910 0000                 55 SVTS5 DC    A(*-*)                    DCB TABLE START
001912 0000                 56 SVTS6 DC    A(*-*)                    LENGTH
001914 0000                 57 SVTS7 DC    A(*-*)                    DATA AREA
001916 0000                 58 SVTS8 DC    A(*-*)                    LENGTH
001918 0000                 59 RETSV DC    A(*-*)
00191A                      60 OVSTR EQU   *
00191A 6F0D 1918            61       MVW   R7,RETSV                  SAVE REG 7
00191E 0F22                 62       MVBI  THIR4,R7                  NUMBER OF BYTES TO MOVE
001920 4224 1968            63       MVA   INSTR,R2                  AREA TO RESTORE
001924 4124 180E            64       MVWI  OPTN1,R1                  WHERE TO PUT THE DATA
001928 2A24                 65       MVFN  (R2),(R1)                 MOVE IT
00192A 4724 182A            66       MVWI  NUMDV,R7
00192E 6FE8 0000            67       MVW   (R7),R7
001932 3719                 68       SLL   THREE,R7
001934 4124 182E            69       MVWI  DEVC1,R1
001938 C940                 70       MVW   (R1),R1
00193A 2A24                 71       MVFN  (R2),(R1)
00193C 6908 1908            72       MVW   SVTS1,R1                  THE FOLLOWING
001940 6F08 190A            73       MVW   SVTS2,R7                      SET UP
001944 2A24                 74       MVFN  (R2),(R1)                           IDCB'S,
001946 6908 190C            75       MVW   SVTS3,R1                              DCB'S,
00194A 6F08 190E            76       MVW   SVTS4,R7                                AND
00194E 2A24                 77       MVFN  (R2),(R1)                 THE AREA
001950 6908 1910            78       MVW   SVTS5,R1                      TO RESTORE
001954 6F08 1912            79       MVW   SVTS6,R7                        THE TEST
001958 2A24                 80       MVFN  (R2),(R1)                             PREVIOUSLY
00195A 6908 1914            81       MVW   SVTS7,R1                                WAS
00195E 6F08 1916            82       MVW   SVTS8,R7
001962 2A24                 83       MVFN  (R2),(R1)
001964 6812 1918            84       B     RETSV*
001968                      85 INSTR EQU   *
001968 00000000000000000000 86       DC    128A(*-*)
001A68 00000000000000000000 87       DC    128A(*-*)
001B68 00000000000000000000 88       DC    128A(*-*)
001C68 00000000000000000000 89       DC    128A(*-*)
001D68 00000000000000000000 90       DC    128A(*-*)
001E68 00000000000000000000 91       DC    128A(*-*)
001F68 00000000000000000000 92       DC    128A(*-*)
002068 00000000000000000000 93       DC    128A(*-*)
002168 00000000000000000000 94       DC    128A(*-*)
002268 00000000000000000000 95       DC    128A(*-*)
002368 00000000000000000000 96       DC    128A(*-*)
002468 00000000000000000000 97       DC    128A(*-*)
002568 00000000000000000000 98       DC    128A(*-*)
002668 00000000000000000000 99       DC    128A(*-*)
002768 00000000000000000000 100      DC    128A(*-*)
002868                      101 OVLND EQU   *
002900                      102 OVLBT EQU   PID+4096
002868 00000000000000000000 103      DC    (OVLBT-OVLND)X'00'
000000                      104      END
```


CROSS-REFERENCE LISTING —

```
DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R1.     ABSOLUTE. HEX VALUE(00000001)
                    64   65   69   70   70   70   70   71   72
                    74   75   77   78   80   81   83
       0  .R2.     ABSOLUTE. HEX VALUE(00000002)
                    63   65   71   74   77   80   83
       0  .R7.     ABSOLUTE. HEX VALUE(00000007)
                    61   62   66   67   67   67   67   68   73
                    76   79   82
      44  DEVC1    ABSOLUTE. HEX VALUE(0000182E)
                    69
      85  INSTR    ADDRESS. HEX LOCATION(00001968) IN CSECT(03428   ) LENGTH(1)
                    50   63
      43  NUMDV    ABSOLUTE. HEX VALUE(0000182A)
                    66
      42  OPTN1    ABSOLUTE. HEX VALUE(0000180E)
                    64
     102  OVLBT    ADDRESS. HEX LOCATION(00002900) IN CSECT(03428   ) LENGTH(1)
                   103
     101  OVLND    ADDRESS. HEX LOCATION(00002868) IN CSECT(03428   ) LENGTH(1)
                   103
      60  OVSTR    ADDRESS. HEX LOCATION(0000191A) IN CSECT(03428   ) LENGTH(1)
                    49
       3  03428    CSECT. START(00001900) LENGTH(4096) ESDID(0)
                     3
      48  PID      ADDRESS. HEX LOCATION(00001900) IN CSECT(03428   ) LENGTH(2)
                   102
      59  RETSV    ADDRESS. HEX LOCATION(00001918) IN CSECT(03428   ) LENGTH(2)
                    61   84
      51  SVTS1    ADDRESS. HEX LOCATION(00001908) IN CSECT(03428   ) LENGTH(2)
                    72
      52  SVTS2    ADDRESS. HEX LOCATION(0000190A) IN CSECT(03428   ) LENGTH(2)
                    73
      53  SVTS3    ADDRESS. HEX LOCATION(0000190C) IN CSECT(03428   ) LENGTH(2)
                    75
      54  SVTS4    ADDRESS. HEX LOCATION(0000190E) IN CSECT(03428   ) LENGTH(2)
                    76
      55  SVTS5    ADDRESS. HEX LOCATION(00001910) IN CSECT(03428   ) LENGTH(2)
                    78
      56  SVTS6    ADDRESS. HEX LOCATION(00001912) IN CSECT(03428   ) LENGTH(2)
                    79
      57  SVTS7    ADDRESS. HEX LOCATION(00001914) IN CSECT(03428   ) LENGTH(2)
                    81
      58  SVTS8    ADDRESS. HEX LOCATION(00001916) IN CSECT(03428   ) LENGTH(2)
                    82
      46  THIR4    ABSOLUTE. HEX VALUE(00000022)
                    62
      45  THREE    ABSOLUTE. HEX VALUE(00000003)
                    68
```

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001900                       3 03429 START X'1900'
                             4 ************************************************************************
                             5 *                                                                      *
                             6 *                     ***       PREREQUISITES        ***               *
                             7 *                                                                      *
                             8 *                                NONE                                  *
                             9 *                                                                      *
                            10 ************************************************************************
                            11 *                                                                      *
                            12 *                     ***       MODIFICATIONS        ***               *
                            13 *                                                                      *
                            14 *                     1. MODIFICATIONS TO SUPPORT SENSOR I/O.           *
                            15 *                                                                      *
                            16 ************************************************************************
                            17 *                                                                      *
                            18 *                     ***     REA'S INCORPORATED     ***               *
                            19 *                                                                      *
                            20 *                                NONE                                  *
                            21 *                                                                      *
                            22 ************************************************************************
                            23 *                                                                      *
                            24 *                     ***    SPECIAL INSTRUCTIONS    ***               *
                            25 *                                                                      *
                            26 *                                NONE                                  *
                            27 *                                                                      *
                            28 ************************************************************************
                            29 *                                                                      *
                            30 *                     ***       E. C. HISTORY        ***               *
                            31 *                                                                      *
                            32 *        DATE 06MAY77  DATE 15SEP77  DATE          DATE               *
                            33 *        E.C. 578756   E.C. 754882   E.C.          E.C.                *
                            34 *                                                                      *
                            35 ************************************************************************
                            37 ************************************************************************
                            38 *                                                                      *
                            39 *     EQUATE TABLE                                                     *
                            40 *                                                                      *
                            41 ************************************************************************
00180E                      42 OPTN1 EQU   X'180E'
00182A                      43 NUMDV EQU   X'182A'
00182E                      44 DEVC1 EQU   X'182E'
000003                      45 THREE EQU   3                                3
000022                      46 THIR4 EQU   34                               34
001900  3429                48 PID   DC    X'3429'                  PROGRAM IDENTIFIER
001902  6802 191A           49 OVLST B     OVSTR                    BRANCH TO PGM START
001906  1968                50 SINST DC    A(INSTR)
001908  0000                51 SVTS1 DC    A(*-*)                   INSTRUCTION STREAM START
00190A  0000                52 SVTS2 DC    A(*-*)                   LENGTH
00190C  0000                53 SVTS3 DC    A(*-*)                   IDCB TABLE START
00190E  0000                54 SVTS4 DC    A(*-*)                   LENGTH
001910  0000                55 SVTS5 DC    A(*-*)                   DCB TABLE START
001912  0000                56 SVTS6 DC    A(*-*)                   LENGTH
001914  0000                57 SVTS7 DC    A(*-*)                   DATA AREA
001916  0000                58 SVTS8 DC    A(*-*)                   LENGTH
001918  0000                59 RETSV DC    A(*-*)
00191A                      60 OVSTR EQU   *
00191A  6F0D 1918           61       MVW   R7,RETSV                 SAVE REG 7
00191E  0F22                62       MVBI  THIR4,R7                 NUMBER OF BYTES TO MOVE
001920  4224 1968           63       MVA   INSTR,R2                 AREA TO RESTORE
001924  4124 180E           64       MVWI  OPTN1,R1                 WHERE TO PUT THE DATA
001928  2A24                65       MVFN  (R2),(R1)                MOVE IT
00192A  4724 182A           66       MVWI  NUMDV,R7
00192E  6FE8 0000           67       MVW   (R7),R7
001932  3719                68       SLL   THREE,R7
001934  4124 182E           69       MVWI  DEVC1,R1
001938  C940                70       MVW   (R1),R1
00193A  2A24                71       MVFN  (R2),(R1)
00193C  6908 1908           72       MVW   SVTS1,R1                 THE FOLLOWING
001940  6F08 190A           73       MVW   SVTS2,R7                     SET UP
001944  2A24                74       MVFN  (R2),(R1)                          IDCB'S,
001946  6908 190C           75       MVW   SVTS3,R1                             DCB'S,
00194A  6F08 190E           76       MVW   SVTS4,R7                               AND
00194E  2A24                77       MVFN  (R2),(R1)                    THE AREA
001950  6908 1910           78       MVW   SVTS5,R1                         TO RESTORE
001954  6F08 1912           79       MVW   SVTS6,R7                           THE TEST
001958  2A24                80       MVFN  (R2),(R1)                                PREVIOUSLY
00195A  6908 1914           81       MVW   SVTS7,R1                                   WAS
00195E  6F08 1916           82       MVW   SVTS8,R7
001962  2A24                83       MVFN  (R2),(R1)
001964  6812 1918           84       B     RETSV*
00196E                      85 INSTR EQU   *
001968  00000000000000000  86       DC    128A(*-*)
001A68  00000000000000000  87       DC    128A(*-*)
001B68  00000000000000000  88       DC    128A(*-*)
001C68  00000000000000000  89       DC    128A(*-*)
001D68  00000000000000000  90       DC    128A(*-*)
001E68  00000000000000000  91       DC    128A(*-*)
001F68  00000000000000000  92       DC    128A(*-*)
002068  00000000000000000  93       DC    128A(*-*)
002168  00000000000000000  94       DC    128A(*-*)
002268  00000000000000000  95       DC    128A(*-*)
002368  00000000000000000  96       DC    128A(*-*)
002468  00000000000000000  97       DC    128A(*-*)
002568  00000000000000000  98       DC    128A(*-*)
002668  00000000000000000  99       DC    128A(*-*)
002768  00000000000000000 100       DC    128A(*-*)
002868                    101 OVLND EQU   *
002900                    102 OVLBT EQU   PID+4096
002868  00000000000000000 103       DC    (OVLBT-OVLND)X'00'
000000                    104       END
```


CROSS-REFERENCE LISTING — COPYRIGHT IBM CORP 1976

```
DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R1.       ABSOLUTE. HEX VALUE(00000001)
                      64    65    69    70    70    70    70    71    72
                      74    75    77    78    80    81    83
       0  .R2.       ABSOLUTE. HEX VALUE(00000002)
                      63    65    71    74    77    80    83
       0  .R7.       ABSOLUTE. HEX VALUE(00000007)
                      61    62    66    67    67    67    67    68    73
                      76    79    82
      44  DEVC1      ABSOLUTE. HEX VALUE(0000182E)
                      69
      85  INSTR      ADDRESS. HEX LOCATION(00001968) IN CSECT(03429   ) LENGTH(1)
                      50    63
      43  NUMDV      ABSOLUTE. HEX VALUE(0000182A)
                      66
      42  OPTN1      ABSOLUTE. HEX VALUE(0000180E)
                      64
     102  OVLBT      ADDRESS. HEX LOCATION(00002900) IN CSECT(03429   ) LENGTH(1)
                     103
     101  OVLND      ADDRESS. HEX LOCATION(00002868) IN CSECT(03429   ) LENGTH(1)
                     103
      60  OVSTR      ADDRESS. HEX LOCATION(0000191A) IN CSECT(03429   ) LENGTH(1)
                      49
       3  03429      CSECT. START(00001900) LENGTH(4096) ESDID(0)
                       3
      48  PID        ADDRESS. HEX LOCATION(00001900) IN CSECT(03429   ) LENGTH(2)
                     102
      59  RETSV      ADDRESS. HEX LOCATION(00001918) IN CSECT(03429   ) LENGTH(2)
                      61    84
      51  SVTS1      ADDRESS. HEX LOCATION(00001908) IN CSECT(03429   ) LENGTH(2)
                      72
      52  SVTS2      ADDRESS. HEX LOCATION(0000190A) IN CSECT(03429   ) LENGTH(2)
                      73
      53  SVTS3      ADDRESS. HEX LOCATION(0000190C) IN CSECT(03429   ) LENGTH(2)
                      75
      54  SVTS4      ADDRESS. HEX LOCATION(0000190E) IN CSECT(03429   ) LENGTH(2)
                      76
      55  SVTS5      ADDRESS. HEX LOCATION(00001910) IN CSECT(03429   ) LENGTH(2)
                      78
      56  SVTS6      ADDRESS. HEX LOCATION(00001912) IN CSECT(03429   ) LENGTH(2)
                      79
      57  SVTS7      ADDRESS. HEX LOCATION(00001914) IN CSECT(03429   ) LENGTH(2)
                      81
      58  SVTS8      ADDRESS. HEX LOCATION(00001916) IN CSECT(03429   ) LENGTH(2)
                      82
      46  THIR4      ABSOLUTE. HEX VALUE(00000022)
                      62
      45  THREE      ABSOLUTE. HEX VALUE(00000003)
                      68
```

********** LAST PAGE **********

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001900                       3 0342A START X'1900'
                             4 ********************************************************************************
                             5 *                                                                              *
                             6 *                     ***       PREREQUISITES       ***                        *
                             7 *                                                                              *
                             8 *                                NONE                                          *
                             9 *                                                                              *
                            10 ********************************************************************************
                            11 *                                                                              *
                            12 *                     ***       MODIFICATIONS       ***                        *
                            13 *                                                                              *
                            14 *                     1. MODIFICATIONS TO SUPPORT SENSOR I/O.                  *
                            15 *                                                                              *
                            16 ********************************************************************************
                            17 *                                                                              *
                            18 *                     ***     REA'S INCORPORATED     ***                       *
                            19 *                                                                              *
                            20 *                                NONE                                          *
                            21 *                                                                              *
                            22 ********************************************************************************
                            23 *                                                                              *
                            24 *                     ***    SPECIAL INSTRUCTIONS    ***                       *
                            25 *                                                                              *
                            26 *                                NONE                                          *
                            27 *                                                                              *
                            28 ********************************************************************************
                            29 *                                                                              *
                            30 *                     ***       E. C. HISTORY       ***                        *
                            31 *                                                                              *
                            32 *        DATE 06MAY77  DATE 15SEP77  DATE          DATE                       *
                            33 *        E.C. 578756   E.C. 754882   E.C.          E.C.                        *
                            34 *                                                                              *
                            35 ********************************************************************************
                            37 ********************************************************************************
                            38 *                                                                              *
                            39 *     EQUATE TABLE                                                             *
                            40 *                                                                              *
                            41 ********************************************************************************
00180E                      42 OPTN1 EQU   X'180E'
00182A                      43 NUMDV EQU   X'182A'
00182E                      44 DEVC1 EQU   X'182E'
000003                      45 THREE EQU   3                                3
000022                      46 THIR4 EQU   34                              34
001900  342A                48 PID   DC    X'342A'          PROGRAM IDENTIFIER
001902  6802  191A          49 OVLST B     OVSTR            BRANCH TO PGM START
001906  1968                50 SINST DC    A(INSTR)
001908  0000                51 SVTS1 DC    A(*-*)           INSTRUCTION STREAM START
00190A  0000                52 SVTS2 DC    A(*-*)           LENGTH
00190C  0000                53 SVTS3 DC    A(*-*)           IDCB TABLE START
00190E  0000                54 SVTS4 DC    A(*-*)           LENGTH
001910  0000                55 SVTS5 DC    A(*-*)           DCB TABLE START
001912  0000                56 SVTS6 DC    A(*-*)           LENGTH
001914  0000                57 SVTS7 DC    A(*-*)           DATA AREA
001916  0000                58 SVTS8 DC    A(*-*)           LENGTH
001918  0000                59 RETSV DC    A(*-*)
00191A                      60 OVSTR EQU   *
00191A  6F0D  1918          61       MVW   R7,RETSV         SAVE REG 7
00191E  0F22                62       MVBI  THIR4,R7         NUMBER OF BYTES TO MOVE
001920  4224  1968          63       MVA   INSTR,R2         AREA TO RESTORE
001924  4124  180E          64       MVWI  OPTN1,R1         WHERE TO PUT THE DATA
001928  2A24                65       MVFN  (R2),(R1)        MOVE IT
00192A  4724  182A          66       MVWI  NUMDV,R7
00192E  6FE8  0000          67       MVW   (R7),R7
001932  3719                68       SLL   THREE,R7
001934  4124  182E          69       MVWI  DEVC1,R1
001938  C940                70       MVW   (R1),R1
00193A  2A24                71       MVFN  (R2),(R1)
00193C  6908  1908          72       MVW   SVTS1,R1         THE FOLLOWING
001940  6F08  190A          73       MVW   SVTS2,R7             SET UP
001944  2A24                74       MVFN  (R2),(R1)                  IDCB'S,
001946  6908  190C          75       MVW   SVTS3,R1                     DCB'S,
00194A  6F08  190E          76       MVW   SVTS4,R7                       AND
00194E  2A24                77       MVFN  (R2),(R1)            THE AREA
001950  6908  1910          78       MVW   SVTS5,R1                  TO RESTORE
001954  6F08  1912          79       MVW   SVTS6,R7                     THE TEST
001958  2A24                80       MVFN  (R2),(R1)                          PREVIOUSLY
00195A  6908  1914          81       MVW   SVTS7,R1                             WAS
00195E  6F08  1916          82       MVW   SVTS8,R7
001962  2A24                83       MVFN  (R2),(R1)
001964  6812  1918          84       B     RETSV*
001968                      85 INSTR EQU   *
001968  00000000000000000   86       DC    128A(*-*)
001A68  00000000000000000   87       DC    128A(*-*)
001B68  00000000000000000   88       DC    128A(*-*)
001C68  00000000000000000   89       DC    128A(*-*)
001D68  00000000000000000   90       DC    128A(*-*)
001E68  00000000000000000   91       DC    128A(*-*)
001F68  00000000000000000   92       DC    128A(*-*)
002068  00000000000000000   93       DC    128A(*-*)
002168  00000000000000000   94       DC    128A(*-*)
002268  00000000000000000   95       DC    128A(*-*)
002368  00000000000000000   96       DC    128A(*-*)
002468  00000000000000000   97       DC    128A(*-*)
002568  00000000000000000   98       DC    128A(*-*)
002668  00000000000000000   99       DC    128A(*-*)
002768  00000000000000000  100       DC    128A(*-*)
002868                     101 OVLND EQU   *
002900                     102 OVLBT EQU   PID+4096
002868  0000000000000000   103       DC    (OVLBT-OVLND)X'00'
000000                     104       END
```


CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

```
DECLARED  NAME     ATTRIBUTES AND REFERENCES
     0    .R1.     ABSOLUTE. HEX VALUE(00000001)
                    64   65   69   70   70   70   70   71   72
                    74   75   77   78   80   81   83
     0    .R2.     ABSOLUTE. HEX VALUE(00000002)
                    63   65   71   74   77   80   83
     0    .R7.     ABSOLUTE. HEX VALUE(00000007)
                    61   62   66   67   67   67   67   68   73
                    76   79   82
    44    DEVC1    ABSOLUTE. HEX VALUE(0000182E)
                    69
    85    INSTR    ADDRESS. HEX LOCATION(00001968) IN CSECT(0342A   ) LENGTH(1)
                    50   63
    43    NUMDV    ABSOLUTE. HEX VALUE(0000182A)
                    66
    42    OPTN1    ABSOLUTE. HEX VALUE(0000180E)
                    64
   102    OVLBT    ADDRESS. HEX LOCATION(00002900) IN CSECT(0342A   ) LENGTH(1)
                   103
   101    OVLND    ADDRESS. HEX LOCATION(00002868) IN CSECT(0342A   ) LENGTH(1)
                   103
    60    OVSTR    ADDRESS. HEX LOCATION(0000191A) IN CSECT(0342A   ) LENGTH(1)
                    49
     3    0342A    CSECT. START(00001900) LENGTH(4096) ESDID(0)
                     3
    48    PID      ADDRESS. HEX LOCATION(00001900) IN CSECT(0342A   ) LENGTH(2)
                   102
    59    RETSV    ADDRESS. HEX LOCATION(00001918) IN CSECT(0342A   ) LENGTH(2)
                    61   84
    51    SVTS1    ADDRESS. HEX LOCATION(00001908) IN CSECT(0342A   ) LENGTH(2)
                    72
    52    SVTS2    ADDRESS. HEX LOCATION(0000190A) IN CSECT(0342A   ) LENGTH(2)
                    73
    53    SVTS3    ADDRESS. HEX LOCATION(0000190C) IN CSECT(0342A   ) LENGTH(2)
                    75
    54    SVTS4    ADDRESS. HEX LOCATION(0000190E) IN CSECT(0342A   ) LENGTH(2)
                    76
    55    SVTS5    ADDRESS. HEX LOCATION(00001910) IN CSECT(0342A   ) LENGTH(2)
                    78
    56    SVTS6    ADDRESS. HEX LOCATION(00001912) IN CSECT(0342A   ) LENGTH(2)
                    79
    57    SVTS7    ADDRESS. HEX LOCATION(00001914) IN CSECT(0342A   ) LENGTH(2)
                    81
    58    SVTS8    ADDRESS. HEX LOCATION(00001916) IN CSECT(0342A   ) LENGTH(2)
                    82
    46    THIR4    ABSOLUTE. HEX VALUE(00000022)
                    62
    45    THREE    ABSOLUTE. HEX VALUE(00000003)
                    68
```

********** LAST PAGE **********

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001900                       3 0342B START X'1900'
                             4 ********************************************************************************
                             5 *                                                                              *
                             6 *                     ***       PREREQUISITES       ***                        *
                             7 *                                                                              *
                             8 *                                NONE                                          *
                             9 *                                                                              *
                            10 ********************************************************************************
                            11 *                                                                              *
                            12 *                     ***       MODIFICATIONS       ***                        *
                            13 *                                                                              *
                            14 *                     1. MODIFICATIONS TO SUPPORT SENSOR I/O.                  *
                            15 *                                                                              *
                            16 ********************************************************************************
                            17 *                                                                              *
                            18 *                     ***     REA'S INCORPORATED     ***                       *
                            19 *                                                                              *
                            20 *                                NONE                                          *
                            21 *                                                                              *
                            22 ********************************************************************************
                            23 *                                                                              *
                            24 *                     ***    SPECIAL INSTRUCTIONS    ***                       *
                            25 *                                                                              *
                            26 *                                NONE                                          *
                            27 *                                                                              *
                            28 ********************************************************************************
                            29 *                                                                              *
                            30 *                     ***       E. C. HISTORY       ***                        *
                            31 *                                                                              *
                            32 *        DATE 06MAY77  DATE 15SEP77  DATE          DATE                       *
                            33 *        E.C. 578756   E.C. 754882   E.C.          E.C.                       *
                            34 *                                                                              *
                            35 ********************************************************************************
                            37 ********************************************************************************
                            38 *                                                                              *
                            39 *     EQUATE TABLE                                                             *
                            40 *                                                                              *
                            41 ********************************************************************************
00180E                      42 OPTN1  EQU   X'180E'
00182A                      43 NUMDV  EQU   X'182A'
00182E                      44 DEVC1  EQU   X'182E'
000003                      45 THREE  EQU   3                                3
000022                      46 THIR4  EQU   34                               34
001900  342B                48 PID    DC    X'342B'                  PROGRAM IDENTIFIER
001902  6802 191A           49 OVLST  B     OVSTR                    BRANCH TO PGM START
001906  1968                50 SINST  DC    A(INSTR)
001908  0000                51 SVTS1  DC    A(*-*)                   INSTRUCTION STREAM START
00190A  0000                52 SVTS2  DC    A(*-*)                   LENGTH
00190C  0000                53 SVTS3  DC    A(*-*)                   IDCB TABLE START
00190E  0000                54 SVTS4  DC    A(*-*)                   LENGTH
001910  0000                55 SVTS5  DC    A(*-*)                   DCB TABLE START
001912  0000                56 SVTS6  DC    A(*-*)                   LENGTH
001914  0000                57 SVTS7  DC    A(*-*)                   DATA AREA
001916  0000                58 SVTS8  DC    A(*-*)                   LENGTH
001918  0000                59 RETSV  DC    A(*-*)
00191A                      60 OVSTR  EQU   *
00191A  6F0D 1918           61        MVW   R7,RETSV                 SAVE REG 7
00191E  0F22                62        MVBI  THIR4,R7                 NUMBER OF BYTES TO MOVE
001920  4224 1968           63        MVA   INSTR,R2                 AREA TO RESTORE
001924  4124 180E           64        MVWI  OPTN1,R1                 WHERE TO PUT THE DATA
001928  2A24                65        MVFN  (R2),(R1)                MOVE IT
00192A  4724 182A           66        MVWI  NUMDV,R7
00192E  6FE8 0000           67        MVW   (R7),R7
001932  3719                68        SLL   THREE,R7
001934  4124 182E           69        MVWI  DEVC1,R1
001938  C940                70        MVW   (R1),R1
00193A  2A24                71        MVFN  (R2),(R1)
00193C  6908 1908           72        MVW   SVTS1,R1                 THE FOLLOWING
001940  6F08 190A           73        MVW   SVTS2,R7                     SET UP
001944  2A24                74        MVFN  (R2),(R1)                          IDCB'S,
001946  6908 190C           75        MVW   SVTS3,R1                             DCB'S,
00194A  6F08 190E           76        MVW   SVTS4,R7                               AND
00194E  2A24                77        MVFN  (R2),(R1)                    THE AREA
001950  6908 1910           78        MVW   SVTS5,R1                         TO RESTORE
001954  6F08 1912           79        MVW   SVTS6,R7                           THE TEST
001958  2A24                80        MVFN  (R2),(R1)                                PREVIOUSLY
00195A  6908 1914           81        MVW   SVTS7,R1                                   WAS
00195E  6F08 1916           82        MVW   SVTS8,R7
001962  2A24                83        MVFN  (R2),(R1)
001964  6812 1918           84        B     RETSV*
001968                      85 INSTR  EQU   *
001968  0000000000000000   86        DC    128A(*-*)
001A68  0000000000000000   87        DC    128A(*-*)
001B68  0000000000000000   88        DC    128A(*-*)
001C68  0000000000000000   89        DC    128A(*-*)
001D68  0000000000000000   90        DC    128A(*-*)
001E68  0000000000000000   91        DC    128A(*-*)
001F68  0000000000000000   92        DC    128A(*-*)
002068  0000000000000000   93        DC    128A(*-*)
002168  0000000000000000   94        DC    128A(*-*)
002268  0000000000000000   95        DC    128A(*-*)
002368  0000000000000000   96        DC    128A(*-*)
002468  0000000000000000   97        DC    128A(*-*)
002568  0000000000000000   98        DC    128A(*-*)
002668  0000000000000000   99        DC    128A(*-*)
002768  0000000000000000  100        DC    128A(*-*)
002868                    101 OVLND  EQU   *
002900                    102 OVLBT  EQU   PID+4096
002868  0000000000000000  103        DC    (OVLBT-OVLND)X'00'
000000                    104        END
```


CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

```
DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R1.       ABSOLUTE. HEX VALUE(00000001)
                      64    65    69    70    70    70    70    71    72
                      74    75    77    78    80    81    83
       0  .R2.       ABSOLUTE. HEX VALUE(00000002)
                      63    65    71    74    77    80    83
       0  .R7.       ABSOLUTE. HEX VALUE(00000007)
                      61    62    66    67    67    67    67    68    73
                      76    79    82
      44  DEVC1      ABSOLUTE. HEX VALUE(0000182E)
                      69
      85  INSTR      ADDRESS. HEX LOCATION(00001968) IN CSECT(0342B   ) LENGTH(1)
                      50    63
      43  NUMDV      ABSOLUTE. HEX VALUE(0000182A)
                      66
      42  OPTN1      ABSOLUTE. HEX VALUE(0000180E)
                      64
     102  OVLBT      ADDRESS. HEX LOCATION(00002900) IN CSECT(0342B   ) LENGTH(1)
                     103
     101  OVLND      ADDRESS. HEX LOCATION(00002868) IN CSECT(0342B   ) LENGTH(1)
                     103
      60  OVSTR      ADDRESS. HEX LOCATION(0000191A) IN CSECT(0342B   ) LENGTH(1)
                      49
       3  0342B      CSECT. START(00001900) LENGTH(4096) ESDID(0)
                       3
      48  PID        ADDRESS. HEX LOCATION(00001900) IN CSECT(0342B   ) LENGTH(2)
                     102
      59  RETSV      ADDRESS. HEX LOCATION(00001918) IN CSECT(0342B   ) LENGTH(2)
                      61    84
      51  SVTS1      ADDRESS. HEX LOCATION(00001908) IN CSECT(0342B   ) LENGTH(2)
                      72
      52  SVTS2      ADDRESS. HEX LOCATION(0000190A) IN CSECT(0342B   ) LENGTH(2)
                      73
      53  SVTS3      ADDRESS. HEX LOCATION(0000190C) IN CSECT(0342B   ) LENGTH(2)
                      75
      54  SVTS4      ADDRESS. HEX LOCATION(0000190E) IN CSECT(0342B   ) LENGTH(2)
                      76
      55  SVTS5      ADDRESS. HEX LOCATION(00001910) IN CSECT(0342B   ) LENGTH(2)
                      78
      56  SVTS6      ADDRESS. HEX LOCATION(00001912) IN CSECT(0342B   ) LENGTH(2)
                      79
      57  SVTS7      ADDRESS. HEX LOCATION(00001914) IN CSECT(0342B   ) LENGTH(2)
                      81
      58  SVTS8      ADDRESS. HEX LOCATION(00001916) IN CSECT(0342B   ) LENGTH(2)
                      82
      46  THIR4      ABSOLUTE. HEX VALUE(00000022)
                      62
      45  THREE      ABSOLUTE. HEX VALUE(00000003)
                      68
```

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********** LAST PAGE **********

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001900                       3 0342C START X'1900'
                             4 ********************************************************************************
                             5 *                                                                              *
                             6 *                     ***       PREREQUISITES        ***                       *
                             7 *                                                                              *
                             8 *                                NONE                                          *
                             9 *                                                                              *
                            10 ********************************************************************************
                            11 *                                                                              *
                            12 *                     ***       MODIFICATIONS        ***                       *
                            13 *                                                                              *
                            14 *                     1. MODIFICATIONS TO SUPPORT SENSOR I/O.                  *
                            15 *                                                                              *
                            16 ********************************************************************************
                            17 *                                                                              *
                            18 *                     ***     REA'S INCORPORATED     ***                       *
                            19 *                                                                              *
                            20 *                                NONE                                          *
                            21 *                                                                              *
                            22 ********************************************************************************
                            23 *                                                                              *
                            24 *                     ***    SPECIAL INSTRUCTIONS    ***                       *
                            25 *                                                                              *
                            26 *                                NONE                                          *
                            27 *                                                                              *
                            28 ********************************************************************************
                            29 *                                                                              *
                            30 *                     ***       E. C. HISTORY        ***                       *
                            31 *                                                                              *
                            32 *          DATE 06MAY77  DATE 15SEP77  DATE           DATE                    *
                            33 *          E.C. 578756   E.C. 754882   E.C.           E.C.                    *
                            34 *                                                                              *
                            35 ********************************************************************************
                            37 ********************************************************************************
                            38 *                                                                              *
                            39 *     EQUATE TABLE                                                             *
                            40 *                                                                              *
                            41 ********************************************************************************
00180E                      42 OPTN1 EQU   X'180E'
00182A                      43 NUMDV EQU   X'182A'
00182E                      44 DEVC1 EQU   X'182E'
000003                      45 THREE EQU   3                          3
000022                      46 THIR4 EQU   34                         34
001900 342C                 48 PID   DC    X'342C'                  PROGRAM IDENTIFIER
001902 6802 191A            49 OVLST B     OVSTR                    BRANCH TO PGM START
001906 1968                 50 SINST DC    A(INSTR)
001908 0000                 51 SVTS1 DC    A(*-*)                   INSTRUCTION STREAM START
00190A 0000                 52 SVTS2 DC    A(*-*)                   LENGTH
00190C 0000                 53 SVTS3 DC    A(*-*)                   IDCB TABLE START
00190E 0000                 54 SVTS4 DC    A(*-*)                   LENGTH
001910 0000                 55 SVTS5 DC    A(*-*)                   DCB TABLE START
001912 0000                 56 SVTS6 DC    A(*-*)                   LENGTH
001914 0000                 57 SVTS7 DC    A(*-*)                   DATA AREA
001916 0000                 58 SVTS8 DC    A(*-*)                   LENGTH
001918 0000                 59 RETSV DC    A(*-*)
00191A                      60 OVSTR EQU   *
00191A 6F0D 1918            61       MVW   R7,RETSV                 SAVE REG 7
00191E 0F22                 62       MVBI  THIR4,R7                 NUMBER OF BYTES TO MOVE
001920 4224 1968            63       MVA   INSTR,R2                 AREA TO RESTORE
001924 4124 180E            64       MVWI  OPTN1,R1                 WHERE TO PUT THE DATA
001928 2A24                 65       MVFN  (R2),(R1)                MOVE IT
00192A 4724 182A            66       MVWI  NUMDV,R7
00192E 6FE8 0000            67       MVW   (R7),R7
001932 3719                 68       SLL   THREE,R7
001934 4124 182E            69       MVWI  DEVC1,R1
001938 C940                 70       MVW   (R1),R1
00193A 2A24                 71       MVFN  (R2),(R1)
00193C 6908 1908            72       MVW   SVTS1,R1                 THE FOLLOWING
001940 6F08 190A            73       MVW   SVTS2,R7                     SET UP
001944 2A24                 74       MVFN  (R2),(R1)                          IDCB'S,
001946 6908 190C            75       MVW   SVTS3,R1                             DCB'S,
00194A 6F08 190E            76       MVW   SVTS4,R7                               AND
00194E 2A24                 77       MVFN  (R2),(R1)                    THE AREA
001950 6908 1910            78       MVW   SVTS5,R1                         TO RESTORE
001954 6F08 1912            79       MVW   SVTS6,R7                           THE TEST
001958 2A24                 80       MVFN  (R2),(R1)                                PREVIOUSLY
00195A 6908 1914            81       MVW   SVTS7,R1                                   WAS
00195E 6F08 1916            82       MVW   SVTS8,R7
001962 2A24                 83       MVFN  (R2),(R1)
001964 6812 1918            84       B     RETSV*
001968                      85 INSTR EQU   *
001968 00000000000000000    86       DC    128A(*-*)
001A68 00000000000000000    87       DC    128A(*-*)
001B68 00000000000000000    88       DC    128A(*-*)
001C68 00000000000000000    89       DC    128A(*-*)
001D68 00000000000000000    90       DC    128A(*-*)
001E68 00000000000000000    91       DC    128A(*-*)
001F68 00000000000000000    92       DC    128A(*-*)
002068 00000000000000000    93       DC    128A(*-*)
002168 00000000000000000    94       DC    128A(*-*)
002268 00000000000000000    95       DC    128A(*-*)
002368 00000000000000000    96       DC    128A(*-*)
002468 00000000000000000    97       DC    128A(*-*)
002568 00000000000000000    98       DC    128A(*-*)
002668 00000000000000000    99       DC    128A(*-*)
002768 00000000000000000   100       DC    128A(*-*)
002868                     101 OVLND EQU   *
002900                     102 OVLBT EQU   PID+4096
002868 00000000000000000   103       DC    (OVLBT-OVLND)X'00'
000000                     105       END
```


CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

```
 DECLARED  NAME     ATTRIBUTES AND REFERENCES
        0  .R1.     ABSOLUTE. HEX VALUE(00000001)
                    64   65   69   70   70   70   70   71   72
                    74   75   77   78   80   81   83
        0  .R2.     ABSOLUTE. HEX VALUE(00000002)
                    63   65   71   74   77   80   83
        0  .R7.     ABSOLUTE. HEX VALUE(00000007)
                    61   62   66   67   67   67   68   73
                    76   79   82
       44  DEVC1    ABSOLUTE. HEX VALUE(0000182E)
                    69
       85  INSTR    ADDRESS. HEX LOCATION(00001968) IN CSECT(0342C   ) LENGTH(1)
                    50   63
       43  NUMDV    ABSOLUTE. HEX VALUE(0000182A)
                    66
       42  OPTN1    ABSOLUTE. HEX VALUE(0000180E)
                    64
      102  OVLBT    ADDRESS. HEX LOCATION(00002900) IN CSECT(0342C   ) LENGTH(1)
                   103
      101  OVLND    ADDRESS. HEX LOCATION(00002868) IN CSECT(0342C   ) LENGTH(1)
                   103
       60  OVSTR    ADDRESS. HEX LOCATION(0000191A) IN CSECT(0342C   ) LENGTH(1)
                    49
        3  0342C    CSECT. START(00001900) LENGTH(4096) ESDID(0)
                     3
       48  PID      ADDRESS. HEX LOCATION(00001900) IN CSECT(0342C   ) LENGTH(2)
                   102
       59  RETSV    ADDRESS. HEX LOCATION(00001918) IN CSECT(0342C   ) LENGTH(2)
                    61   84
       51  SVTS1    ADDRESS. HEX LOCATION(00001908) IN CSECT(0342C   ) LENGTH(2)
                    72
       52  SVTS2    ADDRESS. HEX LOCATION(0000190A) IN CSECT(0342C   ) LENGTH(2)
                    73
       53  SVTS3    ADDRESS. HEX LOCATION(0000190C) IN CSECT(0342C   ) LENGTH(2)
                    75
       54  SVTS4    ADDRESS. HEX LOCATION(0000190E) IN CSECT(0342C   ) LENGTH(2)
                    76
       55  SVTS5    ADDRESS. HEX LOCATION(00001910) IN CSECT(0342C   ) LENGTH(2)
                    78
       56  SVTS6    ADDRESS. HEX LOCATION(00001912) IN CSECT(0342C   ) LENGTH(2)
                    79
       57  SVTS7    ADDRESS. HEX LOCATION(00001914) IN CSECT(0342C   ) LENGTH(2)
                    81
       58  SVTS8    ADDRESS. HEX LOCATION(00001916) IN CSECT(0342C   ) LENGTH(2)
                    82
       46  THIR4    ABSOLUTE. HEX VALUE(00000022)
                    62
       45  THREE    ABSOLUTE. HEX VALUE(00000003)
                    68
```

********** LAST PAGE **********

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001900                        3 0342D START X'1900'
                              4 ********************************************************************
                              5 *                                                                  *
                              6 *                     ***       PREREQUISITES        ***           *
                              7 *                                                                  *
                              8 *                          NONE                                    *
                              9 *                                                                  *
                             10 ********************************************************************
                             11 *                                                                  *
                             12 *                     ***       MODIFICATIONS        ***           *
                             13 *                                                                  *
                             14 *                     1. MODIFICATIONS TO SUPPORT SENSOR I/O.       *
                             15 *                                                                  *
                             16 ********************************************************************
                             17 *                                                                  *
                             18 *                     ***     REA'S INCORPORATED     ***           *
                             19 *                                                                  *
                             20 *                          NONE                                    *
                             21 *                                                                  *
                             22 ********************************************************************
                             23 *                                                                  *
                             24 *                     ***    SPECIAL INSTRUCTIONS    ***           *
                             25 *                                                                  *
                             26 *                          NONE                                    *
                             27 *                                                                  *
                             28 ********************************************************************
                             29 *                                                                  *
                             30 *                     ***       E. C. HISTORY        ***           *
                             31 *                                                                  *
                             32 *        DATE 06MAY77  DATE 15SEP77  DATE          DATE           *
                             33 *        E.C. 578756   E.C. 754882   E.C.          E.C.           *
                             34 *                                                                  *
                             35 ********************************************************************
                             37 ********************************************************************
                             38 *                                                                  *
                             39 *     EQUATE TABLE                                                 *
                             40 *                                                                  *
                             41 ********************************************************************
00180E                       42 OPTN1 EQU   X'180E'
00182A                       43 NUMDV EQU   X'182A'
00182E                       44 DEVC1 EQU   X'182E'
000003                       45 THREE EQU   3                                  3
000022                       46 THIR4 EQU   34                                 34
001900  342D                 48 PID   DC    X'342D'            PROGRAM IDENTIFIER
001902  6802 191A            49 OVLST B     OVSTR              BRANCH TO PGM START
001906  1968                 50 SINST DC    A(INSTR)
001908  0000                 51 SVTS1 DC    A(*-*)             INSTRUCTION STREAM START
00190A  0000                 52 SVTS2 DC    A(*-*)             LENGTH
00190C  0000                 53 SVTS3 DC    A(*-*)             IDCB TABLE START
00190E  0000                 54 SVTS4 DC    A(*-*)             LENGTH
001910  0000                 55 SVTS5 DC    A(*-*)             DCB TABLE START
001912  0000                 56 SVTS6 DC    A(*-*)             LENGTH
001914  0000                 57 SVTS7 DC    A(*-*)             DATA AREA
001916  0000                 58 SVTS8 DC    A(*-*)             LENGTH
001918  0000                 59 RETSV DC    A(*-*)
00191A                       60 OVSTR EQU   *
00191A  6F0D 1918            61       MVW   R7,RETSV           SAVE REG 7
00191E  0F22                 62       MVBI  THIR4,R7           NUMBER OF BYTES TO MOVE
001920  4224 1968            63       MVA   INSTR,R2           AREA TO RESTORE
001924  4124 180E            64       MVWI  OPTN1,R1           WHERE TO PUT THE DATA
001928  2A24                 65       MVFN  (R2),(R1)          MOVE IT
00192A  4724 182A            66       MVWI  NUMDV,R7
00192E  6FE8 0000            67       MVW   (R7),R7
001932  3719                 68       SLL   THREE,R7
001934  4124 182E            69       MVWI  DEVC1,R1
001938  C940                 70       MVW   (R1),R1
00193A  2A24                 71       MVFN  (R2),(R1)
00193C  6908 1908            72       MVW   SVTS1,R1           THE FOLLOWING
001940  6F08 190A            73       MVW   SVTS2,R7               SET UP
001944  4424 1968            74       MVA   INSTR,R4                  INSTRUCTIONS,
001948  2A24                 75       MVFN  (R2),(R1)                    IDCB'S,
00194A  6908 190C            76       MVW   SVTS3,R1                        DCB'S,
00194E  2A24                 77       MVFN  (R2),(R1)              THE AREA
001950  6908 1910            78       MVW   SVTS5,R1                  TO RESTORE
001954  6F08 1912            79       MVW   SVTS6,R7                     THE TEST
001958  2A24                 80       MVFN  (R2),(R1)                       PREVIOUSLY
00195A  6908 1914            81       MVW   SVTS7,R1                           WAS
00195E  6F08 1916            82       MVW   SVTS8,R7
001962  2A24                 83       MVFN  (R2),(R1)
001964  6812 1918            84       B     RETSV*
001968                       85 INSTR EQU   *
001968  00000000000000000000 86       DC    128A(*-*)
001A68  00000000000000000000 87       DC    128A(*-*)
001B68  00000000000000000000 88       DC    128A(*-*)
001C68  00000000000000000000 89       DC    128A(*-*)
001D68  00000000000000000000 90       DC    128A(*-*)
001E68  00000000000000000000 91       DC    128A(*-*)
001F68  00000000000000000000 92       DC    128A(*-*)
002068  00000000000000000000 93       DC    128A(*-*)
002168  00000000000000000000 94       DC    128A(*-*)
002268  00000000000000000000 95       DC    128A(*-*)
002368  00000000000000000000 96       DC    128A(*-*)
002468  00000000000000000000 97       DC    128A(*-*)
002568  00000000000000000000 98       DC    128A(*-*)
002668  00000000000000000000 99       DC    128A(*-*)
002768  00000000000000000000 100      DC    128A(*-*)
002868                       101 OVLND EQU   *
002900                       102 OVLBT EQU   PID+4096
002868  0000000000000000     103      DC    (OVLBT-OVLND)X'00'
000000                       104      END
```


CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

```
DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R1.       ABSOLUTE. HEX VALUE(00000001)
                       64   65   69   70   70   70   70   71   72
                       75   76   77   78   80   81   83
       0  .R2.       ABSOLUTE. HEX VALUE(00000002)
                       63   65   71   75   77   80   83
       0  .R4.       ABSOLUTE. HEX VALUE(00000004)
                       74
       0  .R7.       ABSOLUTE. HEX VALUE(00000007)
                       61   62   66   67   67   67   67   68   73
                       79   82
      44  DEVC1      ABSOLUTE. HEX VALUE(0000182E)
                       69
      85  INSTR      ADDRESS. HEX LOCATION(00001968) IN CSECT(0342D   ) LENGTH(1)
                       50   63   74
      43  NUMDV      ABSOLUTE. HEX VALUE(0000182A)
                       66
      42  OPTN1      ABSOLUTE. HEX VALUE(0000180E)
                       64
     102  OVLBT      ADDRESS. HEX LOCATION(00002900) IN CSECT(0342D   ) LENGTH(1)
                      103
     101  OVLND      ADDRESS. HEX LOCATION(00002868) IN CSECT(0342D   ) LENGTH(1)
                      103
      60  OVSTR      ADDRESS. HEX LOCATION(0000191A) IN CSECT(0342D   ) LENGTH(1)
                       49
       3  0342D      CSECT. START(00001900) LENGTH(4096) ESDID(0)
                        3
      48  PID        ADDRESS. HEX LOCATION(00001900) IN CSECT(0342D   ) LENGTH(2)
                      102
      59  RETSV      ADDRESS. HEX LOCATION(00001918) IN CSECT(0342D   ) LENGTH(2)
                       61   84
      51  SVTS1      ADDRESS. HEX LOCATION(00001908) IN CSECT(0342D   ) LENGTH(2)
                       72
      52  SVTS2      ADDRESS. HEX LOCATION(0000190A) IN CSECT(0342D   ) LENGTH(2)
                       73
      53  SVTS3      ADDRESS. HEX LOCATION(0000190C) IN CSECT(0342D   ) LENGTH(2)
                       76
      55  SVTS5      ADDRESS. HEX LOCATION(00001910) IN CSECT(0342D   ) LENGTH(2)
                       78
      56  SVTS6      ADDRESS. HEX LOCATION(00001912) IN CSECT(0342D   ) LENGTH(2)
                       79
      57  SVTS7      ADDRESS. HEX LOCATION(00001914) IN CSECT(0342D   ) LENGTH(2)
                       81
      58  SVTS8      ADDRESS. HEX LOCATION(00001916) IN CSECT(0342D   ) LENGTH(2)
                       82
      46  THIR4      ABSOLUTE. HEX VALUE(00000022)
                       62
      45  THREE      ABSOLUTE. HEX VALUE(00000003)
                       68
```

********** LAST PAGE **********

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001900                        3 0342E START X'1900'
                              4 ********************************************************************************
                              5 *                                                                              *
                              6 *                     ***       PREREQUISITES       ***                        *
                              7 *                                                                              *
                              8 *                                NONE                                          *
                              9 *                                                                              *
                             10 ********************************************************************************
                             11 *                                                                              *
                             12 *                     ***       MODIFICATIONS       ***                        *
                             13 *                                                                              *
                             14 *                     1. MODIFICATIONS TO SUPPORT SENSOR I/O.                  *
                             15 *                                                                              *
                             16 ********************************************************************************
                             17 *                                                                              *
                             18 *                     ***     REA'S INCORPORATED    ***                        *
                             19 *                                                                              *
                             20 *                                NONE                                          *
                             21 *                                                                              *
                             22 ********************************************************************************
                             23 *                                                                              *
                             24 *                     ***    SPECIAL INSTRUCTIONS   ***                        *
                             25 *                                                                              *
                             26 *                                NONE                                          *
                             27 *                                                                              *
                             28 ********************************************************************************
                             29 *                                                                              *
                             30 *                     ***       E. C. HISTORY       ***                        *
                             31 *                                                                              *
                             32 *          DATE 06MAY77  DATE 15SEP77  DATE          DATE                     *
                             33 *          E.C. 578756   E.C. 754882   E.C.          E.C.                     *
                             34 *                                                                              *
                             35 ********************************************************************************
                             37 ********************************************************************************
                             38 *                                                                              *
                             39 *     EQUATE TABLE                                                             *
                             40 *                                                                              *
                             41 ********************************************************************************
00180E                       42 OPTN1 EQU   X'180E'
00182A                       43 NUMDV EQU   X'182A'
00182E                       44 DEVC1 EQU   X'182E'
000003                       45 THREE EQU   3                          3
000022                       46 THIR4 EQU   34                         34
001900  342E                 48 PID   DC    X'342E'                   PROGRAM IDENTIFIER
001902  6802 191A            49 OVLST B     OVSTR                     BRANCH TO PGM START
001906  1968                 50 SINST DC    A(INSTR)
001908  0000                 51 SVTS1 DC    A(*-*)                    INSTRUCTION STREAM START
00190A  0000                 52 SVTS2 DC    A(*-*)                    LENGTH
00190C  0000                 53 SVTS3 DC    A(*-*)                    IDCB TABLE START
00190E  0000                 54 SVTS4 DC    A(*-*)                    LENGTH
001910  0000                 55 SVTS5 DC    A(*-*)                    DCB TABLE START
001912  0000                 56 SVTS6 DC    A(*-*)                    LENGTH
001914  0000                 57 SVTS7 DC    A(*-*)                    DATA AREA
001916  0000                 58 SVTS8 DC    A(*-*)                    LENGTH
001918  0000                 59 RETSV DC    A(*-*)
00191A                       60 OVSTR EQU   *
00191A  6F0D 1918            61       MVW   R7,RETSV                  SAVE REG 7
00191E  0F22                 62       MVBI  THIR4,R7                  NUMBER OF BYTES TO MOVE
001920  4224 1968            63       MVA   INSTR,R2                  AREA TO RESTORE
001924  4124 180E            64       MVWI  OPTN1,R1                  WHERE TO PUT THE DATA
001928  2A24                 65       MVFN  (R2),(R1)                 MOVE IT
00192A  4724 182A            66       MVWI  NUMDV,R7
00192E  6FE8 0000            67       MVW   (R7),R7
001932  3719                 68       SLL   THREE,R7
001934  4124 182E            69       MVWI  DEVC1,R1
001938  C940                 70       MVW   (R1),R1
00193A  2A24                 71       MVFN  (R2),(R1)
00193C  6908 1908            72       MVW   SVTS1,R1                  THE FOLLOWING
001940  6F08 190A            73       MVW   SVTS2,R7                      SET UP
001944  2A24                 74       MVFN  (R2),(R1)                           IDCB'S,
001946  6908 190C            75       MVW   SVTS3,R1                              DCB'S,
00194A  6F08 190E            76       MVW   SVTS4,R7                                AND
00194E  2A24                 77       MVFN  (R2),(R1)                     THE AREA
001950  6908 1910            78       MVW   SVTS5,R1                          TO RESTORE
001954  6F08 1912            79       MVW   SVTS6,R7                            THE TEST
001958  2A24                 80       MVFN  (R2),(R1)                                 PREVIOUSLY
00195A  6908 1914            81       MVW   SVTS7,R1                                    WAS
00195E  6F08 1916            82       MVW   SVTS8,R7
001962  2A24                 83       MVFN  (R2),(R1)
001964  6812 1918            84       B     RETSV*
001968                       85 INSTR EQU   *
001968  00000000000000000000 86       DC    128A(*-*)
001A68  00000000000000000000 87       DC    128A(*-*)
001B68  00000000000000000000 88       DC    128A(*-*)
001C68  00000000000000000000 89       DC    128A(*-*)
001D68  00000000000000000000 90       DC    128A(*-*)
001E68  00000000000000000000 91       DC    128A(*-*)
001F68  00000000000000000000 92       DC    128A(*-*)
002068  00000000000000000000 93       DC    128A(*-*)
002168  00000000000000000000 94       DC    128A(*-*)
002268  00000000000000000000 95       DC    128A(*-*)
002368  00000000000000000000 96       DC    128A(*-*)
002468  00000000000000000000 97       DC    128A(*-*)
002568  00000000000000000000 98       DC    128A(*-*)
002668  00000000000000000000 99       DC    128A(*-*)
002768  00000000000000000000 100      DC    128A(*-*)
002868                       101 OVLND EQU   *
002900                       102 OVLBT EQU   PID+4096
002868  00000000000000000000 103      DC    (OVLBT-OVLND)X'00'
000000                       104      END
```


CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

```
DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R1.       ABSOLUTE. HEX VALUE(00000001)
                     64   65   69   70   70   70   71   72
                     74   75   77   78   80   81   83
       0  .R2.       ABSOLUTE. HEX VALUE(00000002)
                     63   65   71   74   77   80   83
       0  .R7.       ABSOLUTE. HEX VALUE(00000007)
                     61   62   66   67   67   67   68   73
                     76   79   82
      44  DEVC1      ABSOLUTE. HEX VALUE(0000182E)
                     69
      85  INSTR      ADDRESS. HEX LOCATION(00001968) IN CSECT(0342E   ) LENGTH(1)
                     50   63
      43  NUMDV      ABSOLUTE. HEX VALUE(0000182A)
                     66
      42  OPTN1      ABSOLUTE. HEX VALUE(0000180E)
                     64
     102  OVLBT      ADDRESS. HEX LOCATION(00002900) IN CSECT(0342E   ) LENGTH(1)
     101  OVLND      ADDRESS. HEX LOCATION(00002868) IN CSECT(0342E   ) LENGTH(1)
                     103
      60  OVSTR      ADDRESS. HEX LOCATION(0000191A) IN CSECT(0342E   ) LENGTH(1)
                     49
       3  0342E      CSECT. START(00001900) LENGTH(4096) ESDID(0)
                      3
      48  PID        ADDRESS. HEX LOCATION(00001900) IN CSECT(0342E   ) LENGTH(2)
                     102
      59  RETSV      ADDRESS. HEX LOCATION(00001918) IN CSECT(0342E   ) LENGTH(2)
                     61   84
      51  SVTS1      ADDRESS. HEX LOCATION(00001908) IN CSECT(0342E   ) LENGTH(2)
                     72
      52  SVTS2      ADDRESS. HEX LOCATION(0000190A) IN CSECT(0342E   ) LENGTH(2)
                     73
      53  SVTS3      ADDRESS. HEX LOCATION(0000190C) IN CSECT(0342E   ) LENGTH(2)
                     75
      54  SVTS4      ADDRESS. HEX LOCATION(0000190E) IN CSECT(0342E   ) LENGTH(2)
                     76
      55  SVTS5      ADDRESS. HEX LOCATION(00001910) IN CSECT(0342E   ) LENGTH(2)
                     78
      56  SVTS6      ADDRESS. HEX LOCATION(00001912) IN CSECT(0342E   ) LENGTH(2)
                     79
      57  SVTS7      ADDRESS. HEX LOCATION(00001914) IN CSECT(0342E   ) LENGTH(2)
                     81
      58  SVTS8      ADDRESS. HEX LOCATION(00001916) IN CSECT(0342E   ) LENGTH(2)
                     82
      46  THIR4      ABSOLUTE. HEX VALUE(00000022)
                     62
      45  THREE      ABSOLUTE. HEX VALUE(00000003)
                     68
```

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********** LAST PAGE **********

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                          COPYRIGHT IBM CORP 1976
001900                        3 0342F START X'1900'
                              4 ********************************************************************
                              5 *                                                                  *
                              6 *                    ***       PREREQUISITES        ***           *
                              7 *                                                                  *
                              8 *                              NONE                                *
                              9 *                                                                  *
                             10 ********************************************************************
                             11 *                                                                  *
                             12 *                    ***       MODIFICATIONS        ***           *
                             13 *                                                                  *
                             14 *                    1. MODIFICATIONS TO SUPPORT SENSOR I/O.       *
                             15 *                                                                  *
                             16 ********************************************************************
                             17 *                                                                  *
                             18 *                    ***     REA'S INCORPORATED     ***           *
                             19 *                                                                  *
                             20 *                              NONE                                *
                             21 *                                                                  *
                             22 ********************************************************************
                             23 *                                                                  *
                             24 *                    ***    SPECIAL INSTRUCTIONS    ***           *
                             25 *                                                                  *
                             26 *                              NONE                                *
                             27 *                                                                  *
                             28 ********************************************************************
                             29 *                                                                  *
                             30 *                    ***       E. C. HISTORY        ***           *
                             31 *                                                                  *
                             32 *          DATE 06MAY77  DATE 15SEP77  DATE          DATE         *
                             33 *          E.C. 578756   E.C. 754882   E.C.          E.C.         *
                             34 *                                                                  *
                             35 ********************************************************************
                             37 ********************************************************************
                             38 *                                                                  *
                             39 *     EQUATE TABLE                                                 *
                             40 *                                                                  *
                             41 ********************************************************************
00180E                       42 OPTN1 EQU   X'180E'
00182A                       43 NUMDV EQU   X'182A'
00182E                       44 DEVC1 EQU   X'182E'
000003                       45 THREE EQU   3                        3
000022                       46 THIR4 EQU   34                       34
001900 342F                  48 PID   DC    X'342F'                  PROGRAM IDENTIFIER
001902 6802 191A             49 OVLST B     OVSTR                    BRANCH TO PGM START
001906 1968                  50 SINST DC    A(INSTR)
001908 0000                  51 SVTS1 DC    A(*-*)                   INSTRUCTION STREAM START
00190A 0000                  52 SVTS2 DC    A(*-*)                   LENGTH
00190C 0000                  53 SVTS3 DC    A(*-*)                   IDCB TABLE START
00190E 0000                  54 SVTS4 DC    A(*-*)                   LENGTH
001910 0000                  55 SVTS5 DC    A(*-*)                   DCB TABLE START
001912 0000                  56 SVTS6 DC    A(*-*)                   LENGTH
001914 0000                  57 SVTS7 DC    A(*-*)                   DATA AREA
001916 0000                  58 SVTS8 DC    A(*-*)                   LENGTH
001918 0000                  59 RETSV DC    A(*-*)
00191A                       60 OVSTR EQU   *
00191A 6F0D 1918             61       MVW   R7,RETSV                 SAVE REG 7
00191E 0F22                  62       MVBI  THIR4,R7                 NUMBER OF BYTES TO MOVE
001920 4224 1968             63       MVA   INSTR,R2                 AREA TO RESTORE
001924 4124 180E             64       MVWI  OPTN1,R1                 WHERE TO PUT THE DATA
001928 2A24                  65       MVFN  (R2),(R1)                MOVE IT
00192A 4724 182A             66       MVWI  NUMDV,R7
00192E 6FE8 0000             67       MVW   (R7),R7
001932 3719                  68       SLL   THREE,R7
001934 4124 182E             69       MVWI  DEVC1,R1
001938 C940                  70       MVW   (R1),R1
00193A 2A24                  71       MVFN  (R2),(R1)
00193C 6908 1908             72       MVW   SVTS1,R1                 THE FOLLOWING
001940 6F08 190A             73       MVW   SVTS2,R7                     SET UP
001944 2A24                  74       MVFN  (R2),(R1)                          IDCB'S,
001946 6908 190C             75       MVW   SVTS3,R1                             DCB'S,
00194A 6F08 190E             76       MVW   SVTS4,R7                               AND
00194E 2A24                  77       MVFN  (R2),(R1)                    THE AREA
001950 6908 1910             78       MVW   SVTS5,R1                         TO RESTORE
001954 6F08 1912             79       MVW   SVTS6,R7                           THE TEST
001958 2A24                  80       MVFN  (R2),(R1)                                PREVIOUSLY
00195A 6908 1914             81       MVW   SVTS7,R1                                   WAS
00195E 6F08 1916             82       MVW   SVTS8,R7
001962 2A24                  83       MVFN  (R2),(R1)
001964 6812 1918             84       B     RETSV*
001968                       85 INSTR EQU   *
001968 00000000000000000000  86       DC    128A(*-*)
001A68 00000000000000000000  87       DC    128A(*-*)
001B68 00000000000000000000  88       DC    128A(*-*)
001C68 00000000000000000000  89       DC    128A(*-*)
001D68 00000000000000000000  90       DC    128A(*-*)
001E68 00000000000000000000  91       DC    128A(*-*)
001F68 00000000000000000000  92       DC    128A(*-*)
002068 00000000000000000000  93       DC    128A(*-*)
002168 00000000000000000000  94       DC    128A(*-*)
002268 00000000000000000000  95       DC    128A(*-*)
002368 00000000000000000000  96       DC    128A(*-*)
002468 00000000000000000000  97       DC    128A(*-*)
002568 00000000000000000000  98       DC    128A(*-*)
002668 00000000000000000000  99       DC    128A(*-*)
002768 00000000000000000000 100       DC    128A(*-*)
002868                      101 OVLND EQU   *
002900                      102 OVLBT EQU   PID+4096
002868 00000000000000000000 103       DC    (OVLBT-OVLND)X'00'
000000                      104       END
```


CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R1.       ABSOLUTE. HEX VALUE(00000001)
                      64   65   69   70   70   70   70   71   72
                      74   75   77   78   80   81   83
       0  .R2.       ABSOLUTE. HEX VALUE(00000002)
                      63   65   71   74   77   80   83
       0  .R7.       ABSOLUTE. HEX VALUE(00000007)
                      61   62   66   67   67   67   67   68   73
                      76   79   82
      44  DEVC1      ABSOLUTE. HEX VALUE(0000182E)
                      69
      85  INSTR      ADDRESS. HEX LOCATION(00001968) IN CSECT(0342F   ) LENGTH(1)
                      50   63
      43  NUMDV      ABSOLUTE. HEX VALUE(0000182A)
                      66
      42  OPTN1      ABSOLUTE. HEX VALUE(0000180E)
                      64
     102  OVLBT      ADDRESS. HEX LOCATION(00002900) IN CSECT(0342F   ) LENGTH(1)
                     103
     101  OVLND      ADDRESS. HEX LOCATION(00002868) IN CSECT(0342F   ) LENGTH(1)
                     103
      60  OVSTR      ADDRESS. HEX LOCATION(0000191A) IN CSECT(0342F   ) LENGTH(1)
                      49
       3  0342F      CSECT. START(00001900) LENGTH(4096) ESDID(0)
                       3
      48  PID        ADDRESS. HEX LOCATION(00001900) IN CSECT(0342F   ) LENGTH(2)
                     102
      59  RETSV      ADDRESS. HEX LOCATION(00001918) IN CSECT(0342F   ) LENGTH(2)
                      61   84
      51  SVTS1      ADDRESS. HEX LOCATION(00001908) IN CSECT(0342F   ) LENGTH(2)
                      72
      52  SVTS2      ADDRESS. HEX LOCATION(0000190A) IN CSECT(0342F   ) LENGTH(2)
                      73
      53  SVTS3      ADDRESS. HEX LOCATION(0000190C) IN CSECT(0342F   ) LENGTH(2)
                      75
      54  SVTS4      ADDRESS. HEX LOCATION(0000190E) IN CSECT(0342F   ) LENGTH(2)
                      76
      55  SVTS5      ADDRESS. HEX LOCATION(00001910) IN CSECT(0342F   ) LENGTH(2)
                      78
      56  SVTS6      ADDRESS. HEX LOCATION(00001912) IN CSECT(0342F   ) LENGTH(2)
                      79
      57  SVTS7      ADDRESS. HEX LOCATION(00001914) IN CSECT(0342F   ) LENGTH(2)
                      81
      58  SVTS8      ADDRESS. HEX LOCATION(00001916) IN CSECT(0342F   ) LENGTH(2)
                      82
      46  THIR4      ABSOLUTE. HEX VALUE(00000022)
                      62
      45  THREE      ABSOLUTE. HEX VALUE(00000003)
                      68
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001900                       3 0A8E8 START X'1900'
                             4 ********************************************************************************
                             5 *                                                                              *
                             6 *                     ***       PREREQUISITES        ***                       *
                             7 *                                                                              *
                             8 *                                  NONE                                        *
                             9 *                                                                              *
                            10 ********************************************************************************
                            11 *                                                                              *
                            12 *                     ***       MODIFICATIONS        ***                       *
                            13 *                                                                              *
                            14 *                                  NONE                                        *
                            15 *                                                                              *
                            16 ********************************************************************************
                            17 *                                                                              *
                            18 *                     ***     REA'S INCORPORATED     ***                       *
                            19 *                                                                              *
                            20 *                                  NONE                                        *
                            21 *                                                                              *
                            22 ********************************************************************************
                            23 *                                                                              *
                            24 *                     ***    SPECIAL INSTRUCTIONS    ***                       *
                            25 *                                                                              *
                            26 *                                  NONE                                        *
                            27 *                                                                              *
                            28 ********************************************************************************
                            29 *                                                                              *
                            30 *                     ***       E. C. HISTORY        ***                       *
                            31 *                                                                              *
                            32 *          DATE 15SEP77  DATE          DATE          DATE                      *
                            33 *          E.C. 754882   E.C.          E.C.          E.C.                      *
                            34 *                                                                              *
                            35 ********************************************************************************
                            37 ********************************************************************************
                            38 *                                                                              *
                            39 *     EQUATED NAMES FOR REQUIRED SVC'S                                         *
                            40 *                                                                              *
                            41 ********************************************************************************
000000                      42 OUT   EQU   0                    OUT SVC
000001                      43 OUTIN EQU   1                    OUTIN SVC
000002                      44 IDLE  EQU   2                    IDLE SVC
00001A                      45 HTOE  EQU   26                   HEX TO EBCDIC SVC
00001D                      46 ETOA  EQU   29                   EBCIDIC TO ASCII SVC (STRING)
                            48 ********************************************************************************
                            49 *                                                                              *
                            50 *     EQUATES FOR CODED STOPS USED BY THIS UTILITY MONITOR                     *
                            51 *           (NORMAL AND ERROR)                                                 *
                            52 *                                                                              *
                            53 ********************************************************************************
003487                      54 CD7   EQU   X'3487'              COMMANDS FOR 4982-AI
003490                      55 CD10  EQU   X'3490'              WHICH CHANNEL
003491                      56 CD11  EQU   X'3491'              NO MULTIPLEXER
003492                      57 CD12  EQU   X'3492'              NO AI FEATURE
00349B                      58 CD1B  EQU   X'349B'              INVALID COMMAND
0034A2                      59 CD22  EQU   X'34A2'              LEVEL TO INTERRUPT
0034A3                      60 CD23  EQU   X'34A3'              LENGTH OF DELAY
0034A6                      61 CD26  EQU   X'34A6'              LOOP NOT STARTED
0034A7                      62 CD27  EQU   X'34A7'              NUMBER OF TIMES THRU LOOP
0034C1                      63 CD41  EQU   X'34C1'              WRONG RANGE
0034C2                      64 CD42  EQU   X'34C2'              WHAT RANGE
0034C3                      65 CD43  EQU   X'34C3'              IS ZERO CORRECTION REQUIRED
0034C5                      66 CD45  EQU   X'34C5'              DO YOU WANT TO WRITE DATA TO THE LEDS
0034C8                      67 CD48  EQU   X'34C8'              SAMPLE RATE
0034C9                      68 CD49  EQU   X'34C9'              WRONG SAMPLE RATE
                            70 ********************************************************************************
                            71 *                                                                              *
                            72 *     EQUATE TABLE                                                             *
                            73 *                                                                              *
                            74 ********************************************************************************
000232                      75 CPUTP EQU   X'0232'              POINTER TO CPU TYPE
001810                      76 OPTN2 EQU   X'1810'              POINTER TO OPTION WORD 2
001812                      77 IDCPT EQU   X'1812'              POINTER TO IDCB BUILD AREA
001814                      78 STRTB EQU   X'1814'              POINTER TO I STREAM BUILD AREA
001816                      79 DTENT EQU   X'1816'              POINTER TO DATA BUILD AREA
001818                      80 DVCNT EQU   X'1818'              POINTER TO DEVICE UNDER TEST
00181A                      81 DCBPT EQU   X'181A'              POINTER TO DCB BUILD AREA
00181C                      82 BADCC EQU   X'181C'              POINTER TO BAD CODE ROUTINE
00181E                      83 KMODE EQU   X'181E'              POINTER TO DEVICE KEYING IN
00181F                      84 LPIND EQU   X'181F'              LOOP INDICATOR
001820                      85 KEYMD EQU   X'1820'              ADDRESS OF DEVICES KEYING
001824                      86 KYMOD EQU   X'1824'              INDICATOR A DEVICE IS KEYING IN
001826                      87 LOOPS EQU   X'1826'              ADDRESS OF LOOP START
001828                      88 HEXFF EQU   X'1828'
001829                      89 ZEROS EQU   X'1829'
00182A                      90 NUMDV EQU   X'182A'
00182C                      91 DVPNT EQU   X'182C'
00182E                      92 DEVC1 EQU   X'182E'
001830                      93 EPRNT EQU   X'1830'
001832                      94 LOST  EQU   X'1832'
000000                      95 ZERO  EQU   0                    VALUE OF 0
000001                      96 ONE   EQU   1                             1
000002                      97 TWO   EQU   2                             2
000003                      98 THREE EQU   3                             3
000004                      99 FOUR  EQU   4                             4
000005                     100 FIVE  EQU   5                             5
000006                     101 SIX   EQU   6                             6
000007                     102 SEVEN EQU   7                             7
000008                     103 EIGHT EQU   8                             8
000009                     104 NINE  EQU   9                             9
00000A                     105 TEN   EQU   10                           10
00000B                     106 ELEVN EQU   11                           11
00000C                     107 TWELV EQU   12                           12
00000D                     108 THRTN EQU   13                           13
00000E                     109 FOPTN EQU   14                           14
00000F                     110 FIFTN EQU   15                           15
000010                     111 SIXTN EQU   16                           16
000012                     112 EIGTN EQU   18                           18
000014                     113 TWENY EQU   20                           20
000016                     114 TWEN2 EQU   22                           22
000017                     115 TWEN3 EQU   23                           23
000018                     116 TWEN4 EQU   24                           24
00001A                     117 TWEN6 EQU   26                           26
00001B                     118 TWEN7 EQU   27                           27
00001C                     119 TWEN8 EQU   28                           28
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000020                     120 THIR6 EQU   32                   32
000028                     121 FORTY EQU   40                   40
00003C                     122 SIXTY EQU   60                   60
00003F                     123 SIXT3 EQU   63                   63
000040                     124 SIXT4 EQU   64                   64
000041                     125 SIXT5 EQU   65                   65
00007F                     126 ONE27 EQU   127                  127
000080                     127 ONE28 EQU   128                  128
000100                     128 TWO56 EQU   256                  256
000400                     129 OTH24 EQU   1024                 1024
001C00                     130 STH68 EQU   7168                 7168
000F00                     131 BASOF EQU   X'0F00'
FFFFFF                     132 M1    EQU   -1                   -1
FFFFFC                     133 M4    EQU   -4                   -4
FFFFFB                     134 M5    EQU   -5                   -5
FFFFFA                     135 M6    EQU   -6                   -6
000001                     136 HEX01 EQU   X'01'
000002                     137 INERR EQU   2
001900 A8E8                139 PID   DC    X'A8E8'              PROGRAM IDENTIFIER
001902 6802 1A18           140 OVLST B     SIO00                BRANCH TO START OF OVERLAY
001906 0000000000000000    141 UBUFR DC    32A(*-*)
001946 00000000            142 WORK1 DC    2A(*-*)
                           144 ********************************************************************************
                           145 *                                                                              *
                           146 *     THE FOLLOWING INSTRUCTIONS WILL BE MODIFIED FOR TESTING.                 *
                           147 *     CARE SHOULD BE TAKEN TO ENSURE THE INSTRUCTIONS MAINTAIN                 *
                           148 *     THE SAME RELATIVE POSITION IN THE INSTRUCTION STREAM.                    *
                           149 *                                                                              *
                           150 ********************************************************************************
00194A 4024 182E           151 INCOA MVWI  DEVC1,R0
00194E 4840                152 INCO1 TBTS  (R0,ZERO)
001950 0005                153       ABI   FIVE,R0
001952 4000 195A           154       MVA   IOADR,(R0)
001956 00FB                155       ABI   M5,R0
001958 680C 1958           156 IONST IO    *
00195A                     157 IOADR EQU   IONST+TWO
00195C 6F04 1964           158 CCCHK BCC   SEVEN,GODCC
001960 6F13 181C           159       BAL   BADCC*,R7
001964                     160 GODCC EQU   *
00008                      161 CCDCP EQU   GODCC-CCCHK
001964 4324 1C00           162 INCOM MVWI  STH68,R3
001968 4800                163 INCO2 TBT   (R0,ZERO)
00196A 1004                164       JZ    IODC0
00196C 6002                165       SVC   IDLE
00196E BBFC                166       JCT   INCO2,R3
001970 6F13 1832           167       BAL   LOST*,R7
001974                     168 IODC0 EQU   *
001974                     169 IODC5 EQU   *
001974 4029 1980 FFFF      170 CNTST AWI   M1,CNTWD
00197A 1004                171       JZ    **TEN
00197C 6802 197C           172 LPNST B     *
001980 0000                173 CNTWD DC    A(*-*)
001982 0000                174 LPCNT DC    A(*-*)
001976                     175 CNTAD EQU   CNTST+TWO
001978                     176 JENST EQU   CNTST+FOUR
00197E                     177 LPADR EQU   LPNST+TWO
001984 8828 1982 1980      178 RESTR MVW   LPCNT,CNTWD
00198A 6F08 1994           179 DLNST MVW   DLCNT,R7
00198E 6002                180 DLIST SVC   IDLE
001990 BFFE                181       JCT   DLIST,R7
001992 5001                182       J     **FOUR
00198C                     183 DLADR EQU   DLNST+TWO
001994 0000                184 DLCNT DC    A(*-*)
001996 5000                185 JINST J     **TWO
001998 5000                186       J     **TWO
00199A 4724 1810           187 ERTST MVWI  OPTN2,R7
00199E 4F02                188       TBT   (R7,INERR)
0019A0 1002                189       JZ    ERTS1
0019A2 6F13 1830           190       BAL   FPRNT*,R7
0019A6                     191 ERTS1 EQU   *
0019A6 6F08 19A6           192 LIGHT MVW   *,R7
0019AA 78F0                193       SECON R7
0019AC 0000                195 WORKA DC    A(*-*)
0019AE 0000                196 R0SAV DC    A(*-*)
0019B0 0000                197 R2SAV DC    A(*-*)
0019B2 0000                198 R3SAV DC    A(*-*)
0019B4 0000                199 R5SAV DC    A(*-*)
0019B6 0000                200 R7SAV DC    A(*-*)
0019B8 0000                201 RETSV DC    A(*-*)
0019BA 0000                202 LPEND DC    A(*-*)
0019BC A880                203 DTCSS DC    X'A880'
0019BE 20                  204 RDID  DC    X'20'
0019BF 00                  205 RDADR DC    X'00'
0019C0 0000                206 RDCOD DC    X'0000'
0019C2 8020                207 SIOID DC    X'8020'              AI W/O MULTIRANGE
0019C4 8028                208       DC    X'8028'              AI W MULTIRANGE
0019C6 8030                209       DC    X'8030'              REED RELAY MULTIPLEXER
0019C8 8038                210       DC    X'8038'              SOLID STATE MULTIPLEXER
0019CA 1388                211 CON1  DC    X'1388'
0019CC 09C4                212       DC    X'09C4'
0019CE 0682                213       DC    X'0682'
0019D0 04E2                214       DC    X'04E2'
0019D2 0682                215 CON2  DC    X'0682'
0019D4 0341                216       DC    X'0341'
0019D6 022B                217       DC    X'022B'
0019D8 01A0                218       DC    X'01A0'
0019DA 60                  219 PRPCD DC    X'60'
0019DB 20                  220 RIDCD DC    X'20'
0019DC 6F                  221 RSTCD DC    X'6F'
0019DD 48                  222 CONAI DC    X'48'
0019DE 00                  223 REDAC DC    X'00'
0019DF 05                  224 DELCT DC    X'05'
0019E0 00                  225 BASAD DC    X'00'
0019E1 68                  226 CVOCD DC    X'68'
0019E2 6A                  227 CVTCD DC    X'6A'
0019E3 00                  228       ALIGN WORD
0019E4                     229 TTTBL EQU   *
0019E4 1B42                230       DC    A(PREPR)
0019E6 1B92                231       DC    A(UNPRP)
0019E8 1B9E                232       DC    A(REDID)
0019EA 1BA4                233       DC    A(RESET)
0019EC 1BDA                234       DC    A(DELAY)
0019EE 1CA4                235       DC    A(LOPST)
0019F0 1C30                236       DC    A(LOPND)
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976

0019F2  1CBA                237         DC    A(CNVAI)
0019F4  1DB2                238         DC    A(RDADC)
0019F6  1E0E                239         DC    A(CVTZ0)
0019F8  1E1A                240         DC    A(CVTDG)
0019FA  0000                241 AECVT   DC    A(0)
0019FC  0000                242 AETCV   DC    A(0)
0019FE  0000                243 AECTV   DC    A(0)
001A00  0001                244 CVADR   DC    A(1)
001A02  0000                245 CVAD1   DC    A(*-*)
001A04  1F3B                246 CVAD2   DC    A(M8A)
001A06  0002                247 CLPST   DC    A(2)
001A08  1826                248         DC    A(LOOPS)
001A0A  2062                249         DC    A(LPST1)
001A0C  0002                250 CLPEN   DC    A(2)
001A0E  19BA                251         DC    A(LPEND)
001A10  2078                252         DC    A(LPEN1)
001A12  D5                  253 NO      DC    C'N'
001A13  40                  254 EBCBK   DC    C' '
001A14  23                  255 ALBRT   DC    X'23'
001A15  00                  256 MULTI   DC    X'00'
001A16  00                  257 SSMUL   DC    X'00'
001A17  00                  258 WRITE   DC    X'00'
                            259         ALIGN WORD
001A18                      260 SIO00   EQU   *
001A18  6F0D 19B8           261         MVW   R7,RETSV            SAVE THE RETURN ADDRESS
001A1C  6908 182C           262         MVW   DVPNT,R1            DEVICE PARAMETERS UNDER TEST
001A20  CA40                263         MVW   (R1),R2             GET THE DEVICE ADDRESS
001A22  7A44 0F00           264         RBTWI BASOF,R2            RESET THE UNIT ADDRESS
001A26  CA48                265         MVW   R2,(R1)             RESTORE INTO THE TABLE
001A28  3242                266         SBL   EIGHT,R2            POSITION THE BITS FOR LATER
001A2A  C228 19E0           267         MVB   R2,BASAD            SAVE THE BASE ADDRESS
001A2E  7921 0001           268         AWI   ONE,R1              BUMP POINTER
001A32  690D 194C           269         MVW   R1,INCOA+TWO        PUT IN THE INSTR STREAM
001A36  7921 0001           270         AWI   ONE,R1              BUMP THE ADR
001A3A  8860 19BC           271         MVW   DTCSS,(R1)          IND THE TYPE OF DEVICE
001A3E  7921 0002           272         AWI   TWO,R1              BUMP POINTER
001A42  8860 1814           273         MVW   STRTB,(R1)          START ADR FOR THIS TEST
001A46  6808 1814           274         MVW   STRTB,R0            SET R0
001A4A  9024 1996           275         MVD   JINST,(R0)+         MOVE IN DUMMY INSTR'S
001A4E  680D 1814           276         MVW   R0,STRTB            SAVE THE INSTR STREAM POINTER
001A52  6D0D 1A02           277         MVW   R5,CVAD1            PREPARE TO CONVERT
001A56  4724 1A00           278         MVA   CVADR,R7            CONTROL BLOCK ADDRESS
001A5A  601A                279         SVC   HTOE                GO CONVERT
001A5C  4424 000C           280         MVWI  TWELV,R4            NUM OF POSSIBLE MESSAGES
001A60  4724 1E6C           281         MVA   MG8,R7              START ADR OF MESSAGES
001A64                      282 SIO03   EQU   *
001A64  6000                283         SVC   OUT                 OUTPUT THE MESSAGE
001A66  7FE1 0004           284         AWI   FOUR,R7             POSITION FOR NEXT MESSAGE
001A6A  BCFC                285         JCT   SIO03,R4            OUTPUT THE NEXT MESSAGE
001A6C  4724 1EA0           286         MVA   DUMMY,R7            DUMMY OUTIN TO GET COMMANDS
001A70  6001                287         SVC   OUTIN
001A72  6F0D 19B6           288         MVW   R7,R7SAV            SAVE THE REGISTER
001A76  4124 19C2           289         MVA   SIOID,R1            POSSIBLE IO'S
001A7A  C228 19BF           290         MVB   R2,RDADR            PUT THE DEVICE ADR IN READ ID
001A7E  680C 19BE           291         IO    RDID                DO A READ ID
001A82  891B 19C0           292         CW    (R1)+,RDCOD         IS THIS THE ONE
001A86  1006                293         JE    SIO04               J-THIS IS THE ONE
001A88  891B 19C0           294         CW    (R1)+,RDCOD         IS THIS THE ONE
001A8C  1811                295         JNE   SIO05               NOT A AI FEATURE CARD
001A8E  8028 1828 1A15      296         MVB   HEXFF,MULTI         SET THE INDICATOR
001A94                      297 SIO04   EQU   *
001A94  8508 19BF           298         MVB   (R5),RDADR          PUT THE DEVICE ADR IN READ ID
001A98  680C 19BE           299         IO    RDID                DO A READ ID
001A9C  891B 19C0           300         CW    (R1)+,RDCOD         IS THIS THE ONE
001AA0  101F                301         JE    SIO12               J-THIS IS THE ONE
001AA2  891B 19C0           302         CW    (R1)+,RDCOD         IS THIS THE ONE
001AA6  1810                303         JNE   SIO06               NOT A AI FEATURE CARD
001AA8  8028 1828 1A16      304         MVB   HEXFF,SSMUL         SET THE INDICATOR
001AAE  5018                305         J     SIO12               CONTINUE
001AB0                      306 SIO05   EQU   *
001AB0  4724 1EC8           307         MVA   NOAIC,R7            MESSAGE ADDRESS
001AB4  6001                308         SVC   OUTIN
001AB6  802B 1946 1A12      309         CB    WORK1,NO            WAS IT A NEGATIVE RESPONSE
001ABC  18EB                310         JNE   SIO04               J-NO
001ABE  4029 1814 FFFC      311         AWI   M4,STRTB            RESET THE POINTER
001AC4  6812 19B8           312         B     RETSV*              RETURN TO SENDER
001AC8                      313 SIO06   EQU   *
001AC8  4724 1ED2           314         MVA   NOTAI,R7            MESSAGE ADDRESS
001ACC  6001                315         SVC   OUTIN
001ACE  802B 1946 1A12      316         CB    WORK1,NO            WAS IT A NEGATIVE RESPONSE
001AD4  1805                317         JNE   SIO12
001AD6  4029 1814 FFFC      318         AWI   M4,STRTB            RESET THE POINTER
001ADC  6812 19B8           319         B     RETSV*              RETURN TO SENDER
001AE0                      320 SIO12   EQU   *
001AE0  6F08 19B6           321         MVW   R7SAV,R7            RESTORE R7
001AE4  4324 1906           322         MVA   UBUFR,R3            INPUT DATA
001AE8  4224 19E4           323         MVA   TTTBL,R2            ADR OF BR TABLE
001AEC                      324 SIO15   EQU   *
001AEC  C4C0                325         MVB   (R3),R4             GET THE COMMAND
001AEE  1018                326         JZ    SIO25               J-END
001AF0  7C82 0001           327         SWI   ONE,R4
001AF4  D228 19B0           328         MVD   R2,R2SAV            SAVE THE REGISTER
001AF8  6F0D 19B6           329         MVW   R7,R7SAV            SAVE THE REGISTER
001AFC  7C06 000B           330         CWI   ELEVN,R4            IS IT A VALID COMMAND
001B00  6D01 1E28           331         BGT   NGOOD               J-NO--TOO HIGH
001B04  3409                332         SLL   ONE,R4              DOUBLE FOR DISPL INTO COMMAND TABLE
001B06  7288                333         AW    R2,R4               GET THE COMMAND PROCESSOR ADDRESS
001B08  6808 1812           334         MVW   IDCPT,R0            ADR TO PUT THE IDCB
001B0C  6C88 0000           335         MVW   (R4),R4             GET THE ADDRESS IN THE TABLE
001B10  5400                336         BXS   (R4)                GO COMPLETE THE IDCB
001B12                      337 SIO24   EQU   *
001B12  D220 19B0           338         MVD   R2SAV,R2            RESTORE R2-R3
001B16  6F08 19B6           339         MVW   R7SAV,R7            RESTORE R7
001B1A  7B61 0001           340         AWI   ONE,R3              BUMP INPUT POINTER
001B1E  BFE6                341         JCT   SIO15,R7            GO SET UP FOR NEXT COMMAND
001B20                      342 SIO25   EQU   *
001B20  6908 182C           343         MVW   DVPNT,R1            DEVICE PARAMETERS UNDER TEST
001B24  7921 000C           344         AWI   TWELV,R1            BUMP THE POINTER
001B28  8860 1814           345         MVW   STRTB,(R1)          SAVE THE END ADR
001B2C  C025 181F           346         MVBZ  LPIND,R0            WAS A LOOP STARTED
001B30  1006                347         JZ    SIO26               J-NO
001B32  4724 1F12           348         MVA   LPSTM,R7            MSG ADR
001B36  6000                349         SVC   OUT
001B38  4724 1F1A           350         MVA   LPENM,R7            MSG ADR
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976

001B3C  6000                351         SVC   OUT
001B3E                      352 SIO26   EQU   *
001B3E  6812 19B8           353         B     RETSV*              RETURN TO FRIEND
001B42                      354 PREPR   EQU   *
001B42  8024 19DA           355         MVB   PRPCD,(R0)+         MOVE THE COMMAND TO THE IDCB ADR
001B46  8024 19BF           356         MVB   RDADR,(R0)+         MOVE THE DEVICE ADR TO THE IDCB
001B4A  C715                357         MVBZ  (R0)+,R7            CLEAR THE BYTE
001B4C                      358 PREPA   EQU   *
001B4C  4724 1EB4           359         MVA   PRMSG,R7            MSG ASKING FOR PREP LEVEL
001B50  6001                360         SVC   OUTIN
001B52  6F08 1946           361         MVW   WORK1,R7            GET THE DATA INPUT
001B56  3749                362         SLL   NINE,R7             POSITION THE LEVEL
001B58  6F0D 1946           363         MVW   R7,WORK1            PUT IT BACK IN THE WORK AREA
001B5C  4724 1946           364         MVA   WORK1,R7            ADR OF DATA
001B60  4F47                365         TBTS  (R7,SEVEN)          SET THE I BIT
001B62  8020 1946           366         MVB   WORK1,(R0)          MOVE LEVEL & I BIT INTO IDCB
001B66                      367 PREPB   EQU   *
001B66  6808 1814           368         MVW   STRTB,R0            ADR TO PUT OIO INSTR
001B6A  8828 1812 195A      369         MVW   IDCPT,IOADR         ADR OF THE IDCB
001B70  9024 1958           370         MVD   IONST,(R0)+         MOVE THE I/O INSTR
001B74  70E4                371         MVW   R0,R7               SAVE R0
001B76  7FE1 0008           372         AWI   CCDCP,R7            COMPUTE A NEW ADDRESS
001B7A  6F0D 195E           373         MVW   R7,CCCHK+TWO        INSERT NEW ADDRESS
001B7E  4724 195C           374         MVA   CCCHK,R7            ADDRESS OF DATA TO MOVE
001B82  9714                375         MVD   (R7)+,(R0)+         MOVE THE INSTR'S
001B84  9714                376         MVD   (R7)+,(R0)+
001B86  680D 1814           377         MVW   R0,STRTB            BUMP THE INSTR ADR
001B8A  4029 1812 0004      378         AWI   FOUR,IDCPT          BUMP THE IDCB ADR POINTER
001B90  50C0                379         J     SIO24
001B92                      380 UNPRP   EQU   *
001B92  8024 19DA           381         MVB   PRPCD,(R0)+         IDCB COMMAND
001B96  8024 19BF           382         MVB   RDADR,(R0)+         ENTER THE DEVICE ADDRESS
001B9A  C805                383         MVWZ  (R0),R0             CLEAR THE DATA AREA
001B9C  50E4                384         J     PREPB               GO FINISH THE IDCB
001B9E                      385 REDID   EQU   *
001B9E  8024 19DB           386         MVB   RIDCD,(R0)+         READ ID IDCB COMMAND
001BA2  5002                387         J     COMCD               GO FINISH THE IDCB
001BA4                      388 RESET   EQU   *
001BA4  8024 19DC           389         MVB   RSTCD,(R0)+         RESET IDCB COMMAND
001BA8                      390 COMCD   EQU   *
001BA8  8024 19BF           391         MVB   RDADR,(R0)+         ENTER THE DEVICE ADDRESS
001BAC  C805                392         MVWZ  (R0),R0             CLEAR THE DATA AREA
001BAE  6808 1814           393         MVW   STRTB,R0            ADR TO PUT OIO INSTR
001BB2  8828 1812 195A      394         MVW   IDCPT,IOADR         ADR OF THE IDCB
001BB8  4724 1958           395         MVA   IONST,R7            START ADR OF INSTR STREAM
001BBC  9714                396         MVD   (R7)+,(R0)+         MOVE THE INSTR'S
001BBE  70C4                397         MVW   R0,R6               SAVE R7
001BC0  7EC1 0008           398         AWI   CCDCP,R6            COMPUTE A NEW ADDRESS
001BC4  6E0D 195E           399         MVW   R6,CCCHK+TWO        INSERT NEW ADDRESS
001BC8  9714                400         MVD   (R7)+,(R0)+         MOVE THE INSTR'S
001BCA  9714                401         MVD   (R7)+,(R0)+
001BCC  680D 1814           402         MVW   R0,STRTB            BUMP THE INSTR ADR
001BD0  4029 1812 0004      403         AWI   FOUR,IDCPT          BUMP THE IDCB ADR POINTER
001BD6  6802 1B12           404         B     SIO24
001BDA                      405 DELAY   EQU   *
001BDA  4724 1EAA           406         MVA   DLMSG,R7            ASK FOR THE AMOUNT OF DELAY
001BDE  6001                407         SVC   OUTIN
001BE0  6D0D 19B4           408         MVW   R5,R5SAV            SAVE R5
001BE4  6D08 1946           409         MVW   WORK1,R5            GET THE DATA
001BE8  6F03 1E32           410         BAL   DTOH,R7             GO CONVERT
001BEC  75E4                411         MVW   R5,R7               MOVE TO CONVERT
001BEE  6D08 19B4           412         MVW   R55AV,R5            RESTORE R5
001BF2  802B 1A14 0232      413         CB    ALBRT,CPUTP         IS THIS A 4953 PROCESSOR
001BF8  1803                414         JNE   DLAY1               J-NO
001BFA  370A                415         SRL   ONE,R7              DIVIDE BY 2
001BFC  75E8                416         AW    R5,R7               THIS WILL MULTIPLY BY 1 1/2
001BFE  5002                417         J     DLAY2
001C00                      418 DLAY1   EQU   *
001C00  EF21 19DF           419         MB    DELCT,R7            MULTIPLY BY THE DELAY FACTOR
001C04                      420 DLAY2   EQU   *
001C04  6F0D 1994           421         MVW   R7,DLCNT            PUT THE DELAY INTO THE INSTRUCTION
001C08  6808 1814           422         MVW   STRTB,R0            ADR TO PUT THE DELAY
001C0C  D228 19B0           423         MVD   R2,R2SAV            SAVE THESE REGISTERS
001C10  4224 198A           424         MVA   DLNST,R2            GET THE START OF THE INSTR'S
001C14  4324 1994           425         MVA   DLCNT,R3            DELAY COUNT
001C18  726A                426         SW    R2,R3               COMPUTE THE DIFFERENCE
001C1A  7068                427         AW    R0,R3
001C1C  6B0D 198C           428         MVW   R3,DLADR            MOVE THE ADDRESS INTO THE INSTR
001C20  0F0C                429         MVBI  TWELV,R7            NUMBER OF BYTES IN THE STREAM
001C22  2A04                430         MVFN  (R2),(R0)           MOVE THE INSTRUCTIONS
001C24  D220 19B0           431         MVD   R2SAV,R2            RESTORE THE REGS
001C28  680D 1814           432         MVW   R0,STRTB            BUMP ADR FOR THE NEXT INSTR
001C2C  6802 1B12           433         B     SIO24
001C30                      434 LOPND   EQU   *
001C30  C020 181F           435         MVB   LPIND,R0            WAS A LOOP STARTED
001C34  1805                436         JNZ   LOOP1               J-YES
001C36  4724 1E9C           437         MVA   NOLOP,R7            MSG-NO LOOP STARTED
001C3A  6000                438         SVC   OUT
001C3C  6802 1B12           439         B     SIO24
001C40                      440 LOOP1   EQU   *
001C40  4724 1EBE           441         MVA   LOPMG,R7            MESSAGE ADDRESS
001C44  6001                442         SVC   OUTIN
001C46  6D0D 19B4           443         MVW   R5,R5SAV            SAVE THE REG
001C4A  6D08 1980           444         MVW   CNTWD,R5            GET THE DATA
001C4E  6F03 1E32           445         BAL   DTOH,R7             GO CONVERT
001C52  6D0D 1982           446         MVW   R5,LPCNT
001C56  6D08 19B4           447         MVW   R55AV,R5            RESTORE R5
001C5A  8828 1826 197E      448         MVW   LOOPS,LPADR         MOVE THE START ADR OF THE LOOP
001C60  6808 1814           449         MVW   STRTB,R0            ADR TO PUT THE BRANCH INSTR
001C64  D228 19B0           450         MVD   R2,R2SAV            SAVE THE REGISTERS
001C68  4224 1974           451         MVA   CNTST,R2            INSTR START ADDRESS
001C6C  4324 1980           452         MVA   CNTWD,R3            LOOP COUNT ADDRESS
001C70  726A                453         SW    R2,R3               COMPUTE THE DIFFERENCE
001C72  7068                454         AW    R0,R3               ADD TO THE STARTING ADDRESS
001C74  6B0D 1976           455         MVW   R3,CNTAD            PUT THE ADDRESS INTO THE INSTR
001C78  6B0D 1988           456         MVW   R3,RESTR+FOUR       ADR INTO THE INSTR
001C7C  7B61 0002           457         AWI   TWO,R3              BUMP THE ADR
001C80  6B0D 1986           458         MVW   R3,RESTR+TWO        NEXT ADR INTO INSTR
001C84  0F16                459         MVBI  TWEN2,R7            NUMBER OF BYTES TO MOVE
001C86  2A04                460         MVFN  (R2),(R0)           MOVE THE INSTRUCTIONS
001C88  680D 19BA           461         MVW   R0,LPEND            SET UP
001C8C  4029 19BA FFFA      462         AWI   M6,LPEND                LOOP END
001C92  4724 1A0C           463         MVA   CLPEN,R7                ADDRESS
001C96  601A                464         SVC   HTOE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001C98  D220 19B0          465        MVD   R2SAV,R2              RESTORE THE REGISTERS
001C9C  680D 1814          466        MVW   R0,STRTB              UPDATE THE INSTR STREAM ADR
001CA0  6802 1B12          467        B     SIO24
001CA4                     468 LOPST  EQU   *
001CA4  8828 1814 1826     469        MVW   STRTB,LOOPS           SAVE THE LOOP START ADR
001CAA  4724 1A06          470        MVA   CLPST,R7              CONTROL BLOCK
001CAE  601A               471        SVC   HTOE
001CB0  8028 1828 181F     472        MVB   HEXFF,LPIND           SET THE LOOP IND
001CB6  6802 1B12          473        B     SIO24
001CBA                     474 CNVAI  EQU   *
001CBA  8024 19DD          475        MVB   CONAI,(R0)+           IDCB COMMAND
001CBE  8024 19BF          476        MVB   RDADR,(R0)+           ADR OF DEVICE UNDER TEST
001CC2  4724 1EDC          477        MVA   WHICH,R7              MESSAGE ADDRESS
001CC6  6001               478        SVC   OUTIN
001CC8  6D08 1946          479        MVW   WORK1,R5              GET THE DATA
001CCC  6F03 1E32          480        BAL   DTOH,R7               GO CONVERT
001CD0  CD08               481        MVW   R5,(R0)               PUT IT AWAY
001CD2  C720 1A16          482        MVB   SSMUL,R7              IS THE INDICATOR ON
001CD6  1834               483        JNZ   CNVAE                 J-YES
001CD8                     484 CNVAA  EQU   *
001CD8  4724 1F04          485        MVA   SAM,R7                MESSAGE CONTROL BLOCK
001CDC  6001               486        SVC   OUTIN
001CDE  402F 1946 0004     487        CWI   FOUR,WORK1            IS THE RATE GREATER THAN FOUR
001CE4  1604               488        JLLE  CNVAB                 J-NO
001CE6                     489 CNAAA  EQU   *
001CE6  4724 1F16          490        MVA   SAMA,R7               MESSAGE CONTROL BLOCK
001CEA  6000               491        SVC   OUT
001CEC  50F5               492        J     CNVAA
001CEE                     493 CNVAB  EQU   *
001CEE  6F08 1946          494        MVW   WORK1,R7              GET THE RATE
001CF2  10F9               495        JZ    CNAAA                 0-IS NOT VALID
001CF4  7FE1 FFFF          496        AWI   M1,R7                 REDUCE BY ONE
001CF8  3709               497        SRL   ONE,R7                WORD BOUNDARY
001CFA  802B 1A14 0232     498        CB    ALBRT,CPUTP           IS IT A 4953
001D00  1803               499        JNE   CNVAC                 J-NO
001D02  4524 19D2          500        MVA   CON2,R5               CONSTANTS FOR 4953 PROCESSOR
001D06  5002               501        J     CNVAD
001D08                     502 CNVAC  EQU   *
001D08  4524 19CA          503        MVA   CON1,R5               CONSTANTS FOR 4955 PROCESSOR
001D0C                     504 CNVAD  EQU   *
001D0C  77A8               505        AW    R7,R5                 DISPLACE INTO THE TABLE
001D0E  8D08 1994          506        MVW   (R5),DLCNT            THIS IS THE DELAY
001D12  680D 19AE          507        MVW   R0,R0SAV              SAVE R0
001D16  6808 1814          508        MVW   STRTB,R0              ADR TO PUT THE DELAY
001D1A  D228 19B0          509        MVD   R2,R2SAV              SAVE THESE REGISTERS
001D1E  4224 198A          510        MVA   DLNST,R2              GET THE START OF THE INSTR'S
001D22  4324 1994          511        MVA   DLCNT,R3              DELAY COUNT
001D26  726A               512        SW    R2,R3                 COMPUTE THE DIFFERENCE
001D28  7068               513        AW    R0,R3
001D2A  6B0D 198C          514        MVW   R3,DLADR              MOVE THE ADDRESS INTO THE INSTR
001D2E  0F0C               515        MVBI  TWELV,R7              NUMBER OF BYTES IN THE STREAM
001D30  2A04               516        MVFN  (R2),(R0)             MOVE THE INSTRUCTIONS
001D32  D220 19B0          517        MVD   R2SAV,R2              RESTORE THE REGS
001D36  680D 1814          518        MVW   R0,STRTB              BUMP ADR FOR THE NEXT INSTR
001D3A  6808 19AE          519        MVW   R0SAV,R0              RESTORE R0
001D3E  5008               520        J     CNVA2
001D40                     521 CNVAE  EQU   *
001D40  4724 1EE6          522        MVA   ZEROC,R7              MESSAGE ADDRESS
001D44  6001               523        SVC   OUTIN
001D46  802B 1946 1A12     524        CB    WORK1,NO              WAS IT A NEGATIVE REPLY
001D4C  1001               525        JE    CNVA2                 J-YES
001D4E  4849               526        TBTS  (R0,NINE)             T/ON THE BIT
001D50                     527 CNVA2  EQU   *
001D50  C725 1A15          528        MVBZ  MULTI,R7              DOES THIS HAVE AN AMPLIFIER
001D54  1803               529        JNZ   CNVA3                 J-YES
001D56  8020 0001          530        MVB   HEX01,(R0)            SET THE BIT
001D5A  500B               531        J     CNVA5
001D5C                     532 CNVA3  EQU   *
001D5C  4724 1EF0          533        MVA   RANGE,R7              MESSAGE ADDRESS
001D60  6001               534        SVC   OUTIN
001D62  6F08 1946          535        MVW   WORK1,R7              GET THE DATA
001D66  1804               536        JNZ   CNVA4                 J-IF NOT ZERO
001D68  4724 1F0E          537        MVA   WRONG,R7              MESSAGE ADDRESS
001D6C  6000               538        SVC   OUT
001D6E  50F6               539        J     CNVA3                 ASK AGAIN
001D70                     540 CNVA4  EQU   *
001D70  C708               541        MVB   R7,(R0)               MOVE THE BITS INTO THE IDCB
001D72                     542 CNVA5  EQU   *
001D72  6808 1814          543        MVW   STRTB,R0              ADR TO PUT OIO INSTR
001D76  8828 1812 195A     544        MVW   IDCPT,IOADR           ADR OF THE IDCB
001D7C  8828 1812 1954     545        MVW   IDCPT,INCO1+SIX       ADR OF THE IDCB
001D82  0F12               546        MVBI  EIGTN,R7              NUM OF BYTES IN THE INSTR STREAM
001D84  4424 194A          547        MVA   INCOA,R4              START ADR OF INSTR STREAM
001D88  2C04               548        MVFN  (R4),(R0)             MOVE THE INSTRUCTIONS
001D8A  70E4               549        MVW   R0,R7                 SAVE R0
001D8C  7FE1 0008          550        AWI   CCDCP,R7              COMPUTE A NEW ADDRESS
001D90  6F0D 195E          551        MVW   R7,CCCHK+TWO          INSERT NEW ADDRESS
001D94  4424 195C          552        MVA   CCCHK,R4              ADDRESS OF DATA TO MOVE
001D98  0F18               553        MVBI  TWEN4,R7              NUM OF BYTES IN THE INSTR STREAM
001D9A  2C04               554        MVFN  (R4),(R0)             MOVE THE INSTRUCTIONS
001D9C  0F0C               555        MVBI  TWELV,R7              NUMBER OF BYTES TO MOVE
001D9E  4424 199A          556        MVA   ERTST,R4              INSTRUCTIONS TO MOVE
001DA2  2C04               557        MVFN  (R4),(R0)             MOVE THEM
001DA4  680D 1814          558        MVW   R0,STRTB              BUMP THE INSTR ADR
001DA8  4029 1812 0004     559        AWI   FOUR,IDCPT            BUMP THE IDCB ADR POINTER
001DAE  6802 1B12          560        B     SIO24
001DB2                     561 RDADC  EQU   *
001DB2  8024 19DE          562        MVB   REDAC,(R0)+           IDCB COMMAND
001DB6  8024 19E0          563        MVB   BASAD,(R0)+           ADR OF DEVICE UNDER TEST
001DBA  4724 1EFA          564        MVA   WRLTS,R7              CONTROL BLOCK
001DBE  6001               565        SVC   OUTIN
001DC0  802B 1946 1A12     566        CB    WORK1,NO              WAS THE ANSWER NEGATIVE
001DC6  1003               567        JE    RDAD1                 J-YES
001DC8  8028 1828 1A17     568        MVB   HEXFF,WRITE           SET THE IND
001DCE                     569 RDAD1  EQU   *
001DCE  680D 19A8          570        MVW   R0,LIGHT+TWO          ADR OF DATA TO PUT IN THE LIGHTS
001DD2  CF15               571        MVWZ  (R0)+,R7              CLEAR THE DATA WORD
001DD4  6808 1814          572        MVW   STRTB,R0              ADR TO PUT OIO INSTR
001DD8  8828 1812 195A     573        MVW   IDCPT,IOADR           ADR OF THE IDCB
001DDE  4724 1958          574        MVA   IONST,R7              START ADR OF INSTR STREAM
001DE2  9714               575        MVD   (R7)+,(R0)+           MOVE THE INSTR'S
001DE4  70C4               576        MVW   R0,R6                 SAVE R0
001DE6  7EC1 0008          577        AWI   CCDCP,R6              COMPUTE A NEW ADDRESS
001DEA  6F0D 195E          578        MVW   R6,CCCHK+TWO          INSERT NEW ADDRESS
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001DEE  9714               579        MVD   (R7)+,(R0)+           MOVE THE INSTR'S
001DF0  9714               580        MVD   (R7)+,(R0)+
001DF2  C720 1A17          581        MVB   WRITE,R7              IS THE IND ON
001DF6  1004               582        JZ    RDAD2                 J-NO
001DF8  4424 19A6          583        MVA   LIGHT,R4              MOVE
001DFC  9414               584        MVD   (R4)+,(R0)+                 THE
001DFE  8C04               585        MVW   (R4),(R0)+                      INSTRUCTIONS
001E00                     586 RDAD2  EQU   *
001E00  680D 1814          587        MVW   R0,STRTB              BUMP THE INSTR ADR
001E04  4029 1812 0004     588        AWI   FOUR,IDCPT            BUMP THE IDCB ADR POINTER
001E0A  6802 1B12          589        B     SIO24
001E0E                     590 CVTZ0  EQU   *
001E0E  8024 19E1          591        MVB   CVOCD,(R0)+           IDCB COMMAND
001E12  8024 19E0          592        MVB   BASAD,(R0)+           ADR OF DEVICE UNDER TEST
001E16  6802 1D5C          593        B     CNVA3
001E1A                     594 CVTDG  EQU   *
001E1A  8024 19E2          595        MVB   CVTCD,(R0)+           IDCB COMMAND
001E1E  8024 19E0          596        MVB   BASAD,(R0)+           ADR OF DEVICE UNDER TEST
001E22  C805               597        MVWZ  (R0),R0               CLEAR THE WORD
001E24  6802 1D72          598        B     CNVA5
001E28                     599 NGOOD  EQU   *
001E28  4724 1F1E          600        MVA   INCMD,R7              ADR OF INVALID COMMAND MSG
001E2C  6000               601        SVC   OUT                   OUTPUT THE MESSAGE
001E2E  6802 1B12          602        B     SIO24
001E32                     603 DTOH   EQU   *
001E32  6F0D 1E66          604        MVW   R7,RTRTN
001E36  6C0D 1E68          605        MVW   R4,DHSAV              SAVE R4
001E3A  748A               606        SW    R4,R4                 CLEAR THE REG
001E3C  3425               607        SLLD  FOUR,R4               MOVE THOUSAND INTO R4
001E3E  EC25 1E62          608        MW    THOUS,R4              MULTIPLY THOUSANDS
001E42  3522               609        SRL   FOUR,R5               POSITION THE HUNS,TENS
001E44  3546               610        SRLD  EIGHT,R5              MOVE TENS AND UNITS INTO R6
001E46  EC25 1E64          611        MW    HUN,R5                MULTIPLY HUNDREDS
001E4A  74A8               612        AW    R4,R5                 ADD THOUS AND HUNS
001E4C  3642               613        SRL   EIGHT,R6
001E4E  3626               614        SRLD  FOUR,R6               MOVE UNITS INTO R7
001E50  3762               615        SRL   TWELV,R7              POSITION THE UNITS
001E52  77A8               616        AW    R7,R5                 ADD UNITS TO THOUS AND HUNS
001E54  EE21 1E65          617        MB    TENS,R6               MULTIPLY TENS
001E58  76A8               618        AW    R6,R5                 GET THE GRAND TOTAL
001E5A  6C08 1E68          619        MVW   DHSAV,R4              RESTORE R4
001E5E  6812 1E66          620        B     RTRTN*
001E62  03E8               621 THOUS  DC    A(1000)
001E64  64                 622 HUN    DC    H'100'
001E65  0A                 623 TENS   DC    H'10'
001E66  0000               624 RTRTN  DC    A(*-*)
001E68  0000               625 DHSAV  DC    A(*-*)
001E6A  0080               626        DC    X'0080'
001E6C  1F22               627 MG8    DC    A(M8)
001E6E  0080               628        DC    X'0080'
001E70  1F42               629        DC    A(M9)
001E72  0080               630        DC    X'0080'
001E74  1F58               631        DC    A(M9A)
001E76  0080               632        DC    X'0080'
001E78  1F70               633        DC    A(M9B)
001E7A  0080               634        DC    X'0080'
001E7C  1F7E               635        DC    A(M9C)
001E7E  0080               636        DC    X'0080'
001E80  1F8A               637        DC    A(M9D)
001E82  0080               638        DC    X'0080'
001E84  1F96               639        DC    A(M9E)
001E86  0080               640        DC    X'0080'
001E88  1FA6               641        DC    A(M9F)
001E8A  0080               642        DC    X'0080'
001E8C  208E               643        DC    A(M13A)
001E8E  0080               644        DC    X'0080'
001E90  2080               645        DC    A(M13B)
001E92  0080               646        DC    X'0080'
001E94  209E               647        DC    A(M13C)
001E96  0080               648        DC    X'0080'
001E98  20BC               649        DC    A(M13D)
001E9A  00C0               650        DC    X'00C0'
001E9C  2012               651 NOLOP  DC    A(NLOOP)
001E9E  00C0               652        DC    X'00C0'
001EA0  1FB4               653 DUMMY  DC    A(DUM)
001EA2  1906               654        DC    A(UBUFR)
001EA4  0040               655        DC    A(64)
001EA6  0001               656        DC    A(1)
001EA8  00C0               657        DC    X'00C0'
001EAA  1FEE               658 DLMSG  DC    A(DMSGL)
001EAC  1946               659        DC    A(WORK1)
001EAE  0002               660        DC    A(2)
001EB0  0001               661        DC    A(1)
001EB2  00C0               662        DC    X'00C0'
001EB4  1FD8               663 PRMSG  DC    A(PMSGR)
001EB6  1946               664        DC    A(WORK1)
001EB8  0002               665        DC    A(2)
001EBA  0001               666        DC    A(1)
001EBC  00C0               667        DC    X'00C0'
001EBE  2030               668 LOPMG  DC    A(LPMSG)
001EC0  1980               669        DC    A(CNTWD)
001EC2  0002               670        DC    A(2)
001EC4  0001               671        DC    A(1)
001EC6  00C0               672        DC    X'00C0'
001EC8  20DC               673 NOAIC  DC    A(NOTA1)
001ECA  1946               674        DC    A(WORK1)
001ECC  0001               675        DC    A(1)
001ECE  0000               676        DC    A(0)
001ED0  00C0               677        DC    X'00C0'
001ED2  210A               678 NOTAI  DC    A(NOTA2)
001ED4  1946               679        DC    A(WORK1)
001ED6  0001               680        DC    A(1)
001ED8  0000               681        DC    A(0)
001EDA  00C0               682        DC    X'00C0'
001EDC  2136               683 WHICH  DC    A(NOTA3)
001EDE  1946               684        DC    A(WORK1)
001EE0  0002               685        DC    A(2)
001EE2  0001               686        DC    A(1)
001EE4  00C0               687        DC    X'00C0'
001EE6  2146               688 ZEROC  DC    A(NOTA4)
001EE8  1946               689        DC    A(WORK1)
001EEA  0001               690        DC    A(1)
001EEC  0000               691        DC    A(0)
001EEE  00C0               692        DC    X'00C0'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001EF0  2166                693 RANGE  DC    A(NOTA5)
001EF2  1946                694        DC    A(WORK1)
001EF4  0002                695        DC    A(2)
001EF6  0001                696        DC    A(1)
001EF8  00C0                697        DC    X'00C0'
001EFA  2192                698 WRLTS  DC    A(WRLIT)
001EFC  1946                699        DC    A(WORK1)
001EFE  0001                700        DC    A(1)
001F00  0000                701        DC    A(0)
001F02  00C0                702        DC    X'00C0'
001F04  21C8                703 SAM    DC    A(SAM1)
001F06  1946                704        DC    A(WORK1)
001F08  0002                705        DC    A(2)
001F0A  0001                706        DC    A(1)
001F0C  00C0                707        DC    X'00C0'
001F0E  217A                708 WRONG  DC    A(NOTA6)
001F10  0080                709        DC    X'0080'
001F12  2052                710 LPSTM  DC    A(LPST)
001F14  00C0                711        DC    X'00C0'
001F16  21E2                712 SAMA   DC    A(SAM2)
001F18  0080                713        DC    X'0080'
001F1A  206A                714 LPENM  DC    A(LPEN)
001F1C  00C0                715        DC    X'00C0'
001F1E  1FB8                716 INCMD  DC    A(INCMG)
001F20  0000                717        DC    A(0)
001F22  E2C5D3C5C3E340C3D   718 M8     DC    C'SELECT COMMAND(S) FOR DA '
001F3B  404040              719 M8A    DC    C'   '
001F3E  00                  720        DC    X'00'
001F40  0000                721        DC    A(0)
001F42  F0F140D7D9C5D7C1D   722 M9     DC    C'01 PREPARE I BIT ON'
001F55  00                  723        DC    X'00'
001F56  0000                724        DC    A(0)
001F58  F0F240D7D9C5D7C1D   725 M9A    DC    C'02 PREPARE I BIT OFF'
001F6C  00                  726        DC    X'00'
001F6E  0000                727        DC    A(0)
001F70  F0F340D9C5C1C440C   728 M9B    DC    C'03 READ ID'
001F7A  00                  729        DC    X'00'
001F7C  0000                730        DC    A(0)
001F7E  F0F440D9C5E2C5E3    731 M9C    DC    C'04 RESET'
001F86  00                  732        DC    X'00'
001F88  0000                733        DC    A(0)
001F8A  F0F540C4C5D3C1E8    734 M9D    DC    C'05 DELAY'
001F92  00                  735        DC    X'00'
001F94  0000                736        DC    A(0)
001F96  F0F640D3D6D6D740E   737 M9E    DC    C'06 LOOP START'
001FA3  00                  738        DC    X'00'
001FA4  0000                739        DC    A(0)
001FA6  F0F740D3D6D6D740C   740 M9F    DC    C'07 LOOP END'
001FB1  00                  741        DC    X'00'
001FB2  3487                742        DC    A(CD7)
001FB4  00                  743 DUM    DC    X'00'
001FB6  349B                744        DC    A(CD1B)
001FB8  E6D9D6D5C740C9C4C   745 INCMG  DC    C'WRONG IDCB COMMAND,START OVER'
001FD5  00                  746        DC    X'00'
001FD6  34A2                747        DC    A(CD22)
001FD8  D3C5E5C5D340E3D64   748 PMSGR  DC    C'LEVEL TO INTERRUPT'
001FEA  00                  749        DC    X'00'
001FEC  34A3                750        DC    A(CD23)
001FEE  D3C5D5C7E3C840D6C   751 DMSGL  DC    C'LENGTH OF DELAY(IN MILLISECONDS)'
00200E  00                  752        DC    X'00'
002010  34A6                753        DC    A(CD26)
002012  D3D6D6D740D5D6E34   754 NLOOP  DC    C'LOOP NOT STARTED,START OVER'
00202D  00                  755        DC    X'00'
00202E  34A7                756        DC    A(CD27)
002030  C8D6E640D4C1D5E84   757 LPMSG  DC    C'HOW MANY TIMES THROUGH THE LOOP'
00204F  00                  758        DC    X'00'
002050  0000                759        DC    A(0)
002052  D3D6D6D740E2E3C1D   760 LPST   DC    C'LOOP STARTED AT '
002062  F0F0F0F0            761 LPST1  DC    C'0000'
002066  00                  762        DC    X'00'
002068  0000                763        DC    A(0)
00206A  D3D6D6D740C5D5C4C   764 LPEN   DC    C'LOOP ENDED AT '
002078  F0F0F0F0            765 LPEN1  DC    C'0000'
00207C  00                  766        DC    X'00'
00207E  0000                767        DC    A(0)
002080  F0F940D9C5C1C440C   768 M13B   DC    C'09 READ ADC'
00208B  00                  769        DC    X'00'
00208C  0000                770        DC    A(0)
00208E  F0F840C3D6D5E5C5D   771 M13A   DC    C'08 CONVERT AI'
00209B  00                  772        DC    X'00'
00209C  0000                773        DC    A(0)
00209E  F0C140C3D6D5E5C5D   774 M13C   DC    C'0A CONVERT DIAGNOSTIC ZERO'
0020B8  00                  775        DC    X'00'
0020BA  0000                776        DC    A(0)
0020BC  F0C240C3D6D5E5C5D   777 M13D   DC    C'0B CONVERT DIAGNOSTIC VOLTAGE'
0020D9  00                  778        DC    X'00'
0020DA  3492                779        DC    A(CD12)
0020DC  D5D640C1C940C6C5C   780 NOTA1  DC    C'NO AI FEATURE AT THE BASE ADR IS THIS O.K.?'
002107  00                  781        DC    X'00'
002108  3491                782        DC    A(CD11)
00210A  D5D640D4E4D3E3C9D   783 NOTA2  DC    C'NO MULTIPLEXER AT THIS ADR IS THIS O.K.?'
002132  00                  784        DC    X'00'
002134  3490                785        DC    A(CD10)
002136  E6C8C9C3C840C3C8C   786 NOTA3  DC    C'WHICH CHANNEL'
002143  00                  787        DC    X'00'
002144  34C3                788        DC    A(CD43)
002146  C9E240E9C5D9D640C   789 NOTA4  DC    C'IS ZERO CORRECTION REQUIRED?'
002162  00                  790        DC    X'00'
002164  34C2                791        DC    A(CD42)
002166  E6C8C1E340C9E240E   792 NOTA5  DC    C'WHAT IS THE RANGE'
002177  00                  793        DC    X'00'
002178  34C1                794        DC    A(CD41)
00217A  E6D9D6D5C740D9C1D   795 NOTA6  DC    C'WRONG RANGE TRY AGAIN'
00218F  00                  796        DC    X'00'
002190  34C5                797        DC    A(CD45)
002192  C4D640E8D6E440E6C   798 WRLIT  DC    C'DO YOU WANT TO WRITE THE DATA TO THE CONSOLE LED''S?'
0021C5  00                  799        DC    X'00'
0021C6  34C8                800        DC    A(CD48)
0021C8  E6C8C1E340C9E240E   801 SAM1   DC    C'WHAT IS THE SAMPLE RATE'
0021DF  00                  802        DC    X'00'
0021E0  34C9                803        DC    A(CD49)
0021E2  E6D9D6D5C740E2C1D   804 SAM2   DC    C'WRONG SAMPLE RATE--SHOULD BE 0001-0004'
002208  00                  805        DC    X'00'
000000                      806        END
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0A8E8 - AI ROUTINE TO SUPPORT FRIEND P/N=4414320 EC=754882 PAGE 04A
LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976

CROSS-REFERENCE LISTING

```
DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R0.     ABSOLUTE. HEX VALUE(00000000)
                   151  152  153  154  155  163  274  275  276
                   334  346  355  356  357  366  368  370  371
                   375  376  377  381  382  383  383  386  389
                   391  392  392  393  396  397  400  401  402
                   422  427  430  432  435  449  454  460  461
                   466  475  476  481  481  481  507  508  513
                   516  518  519  526  530  541  543  548  549
                   554  557  558  562  563  570  571  572  575
                   576  579  580  584  585  585  587  591  592
                   595  596  597  597
       0  .R1.     ABSOLUTE. HEX VALUE(00000001)
                   262  263  263  263  265  265  265  268  269
                   270  271  271  272  273  273  289  292  294
                   300  302  343  344  345  345
       0  .R2.     ABSOLUTE. HEX VALUE(00000002)
                   263  264  265  266  267  290  323  328  333
                   338  423  424  426  430  431  450  451  453
                   460  465  509  510  512  516  517
       0  .R3.     ABSOLUTE. HEX VALUE(00000003)
                   162  166  322  325  340  425  426  427  428
                   452  453  454  455  456  457  458  511  512
                   513  514
       0  .R4.     ABSOLUTE. HEX VALUE(00000004)
                   280  285  325  327  330  332  333  335  335
                   335  335  336  547  548  552  554  556  557
                   583  584  585  605  606  606  607  608  612
                   619
       0  .R5.     ABSOLUTE. HEX VALUE(00000005)
                   277  298  408  409  411  412  416  443  444
                   446  447  479  481  500  503  505  506  609
                   610  611  612  616  618
       0  .R6.     ABSOLUTE. HEX VALUE(00000006)
                   397  398  399  576  577  578  613  614  617
                   618
       0  .R7.     ABSOLUTE. HEX VALUE(00000007)
                   159  167  179  181  187  188  190  192  193
                   261  278  281  284  286  288  307  314  321
                   329  339  341  348  350  357  359  361  362
                   363  364  365  371  372  373  374  375  376
                   395  396  400  401  406  410  411  415  416
                   419  421  429  437  441  445  459  463  470
                   477  480  482  485  490  494  496  497  505
                   515  522  528  533  535  537  545  546  549
                   550  551  553  555  564  571  574  575  579
                   580  581  600  604  615  616
     255  ALBRT    ADDRESS. HEX LOCATION(00001A14) IN CSECT(OA8E8   ) LENGTH(1)
                   413  498
      82  BADCC    ABSOLUTE. HEX VALUE(0000181C)
                   159
     225  BASAD    ADDRESS. HEX LOCATION(000019E0) IN CSECT(OA8E8   ) LENGTH(1)
                   267  563  592  596
     131  BASOF    ABSOLUTE. HEX VALUE(00000F00)
                   264
     158  CCCHK    ADDRESS. HEX LOCATION(0000195C) IN CSECT(OA8E8   ) LENGTH(4)
                   161  373  374  399  551  552  578
     161  CCDCP    ABSOLUTE. HEX VALUE(00000008)
                   372  398  550  577
      58  CD1B     ABSOLUTE. HEX VALUE(0000349B)
                   744
      55  CD10     ABSOLUTE. HEX VALUE(00003490)
                   785
      56  CD11     ABSOLUTE. HEX VALUE(00003491)
                   782
      57  CD12     ABSOLUTE. HEX VALUE(00003492)
                   779
      59  CD22     ABSOLUTE. HEX VALUE(000034A2)
                   747
      60  CD23     ABSOLUTE. HEX VALUE(000034A3)
                   750
      61  CD26     ABSOLUTE. HEX VALUE(000034A6)
                   753
      62  CD27     ABSOLUTE. HEX VALUE(000034A7)
                   756
      63  CD41     ABSOLUTE. HEX VALUE(000034C1)
                   794
      64  CD42     ABSOLUTE. HEX VALUE(000034C2)
                   791
      65  CD43     ABSOLUTE. HEX VALUE(000034C3)
                   788
      66  CD45     ABSOLUTE. HEX VALUE(000034C5)
                   797
      67  CD48     ABSOLUTE. HEX VALUE(000034C8)
                   800
      68  CD49     ABSOLUTE. HEX VALUE(000034C9)
                   803
      54  CD7      ABSOLUTE. HEX VALUE(00003487)
                   742
     250  CLPEN    ADDRESS. HEX LOCATION(00001A0C) IN CSECT(OA8E8   ) LENGTH(2)
                   463
     247  CLPST    ADDRESS. HEX LOCATION(00001A06) IN CSECT(OA8E8   ) LENGTH(2)
                   470
     489  CNAAA    ADDRESS. HEX LOCATION(00001CE6) IN CSECT(OA8E8   ) LENGTH(1)
                   495
     175  CNTAD    ADDRESS. HEX LOCATION(00001976) IN CSECT(OA8E8   ) LENGTH(1)
                   455
     170  CNTST    ADDRESS. HEX LOCATION(00001974) IN CSECT(OA8E8   ) LENGTH(6)
                   175  176  451
     173  CNTWD    ADDRESS. HEX LOCATION(00001980) IN CSECT(OA8E8   ) LENGTH(2)
                   170  178  444  452  669
     484  CNVAA    ADDRESS. HEX LOCATION(00001CD8) IN CSECT(OA8E8   ) LENGTH(1)
                   492
     493  CNVAB    ADDRESS. HEX LOCATION(00001CEE) IN CSECT(OA8E8   ) LENGTH(1)
                   488
     502  CNVAC    ADDRESS. HEX LOCATION(00001D08) IN CSECT(OA8E8   ) LENGTH(1)
                   499
     504  CNVAD    ADDRESS. HEX LOCATION(00001D0C) IN CSECT(OA8E8   ) LENGTH(1)
                   501
     521  CNVAE    ADDRESS. HEX LOCATION(00001D40) IN CSECT(OA8E8   ) LENGTH(1)
                   483
     474  CNVAI    ADDRESS. HEX LOCATION(00001CBA) IN CSECT(OA8E8   ) LENGTH(1)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                   237
     527  CNVA2    ADDRESS. HEX LOCATION(00001D50) IN CSECT(OA8E8   ) LENGTH(1)
                   520  525
     532  CNVA3    ADDRESS. HEX LOCATION(00001D5C) IN CSECT(OA8E8   ) LENGTH(1)
                   529  539  593
     540  CNVA4    ADDRESS. HEX LOCATION(00001D70) IN CSECT(OA8E8   ) LENGTH(1)
                   536
     542  CNVA5    ADDRESS. HEX LOCATION(00001D72) IN CSECT(OA8E8   ) LENGTH(1)
                   531  598
     390  COMCD    ADDRESS. HEX LOCATION(00001BA8) IN CSECT(OA8E8   ) LENGTH(1)
                   387
     222  CONAI    ADDRESS. HEX LOCATION(000019DD) IN CSECT(OA8E8   ) LENGTH(1)
                   475
     211  CON1     ADDRESS. HEX LOCATION(000019CA) IN CSECT(OA8E8   ) LENGTH(2)
                   503
     215  CON2     ADDRESS. HEX LOCATION(000019D2) IN CSECT(OA8E8   ) LENGTH(2)
                   500
      75  CPUTP    ABSOLUTE. HEX VALUE(00000232)
                   413  498
     244  CVADR    ADDRESS. HEX LOCATION(00001A00) IN CSECT(OA8E8   ) LENGTH(2)
                   278
     245  CVAD1    ADDRESS. HEX LOCATION(00001A02) IN CSECT(OA8E8   ) LENGTH(2)
                   277
     227  CVTCD    ADDRESS. HEX LOCATION(000019E2) IN CSECT(OA8E8   ) LENGTH(1)
                   595
     594  CVTDG    ADDRESS. HEX LOCATION(00001E1A) IN CSECT(OA8E8   ) LENGTH(1)
                   240
     590  CVTZO    ADDRESS. HEX LOCATION(00001E0E) IN CSECT(OA8E8   ) LENGTH(1)
                   239
     226  CVOCD    ADDRESS. HEX LOCATION(000019E1) IN CSECT(OA8E8   ) LENGTH(1)
                   591
     405  DELAY    ADDRESS. HEX LOCATION(00001BDA) IN CSECT(OA8E8   ) LENGTH(1)
                   234
     224  DELCT    ADDRESS. HEX LOCATION(000019DF) IN CSECT(OA8E8   ) LENGTH(1)
                   419
      92  DEVC1    ABSOLUTE. HEX VALUE(0000182E)
                   151
     625  DHSAV    ADDRESS. HEX LOCATION(00001E68) IN CSECT(OA8E8   ) LENGTH(2)
                   605  619
     183  DLADR    ADDRESS. HEX LOCATION(0000198C) IN CSECT(OA8E8   ) LENGTH(1)
                   428  514
     418  DLAY1    ADDRESS. HEX LOCATION(00001C00) IN CSECT(OA8E8   ) LENGTH(1)
                   414
     420  DLAY2    ADDRESS. HEX LOCATION(00001C04) IN CSECT(OA8E8   ) LENGTH(1)
                   417
     184  DLCNT    ADDRESS. HEX LOCATION(00001994) IN CSECT(OA8E8   ) LENGTH(2)
                   179  421  425  506  511
     180  DLIST    ADDRESS. HEX LOCATION(0000198E) IN CSECT(OA8E8   ) LENGTH(2)
                   181
     658  DLMSG    ADDRESS. HEX LOCATION(00001EAA) IN CSECT(OA8E8   ) LENGTH(2)
                   406
     179  DLNST    ADDRESS. HEX LOCATION(0000198A) IN CSECT(OA8E8   ) LENGTH(4)
                   183  424  510
     751  DMSGL    ADDRESS. HEX LOCATION(00001FEE) IN CSECT(OA8E8   ) LENGTH(32)
                   658
     203  DTCSS    ADDRESS. HEX LOCATION(000019BC) IN CSECT(OA8E8   ) LENGTH(2)
                   271
     603  DTOH     ADDRESS. HEX LOCATION(00001E32) IN CSECT(OA8E8   ) LENGTH(1)
                   410  445  480
     743  DUM      ADDRESS. HEX LOCATION(00001FB4) IN CSECT(OA8E8   ) LENGTH(1)
                   653
     653  DUMMY    ADDRESS. HEX LOCATION(00001EA0) IN CSECT(OA8E8   ) LENGTH(2)
                   286
      91  DVPNT    ABSOLUTE. HEX VALUE(0000182C)
                   262  343
     103  EIGHT    ABSOLUTE. HEX VALUE(00000008)
                   266  610  613
     112  EIGTN    ABSOLUTE. HEX VALUE(00000012)
                   546
     106  ELEVN    ABSOLUTE. HEX VALUE(0000000B)
                   330
      93  EPRNT    ABSOLUTE. HEX VALUE(00001830)
                   190
     187  ERTST    ADDRESS. HEX LOCATION(0000199A) IN CSECT(OA8E8   ) LENGTH(4)
                   556
     191  ERTS1    ADDRESS. HEX LOCATION(000019A6) IN CSECT(OA8E8   ) LENGTH(1)
                   189
     100  FIVE     ABSOLUTE. HEX VALUE(00000005)
                   153
      99  FOUR     ABSOLUTE. HEX VALUE(00000004)
                   176  182  284  378  403  456  487  559  588
                   607  609  614
     160  GODCC    ADDRESS. HEX LOCATION(00001964) IN CSECT(OA8E8   ) LENGTH(1)
                   158  161
      88  HEXFF    ABSOLUTE. HEX VALUE(00001828)
                   296  304  472  568
     136  HEX01    ABSOLUTE. HEX VALUE(00000001)
                   530
      45  HTOE     ABSOLUTE. HEX VALUE(0000001A)
                   279  464  471
     622  HUN      ADDRESS. HEX LOCATION(00001E64) IN CSECT(OA8E8   ) LENGTH(1)
                   611
      77  IDCPT    ABSOLUTE. HEX VALUE(00001812)
                   334  369  378  394  403  544  545  559  573
                   588
      44  IDLE     ABSOLUTE. HEX VALUE(00000002)
                   165  180
     716  INCMD    ADDRESS. HEX LOCATION(00001F1E) IN CSECT(OA8E8   ) LENGTH(2)
                   600
     745  INCMG    ADDRESS. HEX LOCATION(00001FB8) IN CSECT(OA8E8   ) LENGTH(29)
                   716
     151  INCOA    ADDRESS. HEX LOCATION(0000194A) IN CSECT(OA8E8   ) LENGTH(4)
                   269  547
     152  INCO1    ADDRESS. HEX LOCATION(0000194E) IN CSECT(OA8E8   ) LENGTH(2)
                   545
     163  INCO2    ADDRESS. HEX LOCATION(00001968) IN CSECT(OA8F8   ) LFNGTH(2)
                   166
     137  INERR    ABSOLUTE. HEX VALUE(00000002)
                   188
     157  IOADR    ADDRESS. HEX LOCATION(0000195A) IN CSECT(OA8E8   ) LENGTH(1)
                   154  369  394  544  573
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
     168  IODC0      ADDRESS. HEX LOCATION(00001974) IN CSECT(OA8E8   ) LENGTH(1)
                     164
     156  IONST      ADDRESS. HEX LOCATION(00001958) IN CSECT(OA8E8   ) LENGTH(4)
                     157   370   395   574
     185  JINST      ADDRESS. HEX LOCATION(00001996) IN CSECT(OA8E8   ) LENGTH(2)
                     275
     192  LIGHT      ADDRESS. HEX LOCATION(000019A6) IN CSECT(OA8E8   ) LENGTH(4)
                     570   583
      87  LOOPS      ABSOLUTE. HEX VALUE(00001826)
                     248   448   469
     440  LOOP1      ADDRESS. HEX LOCATION(00001C40) IN CSECT(OA8E8   ) LENGTH(1)
                     436
     668  LOPMG      ADDRESS. HEX LOCATION(00001EBE) IN CSECT(OA8E8   ) LENGTH(2)
                     441
     434  LOPND      ADDRESS. HEX LOCATION(00001C30) IN CSECT(OA8E8   ) LENGTH(1)
                     236
     468  LOPST      ADDRESS. HEX LOCATION(00001CA4) IN CSECT(OA8E8   ) LENGTH(1)
                     235
      94  LOST       ABSOLUTE. HEX VALUE(00001832)
                     167
     177  LPADR      ADDRESS. HEX LOCATION(0000197E) IN CSECT(OA8E8   ) LENGTH(1)
                     448
     174  LPCNT      ADDRESS. HEX LOCATION(00001982) IN CSECT(OA8E8   ) LENGTH(2)
                     178   446
     764  LPEN       ADDRESS. HEX LOCATION(0000206A) IN CSECT(OA8E8   ) LENGTH(14)
                     714
     202  LPEND      ADDRESS. HEX LOCATION(000019BA) IN CSECT(OA8E8   ) LENGTH(2)
                     251   461   462
     714  LPENM      ADDRESS. HEX LOCATION(00001F1A) IN CSECT(OA8E8   ) LENGTH(2)
                     350
     765  LPEN1      ADDRESS. HEX LOCATION(00002078) IN CSECT(OA8E8   ) LENGTH(4)
                     252
      84  LPIND      ABSOLUTE. HEX VALUE(0000181F)
                     346   435   472
     757  LPMSG      ADDRESS. HEX LOCATION(00002030) IN CSECT(OA8E8   ) LENGTH(31)
                     668
     172  LPNST      ADDRESS. HEX LOCATION(0000197C) IN CSECT(OA8E8   ) LENGTH(4)
                     177
     760  LPST       ADDRESS. HEX LOCATION(00002052) IN CSECT(OA8E8   ) LENGTH(16)
                     710
     710  LPSTM      ADDRESS. HEX LOCATION(00001F12) IN CSECT(OA8E8   ) LENGTH(2)
                     348
     761  LPST1      ADDRESS. HEX LOCATION(00002062) IN CSECT(OA8E8   ) LENGTH(4)
                     249
     627  MG8        ADDRESS. HEX LOCATION(00001E6C) IN CSECT(OA8E8   ) LENGTH(2)
                     281
     256  MULTI      ADDRESS. HEX LOCATION(00001A15) IN CSECT(OA8E8   ) LENGTH(1)
                     296   528
     132  M1         ABSOLUTE. HEX VALUE(FFFFFFFF)
                     170   496
     771  M13A       ADDRESS. HEX LOCATION(0000208E) IN CSECT(OA8E8   ) LENGTH(13)
                     643
     768  M13B       ADDRESS. HEX LOCATION(00002080) IN CSECT(OA8E8   ) LENGTH(11)
                     645
     774  M13C       ADDRESS. HEX LOCATION(0000209E) IN CSECT(OA8E8   ) LENGTH(26)
                     647
     777  M13D       ADDRESS. HEX LOCATION(000020BC) IN CSECT(OA8E8   ) LENGTH(29)
                     649
     133  M4         ABSOLUTE. HEX VALUE(FFFFFFFC)
                     311   318
     134  M5         ABSOLUTE. HEX VALUE(FFFFFFFB)
                     155
     135  M6         ABSOLUTE. HEX VALUE(FFFFFFFA)
                     462
     718  M8         ADDRESS. HEX LOCATION(00001F22) IN CSECT(OA8E8   ) LENGTH(25)
                     627
     719  M8A        ADDRESS. HEX LOCATION(00001F3B) IN CSECT(OA8E8   ) LENGTH(3)
                     246
     722  M9         ADDRESS. HEX LOCATION(00001F42) IN CSECT(OA8E8   ) LENGTH(19)
                     629
     725  M9A        ADDRESS. HEX LOCATION(00001F58) IN CSECT(OA8E8   ) LENGTH(20)
                     631
     728  M9B        ADDRESS. HEX LOCATION(00001F70) IN CSECT(OA8E8   ) LENGTH(10)
                     633
     731  M9C        ADDRESS. HEX LOCATION(00001F7E) IN CSECT(OA8E8   ) LENGTH(8)
                     635
     734  M9D        ADDRESS. HEX LOCATION(00001F8A) IN CSECT(OA8E8   ) LENGTH(8)
                     637
     737  M9E        ADDRESS. HEX LOCATION(00001F96) IN CSECT(OA8E8   ) LENGTH(13)
                     639
     740  M9F        ADDRESS. HEX LOCATION(00001FA6) IN CSECT(OA8E8   ) LENGTH(11)
                     641
     599  NGOOD      ADDRESS. HEX LOCATION(00001E28) IN CSECT(OA8E8   ) LENGTH(1)
                     331
     104  NINE       ABSOLUTE. HEX VALUE(00000009)
                     362   526
     754  NLOOP      ADDRESS. HEX LOCATION(00002012) IN CSECT(OA8E8   ) LENGTH(27)
                     651
     253  NO         ADDRESS. HEX LOCATION(00001A12) IN CSECT(OA8E8   ) LENGTH(1)
                     309   316   524   566
     673  NOAIC      ADDRESS. HEX LOCATION(00001EC8) IN CSECT(OA8E8   ) LENGTH(2)
                     307
     651  NOLOP      ADDRESS. HEX LOCATION(00001E9C) IN CSECT(OA8E8   ) LENGTH(2)
                     437
     678  NOTAI      ADDRESS. HEX LOCATION(00001ED2) IN CSECT(OA8E8   ) LENGTH(2)
                     314
     780  NOTA1      ADDRESS. HEX LOCATION(000020DC) IN CSECT(OA8E8   ) LENGTH(43)
                     673
     783  NOTA2      ADDRESS. HEX LOCATION(0000210A) IN CSECT(OA8E8   ) LENGTH(40)
                     678
     786  NOTA3      ADDRESS. HEX LOCATION(00002136) IN CSECT(OA8E8   ) LENGTH(13)
                     683
     789  NOTA4      ADDRESS. HEX LOCATION(00002146) IN CSECT(OA8E8   ) LENGTH(28)
                     688
     792  NOTA5      ADDRESS. HEX LOCATION(00002166) IN CSECT(OA8E8   ) LENGTH(17)
                     693
     795  NOTA6      ADDRESS. HEX LOCATION(0000217A) IN CSECT(OA8E8   ) LENGTH(21)
                     708
       3  OA8E8      CSECT. START(00001900) LENGTH(2313) ESDID(0)
                       3
      96  ONE        ABSOLUTE. HEX VALUE(00000001)
```


CROSS-REFERENCE LISTING

```
DECLARED  NAME     ATTRIBUTES AND REFERENCES
                     268   270   327   332   340   415   497
      76  OPTN2      ABSOLUTE. HEX VALUE(00001810)
                     187
      42  OUT        ABSOLUTE. HEX VALUE(00000000)
                     283   349   351   438   491   538   601
      43  OUTIN      ABSOLUTE. HEX VALUE(00000001)
                     287   308   315   360   407   442   478   486   523
                     534   565
     748  PMSGR      ADDRESS. HEX LOCATION(00001FD8) IN CSECT(OA8E8   ) LENGTH(18)
                     663
     367  PREPB      ADDRESS. HEX LOCATION(00001B66) IN CSECT(OA8E8   ) LENGTH(1)
                     384
     354  PREPR      ADDRESS. HEX LOCATION(00001B42) IN CSECT(OA8E8   ) LENGTH(1)
                     230
     663  PRMSG      ADDRESS. HEX LOCATION(00001EB4) IN CSECT(OA8E8   ) LENGTH(2)
                     359
     219  PRPCD      ADDRESS. HEX LOCATION(000019DA) IN CSECT(OA8E8   ) LENGTH(1)
                     355   381
     693  RANGE      ADDRESS. HEX LOCATION(00001EF0) IN CSECT(OA8E8   ) LENGTH(2)
                     533
     561  RDADC      ADDRESS. HEX LOCATION(00001DB2) IN CSECT(OA8E8   ) LENGTH(1)
                     238
     205  RDADR      ADDRESS. HEX LOCATION(000019BF) IN CSECT(OA8E8   ) LENGTH(1)
                     290   298   356   382   391   476
     569  RDAD1      ADDRESS. HEX LOCATION(00001DCE) IN CSECT(OA8E8   ) LENGTH(1)
                     567
     586  RDAD2      ADDRESS. HEX LOCATION(00001E00) IN CSECT(OA8E8   ) LENGTH(1)
                     582
     206  RDCOD      ADDRESS. HEX LOCATION(000019C0) IN CSECT(OA8E8   ) LENGTH(2)
                     292   294   300   302
     204  RDID       ADDRESS. HEX LOCATION(000019BE) IN CSECT(OA8E8   ) LENGTH(1)
                     291   299
     223  REDAC      ADDRESS. HEX LOCATION(000019DE) IN CSECT(OA8E8   ) LENGTH(1)
                     562
     385  REDID      ADDRESS. HEX LOCATION(00001B9E) IN CSECT(OA8E8   ) LENGTH(1)
                     232
     388  RESET      ADDRESS. HEX LOCATION(00001BA4) IN CSECT(OA8E8   ) LENGTH(1)
                     233
     178  RESTR      ADDRESS. HEX LOCATION(00001984) IN CSECT(OA8E8   ) LENGTH(6)
                     456   458
     201  RETSV      ADDRESS. HEX LOCATION(000019B8) IN CSECT(OA8E8   ) LENGTH(2)
                     261   312   319   353
     220  RIDCD      ADDRESS. HEX LOCATION(000019DB) IN CSECT(OA8E8   ) LENGTH(1)
                     386
     221  RSTCD      ADDRESS. HEX LOCATION(000019DC) IN CSECT(OA8E8   ) LENGTH(1)
                     389
     624  RTRTN      ADDRESS. HEX LOCATION(00001E66) IN CSECT(OA8E8   ) LENGTH(2)
                     604   620
     196  R0SAV      ADDRESS. HEX LOCATION(000019AE) IN CSECT(OA8E8   ) LENGTH(2)
                     507   519
     197  R2SAV      ADDRESS. HEX LOCATION(000019B0) IN CSECT(OA8E8   ) LENGTH(2)
                     328   338   423   431   450   465   509   517
     199  R5SAV      ADDRESS. HEX LOCATION(000019B4) IN CSECT(OA8E8   ) LENGTH(2)
                     408   412   443   447
     200  R7SAV      ADDRESS. HEX LOCATION(000019B6) IN CSECT(OA8E8   ) LENGTH(2)
                     288   321   329   339
     703  SAM        ADDRESS. HEX LOCATION(00001F04) IN CSECT(OA8E8   ) LENGTH(2)
                     485
     712  SAMA       ADDRESS. HEX LOCATION(00001F16) IN CSECT(OA8E8   ) LENGTH(2)
                     490
     801  SAM1       ADDRESS. HEX LOCATION(000021C8) IN CSECT(OA8E8   ) LENGTH(23)
                     703
     804  SAM2       ADDRESS. HEX LOCATION(000021E2) IN CSECT(OA8E8   ) LENGTH(38)
                     712
     102  SEVEN      ABSOLUTE. HEX VALUE(00000007)
                     158   365
     207  SIOID      ADDRESS. HEX LOCATION(000019C2) IN CSECT(OA8E8   ) LENGTH(2)
                     289
     260  SIO00      ADDRESS. HEX LOCATION(00001A18) IN CSECT(OA8E8   ) LENGTH(1)
                     140
     282  SIO03      ADDRESS. HEX LOCATION(00001A64) IN CSECT(OA8E8   ) LENGTH(1)
                     285
     297  SIO04      ADDRESS. HEX LOCATION(00001A94) IN CSECT(OA8E8   ) LENGTH(1)
                     293   310
     306  SIO05      ADDRESS. HEX LOCATION(00001AB0) IN CSECT(OA8E8   ) LENGTH(1)
                     295
     313  SIO06      ADDRESS. HEX LOCATION(00001AC8) IN CSECT(OA8E8   ) LENGTH(1)
                     303
     320  SIO12      ADDRESS. HEX LOCATION(00001AE0) IN CSECT(OA8E8   ) LENGTH(1)
                     301   305   317
     324  SIO15      ADDRESS. HEX LOCATION(00001AEC) IN CSECT(OA8E8   ) LENGTH(1)
                     341
     337  SIO24      ADDRESS. HEX LOCATION(00001B12) IN CSECT(OA8E8   ) LENGTH(1)
                     379   404   433   439   467   473   560   589   602
     342  SIO25      ADDRESS. HEX LOCATION(00001B20) IN CSECT(OA8E8   ) LENGTH(1)
                     326
     352  SIO26      ADDRESS. HEX LOCATION(00001B3E) IN CSECT(OA8E8   ) LENGTH(1)
                     347
     101  SIX        ABSOLUTE. HEX VALUE(00000006)
                     545
     257  SSMUL      ADDRESS. HEX LOCATION(00001A16) IN CSECT(OA8E8   ) LENGTH(1)
                     304   482
     130  STH68      ABSOLUTE. HEX VALUE(00001C00)
                     162
      78  STRTB      ABSOLUTE. HEX VALUE(00001814)
                     273   274   276   311   318   345   368   377   393
                     402   422   432   449   466   469   508   518   543
                     558   572   587
     105  TEN        ABSOLUTE. HEX VALUE(0000000A)
                     171
     623  TENS       ADDRESS. HEX LOCATION(00001E65) IN CSECT(OA8E8   ) LENGTH(1)
                     617
     621  THOUS      ADDRESS. HEX LOCATION(00001E62) IN CSECT(OA8E8   ) LENGTH(2)
                     608
     229  TTTBL      ADDRESS. HEX LOCATION(000019E4) IN CSECT(OA8E8   ) LENGTH(1)
                     323
     107  TWELV      ABSOLUTE. HEX VALUE(0000000C)
                     280   344   429   515   555   615
     114  TWEN2      ABSOLUTE. HEX VALUE(00000016)
                     459
     116  TWEN4      ABSOLUTE. HEX VALUE(00000018)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES

                     553
    97    TWO      ABSOLUTE, HEX VALUE(00000002)
                     157   175   177   183   185   186   269   272   373
                     399   457   458   551   570   578
   141    UBUFR    ADDRESS, HEX LOCATION(00001906) IN CSECT(OA8E8   ) LENGTH(2)
                     322   654
   380    UNPRP    ADDRESS, HEX LOCATION(00001B92) IN CSECT(OA8E8   ) LENGTH(1)
                     231
   683    WHICH    ADDRESS, HEX LOCATION(00001EDC) IN CSECT(OA8E8   ) LENGTH(2)
                     477
   142    WORK1    ADDRESS, HEX LOCATION(00001946) IN CSECT(OA8E8   ) LENGTH(2)
                     309   316   361   363   364   366   409   479   487
                     494   524   535   566   659   664   674   679   684
                     689   694   699   704
   258    WRITE    ADDRESS, HEX LOCATION(00001A17) IN CSECT(OA8E8   ) LENGTH(1)
                     568   581
   798    WRLIT    ADDRESS, HEX LOCATION(00002192) IN CSECT(OA8E8   ) LENGTH(51)
                     698
   698    WRLTS    ADDRESS, HEX LOCATION(00001EFA) IN CSECT(OA8E8   ) LENGTH(2)
                     564
   708    WRONG    ADDRESS, HEX LOCATION(00001F0E) IN CSECT(OA8E8   ) LENGTH(2)
                     537
    95    ZERO     ABSOLUTE, HEX VALUE(00000000)
                     152   163
   688    ZEROC    ADDRESS, HEX LOCATION(00001EE6) IN CSECT(OA8E8   ) LENGTH(2)
                     522
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001900                       3 OA9E8 START X'1900'
                             4 ********************************************************************
                             5 *
                             6 *                  ***       PREREQUISITES        ***               *
                             7 *                                                                    *
                             8 *                            NONE                                    *
                             9 *                                                                    *
                            10 ********************************************************************
                            11 *
                            12 *                  ***       MODIFICATIONS        ***               *
                            13 *                                                                    *
                            14 *                            NONE                                    *
                            15 *                                                                    *
                            16 ********************************************************************
                            17 *
                            18 *                  ***     REA'S INCORPORATED     ***               *
                            19 *                                                                    *
                            20 *                            NONE                                    *
                            21 *                                                                    *
                            22 ********************************************************************
                            23 *
                            24 *                  ***    SPECIAL INSTRUCTIONS    ***               *
                            25 *                                                                    *
                            26 *                            NONE                                    *
                            27 *                                                                    *
                            28 ********************************************************************
                            29 *
                            30 *                  ***       E. C. HISTORY        ***               *
                            31 *                                                                    *
                            32 *       DATE 15SEP77  DATE          DATE          DATE              *
                            33 *       E.C. 754882   E.C.          E.C.          E.C.              *
                            34 *                                                                    *
                            35 ********************************************************************
                            37 ********************************************************************
                            38 *                                                                    *
                            39 *     EQUATED NAMES FOR REQUIRED SVC'S                               *
                            40 *                                                                    *
                            41 ********************************************************************
000000                      42 OUT   EQU   0                    OUT SVC
000001                      43 OUTIN EQU   1                    OUTIN SVC
000002                      44 IDLE  EQU   2                    IDLE SVC
00001A                      45 HTOE  EQU   26                   HEX TO EBCDIC SVC
00001D                      46 ETOA  EQU   29                   EBCIDIC TO ASCII SVC (STRING)
                            48 ********************************************************************
                            49 *                                                                    *
                            50 *     EQUATES FOR CODED STOPS USED BY THIS ROUTINE                   *
                            51 *           (NORMAL AND ERROR)                                       *
                            52 *                                                                    *
                            53 ********************************************************************
003488                      54 CD8   EQU   X'3488'              COMMANDS FOR 4982-AO
00349B                      55 CD1B  EQU   X'349B'              INVALID COMMAND
0034A0                      56 CD20  EQU   X'34A0'              READ I.D. MISMATCH
0034A3                      57 CD23  EQU   X'34A3'              LENGTH OF DELAY
0034A6                      58 CD26  EQU   X'34A6'              LOOP NOT STARTED
0034A7                      59 CD27  EQU   X'34A7'              NUMBER OF TIMES THRU LOOP
0034C7                      60 CD47  EQU   X'34C7'              WHAT IS THE VOLTAGE
0034CB                      61 CD4B  EQU   X'34CB'              IS THE VOLTAGE POSITIVE
                            63 ***************************************************
                            64 *                AO BIT VALUES IN VOLTS           *
                            65 ***************************************************
                            66 *BIT * +10V TO -10V *  +5V TO -5V    * 0 TO -10V  *
                            67 *                                                 *
                            68 * 0  *    *        *    *          *  5.000000  *
                            69 * 1  *    5.000000 *    2.500000   *  2.500000  *
                            70 * 2  *    2.500000 *    1.250000   *  1.250000  *
                            71 * 3  *    1.250000 *     .625000   *   .625000  *
                            72 *                                                 *
                            73 * 4  *     .625000 *     .312500   *   .312500  *
                            74 * 5  *     .312500 *     .156250   *   .165250  *
                            75 * 6  *     .156250 *     .078125   *   .078125  *
                            76 * 7  *     .078125 *     .039062   *   .039062  *
                            77 *                                                 *
                            78 * 8  *    .039062  *    .019531    *  .019531   *
                            79 * 9  *    .019531  *    .009765    *  .009765   *
                            80 ***************************************************
                            81 *    *SIGN BIT= ''0'' POSITIVE VOLTAGES            *
                            82 *               ''1'' FOR NEGATIVE VOLTAGES        *
                            83 ***************************************************
                            85 ********************************************************************
                            86 *                                                                    *
                            87 *     EQUATE TABLE                                                   *
                            88 *                                                                    *
                            89 ********************************************************************
000232                      90 CPUTP EQU   X'0232'              CPU TYPE
001810                      91 OPTN2 EQU   X'1810'              POINTER TO OPTION WORD 2
001812                      92 IDCPT EQU   X'1812'              POINTER TO IDCB BUILD AREA
001814                      93 STRTB EQU   X'1814'              POINTER TO I STREAM BUILD AREA
001816                      94 DTENT EQU   X'1816'              POINTER TO DATA BUILD AREA
001818                      95 DVCNT EQU   X'1818'              POINTER TO DEVICE UNDER TEST
00181A                      96 DCBPT EQU   X'181A'              POINTER TO DCB BUILD AREA
00181C                      97 BADCC EQU   X'181C'              POINTER TO BAD CODE ROUTINE
00181E                      98 KMODE EQU   X'181E'              POINTER TO DEVICE KEYING IN
00181F                      99 LPIND EQU   X'181F'              LOOP INDICATOR
001820                     100 KEYMD EQU   X'1820'              ADDRESS OF DEVICES KEYING
001824                     101 KYMOD EQU   X'1824'              INDICATOR A DEVICE IS KEYING IN
001826                     102 LOOPS EQU   X'1826'              ADDRESS OF LOOP START
001828                     103 HEXFF EQU   X'1828'
001829                     104 ZEROS EQU   X'1829'
00182A                     105 NUMDV EQU   X'182A'
00182C                     106 DVPNT EQU   X'182C'
00182E                     107 DEVC1 EQU   X'182E'
001830                     108 EPRNT EQU   X'1830'
001832                     109 LOST  EQU   X'1832'
000000                     110 ZERO  EQU   0                    VALUE OF 0
000001                     111 ONE   EQU   1                             1
000002                     112 TWO   EQU   2                             2
000003                     113 THREE EQU   3                             3
000004                     114 FOUR  EQU   4                             4
000005                     115 FIVE  EQU   5                             5
000006                     116 SIX   EQU   6                             6
000007                     117 SEVEN EQU   7                             7
000008                     118 EIGHT EQU   8                             8
000009                     119 NINE  EQU   9                             9
00000A                     120 TEN   EQU   10                            10
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00000B                      121 ELEVN EQU   11                                     11
00000C                      122 TWELV EQU   12                                     12
00000D                      123 THRTN EQU   13                                     13
00000E                      124 FORTN EQU   14                                     14
00000F                      125 FIFTN EQU   15                                     15
000010                      126 SIXTN EQU   16                                     16
000012                      127 EIGTN EQU   18                                     18
000014                      128 TWENY EQU   20                                     20
000016                      129 TWEN2 EQU   22                                     22
00001A                      130 TWEN6 EQU   26                                     26
00001B                      131 TWEN7 EQU   27                                     27
00001C                      132 TWEN8 EQU   28                                     28
000020                      133 THIR2 EQU   32                                     32
000028                      134 FORTY EQU   40                                     40
00003C                      135 SIXTY EQU   60                                     60
00003F                      136 SIXT3 EQU   63                                     63
000040                      137 SIXT4 EQU   64                                     64
000041                      138 SIXT5 EQU   65                                     65
00007F                      139 ONE27 EQU   127                                    127
000080                      140 ONE28 EQU   128                                    128
000100                      141 TWO56 EQU   256                                    256
000200                      142 FIVTW EQU   512                                    512
000400                      143 OTH24 EQU   1024                                   1024
001C00                      144 STH68 EQU   7168                                   7168
FFFFFF                      145 M1    EQU   -1                                     -1
FFFFFC                      146 M4    EQU   -4                                     -4
FFFFFA                      147 M6    EQU   -6                                     -6
000002                      148 INERR EQU   2
001900 A9E8                 150 PID   DC    X'A9E8'               PROGRAM IDENTIFIER
001902 6802 1A6A            151 OVLST B     SIO00                 BRANCH TO START OF OVERLAY
001906 00000000000000000    152 UBUFR DC    32A(*-*)
001946 00000000             153 WORK1 DC    2A(*-*)
00194A 00000000000000000    154 DATIN DC    8A(*-*)
                            156 ********************************************************************
                            157 *                                                                  *
                            158 *     THE FOLLOWING INSTRUCTIONS WILL BE MODIFIED FOR TESTING.     *
                            159 *     CARE SHOULD BE TAKEN TO ENSURE THE INSTRUCTIONS MAINTAIN     *
                            160 *     THE SAME RELATIVE POSITION IN THE INSTRUCTION STREAM.        *
                            161 *                                                                  *
                            162 ********************************************************************
00195A 4024 182E            163 INCOA MVWI  DEVC1,R0
00195E 0005                 164       ABI   FIVE,R0
001960 4000 1966            165 INCO1 MVA   IOADR,(R0)
001964 680C 1964            166 IONST IO    *
001966                      167 IOADR EQU   IONST+TWO
001968 6F04 1970            168 CCCHK BCC   SEVEN,GODCC
00196C 6F13 181C            169       BAL   BADCC*,R7
001970                      170 GODCC EQU   *
000008                      171 CCDCP EQU   GODCC-CCCHK
001970 4029 197C FFFF       172 CNTST AWI   M1,CNTWD
001976 1004                 173       JZ    **TEN
001978 6802 1978            174 LPNST B     *
00197C 0000                 175 CNTWD DC    A(*-*)
00197E 0000                 176 LPCNT DC    A(*-*)
001972                      177 CNTAD EQU   CNTST+TWO
001974                      178 JENST EQU   CNTST+FOUP
00197A                      179 LPADR EQU   LPNST+TWO
001980 8828 197E 197C       180 RESTR MVW   LPCNT,CNTWD
001986 6F08 1990            181 DLNST MVW   DLCNT,R7
00198A 6002                 182 DLIST SVC   IDLE
00198C BFFE                 183       JCT   DLIST,R7
00198E 5001                 184       J     **FOUR
001988                      185 DLADR EQU   DLNST+TWO
001990 0000                 186 DLCNT DC    A(*-*)
001992 5000                 187 JINST J     **TWO
001994 5000                 188       J     **TWO
001996                      190 TABLE EQU   *
001996 04C4B400             191       DC    X'04C4B400'
00199A 02625A00             192       DC    X'02625A00'
00199E 01312D00             193       DC    X'01312D00'
0019A2 00989680             194       DC    X'00989680'
0019A6 007A11F0             195       DC    X'007A11F0'
0019AA 003D08F8             196       DC    X'003D08F8'
0019AE 001E847C             197       DC    X'001E847C'
0019B2 000F423E             198       DC    X'000F423E'
0019B6 000C3500             199       DC    X'000C3500'
0019BA 00061A80             200       DC    X'00061A80'
0019BE 00030D40             201       DC    X'00030D40'
0019C2 000186A0             202       DC    X'000186A0'
0019C6 00013880             203       DC    X'00013880'
0019CA 00009C40             204       DC    X'00009C40'
0019CE 00004E20             205       DC    X'00004E20'
0019D2 00002710             206       DC    X'00002710'
0019D6 00001F40             207       DC    X'00001F40'
0019DA 00000FA0             208       DC    X'00000FA0'
0019DE 000007D0             209       DC    X'000007D0'
0019E2 000003E8             210       DC    X'000003E8'
0019E6 00000320             211       DC    X'00000320'
0019EA 00000190             212       DC    X'00000190'
0019EE 000000C8             213       DC    X'000000C8'
0019F2 00000064             214       DC    X'00000064'
0019F6 00000050             215       DC    X'00000050'
0019FA 00000028             216       DC    X'00000028'
0019FE 00000014             217       DC    X'00000014'
001A02 0000000A             218       DC    X'0000000A'
001A06 00000008             219       DC    X'00000008'
001A0A 00000004             220       DC    X'00000004'
001A0E 00000002             221       DC    X'00000002'
001A12 00000001             222       DC    X'00000001'
001A16 5F5E                 224 CON01 DC    X'5F5E'
001A18 0000                 225 WORKA DC    A(*-*)
001A1A 0000                 226 R2SAV DC    A(*-*)
001A1C 0000                 227 R3SAV DC    A(*-*)
001A1E 0000                 228 R5SAV DC    A(*-*)
001A20 0000                 229 R7SAV DC    A(*-*)
001A22 0000                 230 RETSV DC    A(*-*)
001A24 0000                 231 LPEND DC    A(*-*)
001A26 A980                 232 DTCSS DC    X'A980'
001A28 20                   233 RDID  DC    X'20'
001A29 00                   234 RDADR DC    X'00'
001A2A 0000                 235 RDCOD DC    X'0000'
001A2C 8040                 236 SIOID DC    X'8040'               ANALOG OUTPUT
001A2E 28                   237 RDSTT DC    X'28'
001A2F 00                   238 RDSTA DC    X'00'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

001A30  0000               239 STATS DC    X'0000'
001A32  60                 240 PRPCD DC    X'60'
001A33  20                 241 RIDCD DC    X'20'
001A34  6F                 242 RSTCD DC    X'6F'
001A35  48                 243 AO0CD DC    X'48'
001A36  49                 244 AO1CD DC    X'49'
001A37  05                 245 DELCT DC    X'05'
                           246       ALIGN WORD
001A38                     247 TTTBL EQU   *
001A38  1B8A               248       DC    A(REDID)
001A3A  1B90               249       DC    A(RESET)
001A3C  1B9C               250       DC    A(DELAY)
001A3E  1C66               251       DC    A(LOPST)
001A40  1BF2               252       DC    A(LOPND)
001A42  1C7C               253       DC    A(WAOP0)
001A44  1CC0               254       DC    A(WAOP1)
001A46  0000               255 AECVT DC    A(0)
001A48  0000               256 AETCV DC    A(0)
001A4A  0000               257 AECTV DC    A(0)
001A4C  0001               258 CVADR DC    A(1)
001A4E  0000               259 CVAD1 DC    A(*-*)
001A50  1E3F               260 CVAD2 DC    A(M8A)
001A52  0002               261 CLPST DC    A(2)
001A54  1826               262       DC    A(LOOPS)
001A56  1F68               263       DC    A(LPST1)
001A58  0002               264 CLPEN DC    A(2)
001A5A  1A24               265       DC    A(LPEND)
001A5C  1F7E               266       DC    A(LPEN1)
001A5E  0002               267 CVRID DC    A(2)
001A60  1A2A               268       DC    A(RDCOD)
001A62  1FA3               269       DC    A(IDMG3)
001A64  D5                 270 NO    DC    C'N'
001A65  40                 271 EBCBK DC    C' '
001A66  23                 272 ALBRT DC    X'23'
001A67  00                 273 PLUS  DC    X'00'
001A68  00                 274 PLMIN DC    X'00'
001A69  00                 275       ALIGN WORD
001A6A                     276 SIO00 EQU   *
001A6A  6F0D 1A22          277       MVW   R7,RETSV          SAVE THE RETURN ADDRESS
001A6E  6908 182C          278       MVW   DVPNT,R1          DEVICE PARAMETERS UNDER TEST
001A72  7921 0001          279       AWI   ONE,R1            BUMP POINTER
001A76  690D 195C          280       MVW   R1,INCOA+TWO      PUT IN THE INSTR STREAM
001A7A  7921 0001          281       AWI   ONE,R1            BUMP THE ADR
001A7E  8860 1A26          282       MVW   DTCSS,(R1)        IND THE TYPE OF DEVICE
001A82  7921 0002          283       AWI   TWO,R1            BUMP POINTER
001A86  8860 1814          284       MVW   STRTB,(R1)        START ADR FOR THIS TEST
001A8A  6808 1814          285       MVW   STRTB,R0          SET R0
001A8E  9024 1992          286       MVD   JINST,(R0)+       MOVE IN DUMMY INSTR'S
001A92  680D 1814          287       MVW   R0,STRTB          SAVE THE INSTR STREAM POINTER
001A96  6D0D 1A4E          288       MVW   R5,CVAD1          PREPARE TO CONVERT
001A9A  4724 1A4C          289       MVA   CVADR,R7          CONTROL BLOCK ADDRESS
001A9E  601A               290       SVC   HTOE              GO CONVERT
001AA0  4424 000A          291       MVWI  TEN,R4            NUM OF POSSIBLE MESSAGES
001AA4  4724 1DA6          292       MVA   MG8,R7            START ADR OF MESSAGES
001AA8                     293 SIO03 EQU   *
001AA8  6000               294       SVC   OUT               OUTPUT THE MESSAGE
001AAA  7FE1 0004          295       AWI   FOUR,R7           POSITION FOR NEXT MESSAGE
001AAE  BCFC               296       JCT   SIO03,R4          OUTPUT THE NEXT MESSAGE
001AB0  4724 1DDE          297       MVA   DUMMY,R7          DUMMY OUTIN TO GET COMMANDS
001AB4  6001               298       SVC   OUTIN
001AB6  8508 1A29          299       MVB   (R5),RDADR        PUT THE DEVICE ADR IN READ ID
001ABA  680C 1A28          300       IO    RDID              DO A READ ID
001ABE  4124 1A2C          301       MVA   SIOID,R1          POSSIBLE ID'S
001AC2  891B 1A2A          302       CW    (R1)+,RDCOD       COMPARE ID'S
001AC6  1013               303       JE    SIO07             J-EQUAL
001AC8  6F0D 1A20          304       MVW   R7,R7SAV          SAVE THE REGISTER
001ACC  4724 1A5E          305       MVA   CVRID,R7          CONVERT CONTROL BLOCK
001AD0  601A               306       SVC   HTOE
001AD2  4724 1E06          307       MVA   IDMSG,R7          MESSAGE CONTROL BLOCK
001AD6  6001               308       SVC   OUTIN
001AD8  6F08 1A20          309       MVW   R7SAV,R7          RESTORE R7
001ADC  802B 1A18 1A64     310       CB    WORKA,NO          WAS IT A NEGATIVE RESPONSE
001AE2  1805               311       JNE   SIO07             J-NO
001AE4  4029 1814 FFFC     312       AWI   M4,STRTB          RESET THE POINTER
001AEA  6812 1A22          313       B     RETSV*            RETURN TO SENDER
001AEE                     314 SIO07 EQU   *
001AEE  8028 1A29 1A2F     315       MVB   RDADR,RDSTA       GET THE DEVICE ADDRESS
001AF4  680C 1A2E          316       IO    RDSTT
001AF8                     317 SIO12 EQU   *
001AF8  4324 1906          318       MVA   UBUFR,R3          INPUT DATA
001AFC  4224 1A38          319       MVA   TTTBL,R2          ADR OF BR TABLE
001B00                     320 SIO15 EQU   *
001B00  C4C0               321       MVB   (R3),R4           GET THE COMMAND
001B02  1032               322       JZ    SIO25             END
001B04  7C82 0001          323       SWI   ONE,R4
001B08  D228 1A1A          324       MVD   R2,R2SAV          SAVE THE REGISTER
001B0C  6F0D 1A20          325       MVW   R7,R7SAV          SAVE THE REGISTER
001B10  7C06 0007          326       CWI   SEVEN,R4          IS IT A VALID COMMAND
001B14  6D01 1CF0          327       BGT   NGOOD             J-NO--TOO HIGH
001B18  3409               328       SLL   ONE,R4            DOUBLE FOR DISPL INTO COMMAND TABLE
001B1A  7288               329       AW    R2,R4             GET THE COMMAND PROCESSOR ADDRESS
001B1C  6808 1812          330       MVW   IDCPT,R0          ADR TO PUT THE IDCB
001B20  6C88 0000          331       MVW   (R4),R4           GET THE ADDRESS IN THE TABLE
001B24  5400               332       BXS   (R4)              GO COMPLETE THE IDCB
001B26                     333 SIO20 EQU   *
001B26  6808 1814          334       MVW   STRTB,R0          ADR TO PUT OIO INSTR
001B2A  8828 1812 1966     335       MVW   IDCPT,IOADR       ADR OF THE IDCB
001B30  8828 1812 1962     336       MVW   IDCPT,INCO1+TWO   ADR OF THE IDCB
001B36  0F0E               337       MVBI  FORTN,R7          BYTE COUNT
001B38  4424 195A          338       MVA   INCOA,R4          START OF INSTRUCTIONS
001B3C  2C04               339       MVFN  (R4),(R0)         MOVE THE INSTRUCTIONS
001B3E  70E4               340       MVW   R0,R7             SAVE R0
001B40  7FE1 0008          341       AWI   CCDCP,R7          COMPUTE A NEW ADDRESS
001B44  6F0D 196A          342       MVW   R7,CCCHK+TWO      INSERT NEW ADDRESS
001B48  4724 1968          343       MVA   CCCHK,R7          ADDRESS OF DATA TO MOVE
001B4C  9714               344       MVD   (R7)+,(R0)+       MOVE THE INSTR'S
001B4E  9714               345       MVD   (R7)+,(R0)+
001B50  680D 1814          346       MVW   R0,STRTB          BUMP THE INSTR ADR
001B54  4029 1812 0004     347       AWI   FOUR,IDCPT        BUMP THE IDCB ADR POINTER
001B5A                     348 SIO23 EQU   *
001B5A  D220 1A1A          349       MVD   R2SAV,R2          RESTORE R2-R3
001B5E  6F08 1A20          350       MVW   R7SAV,R7          RESTORE R7
001B62  7B61 0001          351       AWI   ONE,R3            BUMP INPUT POINTER
001B66  BFCC               352       JCT   SIO15,R7          GO SET UP FOR NEXT COMMAND
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

001B68                     353 SIO25 EQU   *
001B68  6908 182C          354       MVW   DVPNT,R1          DEVICE PARAMETERS UNDER TEST
001B6C  7921 000C          355       AWI   TWELV,R1          BUMP THE POINTER
001B70  8860 1814          356       MVW   STRTB,(R1)        SAVE THE END ADR
001B74  C025 181F          357       MVBZ  LPIND,R0          WAS A LOOP STARTED
001B78  1006               358       JZ    SIO26             J-NO
001B7A  4724 1E1A          359       MVA   LPSTM,R7          MSG ADR
001B7E  6000               360       SVC   OUT
001B80  4724 1E1E          361       MVA   LPENM,R7          MSG ADR
001B84  6000               362       SVC   OUT
001B86                     363 SIO26 EQU   *
001B86  6812 1A22          364       B     RETSV*            RETURN TO FRIEND
001B8A                     365 REDID EQU   *
001B8A  8024 1A33          366       MVB   RIDCD,(R0)+       READ ID IDCB COMMAND
001B8E  5002               367       J     COMCD             GO FINISH THE IDCB
001B90                     368 RESET EQU   *
001B90  8024 1A34          369       MVB   RSTCD,(R0)+       RESET IDCB COMMAND
001B94                     370 COMCD EQU   *
001B94  8504               371       MVB   (R5),(R0)+        ENTER THE DEVICE ADDRESS
001B96  C805               372       MVWZ  (R0),R0           CLEAR THE DATA AREA
001B98  6802 1B26          373       B     SIO20
001B9C                     374 DELAY EQU   *
001B9C  4724 1DE8          375       MVA   DLMSG,R7          ASK FOR THE AMOUNT OF DELAY
001BA0  6001               376       SVC   OUTIN
001BA2  6D0D 1A1E          377       MVW   R5,R5SAV          SAVE R5
001BA6  6D08 1946          378       MVW   WORK1,R5          GET THE DATA
001BAA  6F03 1D6C          379       BAL   DTOH,R7           GO CONVERT
001BAE  75E4               380       MVW   R5,R7             MOVE TO CONVERT
001BB0  802B 1A66 0232     381       CB    ALBRT,CPUTP       IS THIS A 4953 PROCESSOR
001BB6  1803               382       JNE   DLAY1             J-NO
001BB8  370A               383       SRL   ONE,R7            DIVIDE BY 2
001BBA  75E8               384       AW    R5,R7             THIS WILL MULTIPLY BY 1 1/2
001BBC  5002               385       J     DLAY2
001BBE                     386 DLAY1 EQU   *
001BBE  EF21 1A37          387       MB    DELCT,R7          MULTIPLY BY THE DELAY FACTOR
001BC2                     388 DLAY2 EQU   *
001BC2  6D08 1A1E          389       MVW   R5SAV,R5          MULTIPLY BY THE DELAY FACTOR
001BC6  6F0D 1990          390       MVW   R7,DLCNT          PUT THE DELAY INTO THE INSTRUCTION
001BCA  6808 1814          391       MVW   STRTB,R0          ADR TO PUT THE DELAY
001BCE  D228 1A1A          392       MVD   R2,R2SAV          SAVE THESE REGISTERS
001BD2  4224 1986          393       MVA   DLNST,R2          GET THE START OF THE INSTR'S
001BD6  4324 1990          394       MVA   DLCNT,R3          DELAY COUNT
001BDA  726A               395       SW    R2,R3             COMPUTE THE DIFFERENCE
001BDC  7068               396       AW    R0,R3
001BDE  6BDD 1988          397       MVW   R3,WADR           MOVE THE ADDRESS INTO THE INSTR
001BE2  0F0C               398       MVBI  TWELV,R7          NUMBER OF BYTES IN THE STREAM
001BE4  2A04               399       MVFN  (R2),(R0)         MOVE THE INSTRUCTIONS
001BE6  D220 1A1A          400       MVD   R2SAV,R2          RESTORE THE REGS
001BEA  680D 1814          401       MVW   R0,STRTB          BUMP ADR FOR THE NEXT INSTR
001BEE  6802 1B5A          402       B     SIO23
001BF2                     403 LOPND EQU   *
001BF2  C020 181F          404       MVB   LPIND,R0          WAS A LOOP STARTED
001BF6  1805               405       JNZ   LOOP1             J-YES
001BF8  4724 1DCE          406       MVA   NOLOP,R7          MSG-NO LOOP STARTED
001BFC  6000               407       SVC   OUT
001BFE  6802 1B5A          408       B     SIO23
001C02                     409 LOOP1 EQU   *
001C02  4724 1DF2          410       MVA   LOPMG,R7          MESSAGE ADDRESS
001C06  6001               411       SVC   OUTIN
001C08  6D0D 1A1E          412       MVW   R5,R5SAV          SAVE THE REG
001C0C  6D08 197C          413       MVW   CNTWD,R5          GET THE DATA
001C10  6F03 1D6C          414       BAL   DTOH,R7           GO CONVERT
001C14  6D0D 197E          415       MVW   R5,LPCNT
001C18  6D08 1A1E          416       MVW   R5SAV,R5          RESTORE R5
001C1C  8828 1826 197A     417       MVW   LOOPS,LPADR       MOVE THE START ADR OF THE LOOP
001C22  6808 1814          418       MVW   STRTB,R0          ADR TO PUT THE BRANCH INSTR
001C26  D228 1A1A          419       MVD   R2,R2SAV          SAVE THE REGISTERS
001C2A  4224 1970          420       MVA   CNTST,R2          INSTR START ADDRESS
001C2E  4324 197C          421       MVA   CNTWD,R3          LOOP COUNT ADDRESS
001C32  726A               422       SW    R2,R3             COMPUTE THE DIFFERENCE
001C34  7068               423       AW    R0,R3             ADD TO THE STARTING ADDRESS
001C36  6B0D 1972          424       MVW   R3,CNTAD          PUT THE ADDRESS INTO THE INSTR
001C3A  6B0D 1984          425       MVW   R3,RESTR+FOUR     ADR INTO THE INSTR
001C3E  7B61 0002          426       AWI   TWO,R3            BUMP THE ADR
001C42  6B0D 1982          427       MVW   R3,RESTR+TWO      NEXT ADR INTO INSTR
001C46  0F16               428       MVBI  TWEN2,R7          NUMBER OF BYTES TO MOVE
001C48  2A04               429       MVFN  (R2),(R0)         MOVE THE INSTRUCTIONS
001C4A  680D 1A24          430       MVW   R0,LPEND          SET UP
001C4E  4029 1A24 FFFA     431       AWI   M6,LPEND              LOOP END
001C54  4724 1A58          432       MVA   CLPEN,R7                ADDRESS
001C58  601A               433       SVC   HTOE
001C5A  D220 1A1A          434       MVD   R2SAV,R2          RESTORE THE REGISTERS
001C5E  680D 1814          435       MVW   R0,STRTB          UPDATE THE INSTR STREAM ADR
001C62  6802 1B5A          436       B     SIO23
001C66                     437 LOPST EQU   *
001C66  8828 1814 1826     438       MVW   STRTB,LOOPS       SAVE THE LOOP START ADR
001C6C  4724 1A52          439       MVA   CLPST,R7          CONTROL BLOCK
001C70  601A               440       SVC   HTOE
001C72  8028 1828 181F     441       MVB   HEXFF,LPIND       SET THE LOOP IND
001C78  6802 1B5A          442       B     SIO23
001C7C                     443 WAOP0 EQU   *
001C7C  8024 1A35          444       MVB   AO0CD,(R0)+       GET THE COMMAND CODE
001C80  8024 1A29          445       MVB   RDADR,(R0)+       DEVICE ADDRESS
001C84  4524 1A30          446       MVA   STATS,R5          GET THE ADDRESS OF THE STATUS
001C88  4D02               447       TBT   (R5,TWO)          IS THIS 0+10 VOLTS
001C8A  1007               448       JOFF  P1                J-NO
001C8C  8028 1828 1A67     449       MVB   HEXFF,PLUS        SET THE INDICATOR
001C92  4724 1DD2          450       MVA   VOLT1,R7          CONTROL BLOCK
001C96  6000               451       SVC   OUT
001C98  500C               452       J     P4
001C9A                     453 P1    EQU   *
001C9A  4D03               454       TBT   (R5,THREE)        IS THIS + OR - 10 VOLTS
001C9C  1007               455       JOFF  P3                J-NO
001C9E  8028 1828 1A68     456       MVB   HEXFF,PLMIN       SET THE INDICATOR
001CA4  4724 1DD6          457       MVA   VOLT2,R7          CONTROL BLOCK
001CA8  6000               458       SVC   OUT
001CAA  5003               459       J     P4
001CAC                     460 P3    EQU   *
001CAC  4724 1DDA          461       MVA   VOLT3,R7          CONTROL BLOCK
001CB0  6000               462       SVC   OUT
001CB2                     463 P4    EQU   *
001CB2  4724 1DFC          464       MVA   DATRQ,R7          MESSAGE ADDRESS
001CB6  6001               465       SVC   OUTIN
001CB8  6E03 1CFA          466       BAL   DTOHM,R6          GO CONVERT THE DATA
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001CBC  6802 1B26           467         B     SIO20
001CC0                      468 WAOP1   EQU   *
001CC0  8024 1A36           469         MVB   AO1CD,(R0)+          GET THE COMMAND CODE
001CC4  8024 1A29           470         MVB   RDADR,(R0)+          DEVICE ADDRESS
001CC8  4524 1A30           471         MVA   STATS,R5             GET THE ADDRESS OF THE STATUS
001CCC  4D04                472         TBT   (R5,FOUR)            IS THIS 0+10 VOLTS
001CCE  1007                473         JOFF  P5                   J-NO
001CD0  8028 1828 1A67      474         MVB   HEXFF,PLUS           SET THE INDICATOR
001CD6  4724 1DD2           475         MVA   VOLT1,R7             CONTROL BLOCK
001CDA  6000                476         SVC   OUT
001CDC  50EA                477         J     P4
001CDE                      478 P5      EQU   *
001CDE  4D05                479         TBT   (R5,FIVE)            IS THIS + OR - 10 VOLTS
001CE0  10E5                480         JOFF  P3                   J-NO
001CE2  8028 1828 1A68      481         MVB   HEXFF,PLMIN          SET THE INDICATOR
001CE8  4724 1DD6           482         MVA   VOLT2,R7             CONTROL BLOCK
001CEC  6000                483         SVC   OUT
001CEE  50E1                484         J     P4
001CF0                      485 NGOOD   EQU   *
001CF0  4724 1E22           486         MVA   INCMD,R7              ADR OF INVALID COMMAND MSG
001CF4  6000                487         SVC   OUT                   OUTPUT THE MESSAGE
001CF6  6802 1B26           488         B     SIO20
001CFA                      489 DTOHM   EQU   *
001CFA  6E0D 1DA0           490         MVW   R6,RTRTN
001CFE  3709                491         SLL   ONE,R7               CHANGE THE WORD COUNT TO BYTE
001D00  0B0A                492         MVBI  TEN,R3               MAX BYTES
001D02  776A                493         SW    R7,R3
001D04  4224 194A           494         MVA   DATIN,R2             GET THE DATA ADDRESS
001D08                      495 DTOH0   EQU   *
001D08  7A41 0001           496         AWI   ONE,R2               BUMP THE POINTER
001D0C  BFFD                497         JCT   DTOH0,R7
001D0E                      498 DTOH1   EQU   *
001D0E  C795                499         MVBZ  (R2)+,R7             ZERO THE BYTE
001D10  BBFE                500         JCT   DTOH1,R3
001D12  736A                501         SW    R3,R3                CLEAR THE REG
001D14  748A                502         SW    R4,R4                CLEAR THE REG
001D16  0920                503         MVBI  THIR2,R1             NUMBER OF ITERATIONS
001D18  4224 1996           504         MVA   TABLE,R2             GET THE TABLE ADDRESS
001D1C  D520 194A           505         MVD   DATIN,R5             GET THE DATA
001D20                      506 DTOH2   EQU   *
001D20  75A7                507         IR    R5,R5                SET THE INDICATOR
001D22  1A01                508         JNN   DTOH4                J-IF BIT NOT ON
001D24  D386                509         AD    (R2),R3              ADD THE CONSTANT
001D26                      510 DTOH4   EQU   *
001D26  7A41 0004           511         AWI   FOUR,R2              BUMP THE TABLE POINTER
001D2A  350D                512         SLLD  ONE,R5               SHIFT FOR NEXT BIT
001D2C  B9F9                513         JCT   DTOH2,R1             DO ALL THE BITS
001D2E  EB2A 1A16           514         DD    CON01,R3             DIVIDE THE NUMBER
001D32  75A7                515         IR    R5,R5                WAS THE REMAINDER ZERO
001D34  1002                516         JZ    DTOH5                J-YES
001D36  7C81 0001           517         AWI   ONE,R4               ADD ONE TO ROUND UP
001D3A                      518 DTOH5   EQU   *
001D3A  3412                519         SRL   TWO,R4               DIVIDE BY FOUR
001D3C  C725 1A68           520         MVBZ  PLMIN,R7             IS THE INDICATOR ON
001D40  1001                521         JZ    DTOH6                J-NO
001D42  340A                522         SRL   ONE,R4               DIVIDE BY TWO
001D44                      523 DTOH6   EQU   *
001D44  C725 1A67           524         MVBZ  PLUS,R7              IS THE INDICATOR ON
001D48  180D                525         JNZ   DTOH8                J-YES
001D4A  74E4                526         MVW   R4,R7                TEST FOR ZERO VOLTAGE
001D4C  100B                527         JZ    DTOH8                J-IF ZERO
001D4E  4724 1E10           528         MVA   PLUSM,R7             MESSAGE ADDRESS
001D52  6001                529         SVC   OUTIN
001D54  802B 1946 1A64      530         CB    WORK1,NO             WAS IT A NEGATIVE RESPONSE
001D5A  1003                531         JE    DTOH7                J-YES
001D5C  7C84 0200           532         RBTWI FIVTW,R4             RESET IF TOO LARGE
001D60  5001                533         J     DTOH8
001D62                      534 DTOH7   EQU   *
001D62  7486                535         CMR   R4                   GET THE TWO'S COMPLEMENT
001D64                      536 DTOH8   EQU   *
001D64  3431                537         SLL   SIX,R4               POSITION THE BITS
001D66  CC08                538         MVW   R4,(R0)              MOVE THE BITS INTO THE IDCB
001D68  6812 1DA0           539         B     RTRTN*
001D6C                      540 DTOH    EQU   *
001D6C  6F0D 1DA0           541         MVW   R7,RTRTN
001D70  6C0D 1DA2           542         MVW   R4,DHSAV             SAVE R4
001D74  748A                543         SW    R4,R4                CLEAR THE REG
001D76  3425                544         SLLD  FOUR,R4              MOVE THOUSAND INTO R4
001D78  EC25 1D9C           545         MW    THOUS,R4             MULTIPLY THOUSANDS
001D7C  3522                546         SRL   FOUR,R5              POSITION THE HUNS,TENS
001D7E  3546                547         SRLD  EIGHT,R5             MOVE TENS AND UNITS INTO R6
001D80  ED21 1D9E           548         MB    HUN,R5               MULTIPLY HUNDREDS
001D84  74A8                549         AW    R4,R5                ADD THOUS AND HUNS
001D86  3642                550         SRL   EIGHT,R6
001D88  3626                551         SRLD  FOUR,R6              MOVE UNITS INTO R7
001D8A  3762                552         SRL   TWELV,R7             POSITION THE UNITS
001D8C  77A8                553         AW    R7,R5                ADD UNITS TO THOUS AND HUNS
001D8E  EE21 1D9F           554         MB    TENS,R6              MULTIPLY TENS
001D92  76A8                555         AW    R6,R5                GET THE GRAND TOTAL
001D94  6C08 1DA2           556         MVW   DHSAV,R4             RESTORE R4
001D98  6812 1DA0           557         B     RTRTN*
001D9C  03E8                558 THOUS   DC    A(1000)
001D9E  64                  559 HUN     DC    H'100'
001D9F  0A                  560 TENS    DC    H'10'
001DA0  0000                561 RTRTN   DC    A(*-*)
001DA2  0000                562 DHSAV   DC    A(*-*)
001DA4  0080                563         DC    X'0080'
001DA6  1E26                564 MG8     DC    A(M8)
001DA8  0080                565         DC    X'0080'
001DAA  1E46                566         DC    A(M9B)
001DAC  0080                567         DC    X'0080'
001DAE  1E54                568         DC    A(M9C)
001DB0  0080                569         DC    X'0080'
001DB2  1E60                570         DC    A(M9D)
001DB4  0080                571         DC    X'0080'
001DB6  1E6C                572         DC    A(M9E)
001DB8  0080                573         DC    X'0080'
001DBA  1E7C                574         DC    A(M9F)
001DBC  0080                575         DC    X'0080'
001DBE  1FB8                576         DC    A(M14A)
001DC0  0080                577         DC    X'0080'
001DC2  1FCE                578         DC    A(M14B)
001DC4  0080                579         DC    X'0080'
001DC6  1E8A                580         DC    A(M9G)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001DC8  0080                581         DC    X'0080'
001DCA  1E9E                582         DC    A(M9H)
001DCC  00C0                583         DC    X'00C0'
001DCE  1F02                584 NOLOP   DC    A(NLOOP)
001DD0  0080                585         DC    X'0080'
001DD2  2000                586 VOLT1   DC    A(VOLT4)
001DD4  0080                587         DC    X'0080'
001DD6  201A                588 VOLT2   DC    A(VOLT5)
001DD8  0080                589         DC    X'0080'
001DDA  2036                590 VOLT3   DC    A(VOLT6)
001DDC  00C0                591         DC    X'00C0'
001DDE  1EBA                592 DUMMY   DC    A(DUM)
001DE0  1906                593         DC    A(UBUFR)
001DE2  0040                594         DC    A(64)
001DE4  0001                595         DC    A(1)
001DE6  00C0                596         DC    X'00C0'
001DE8  1EDE                597 DLMSG   DC    A(DMSGL)
001DEA  1946                598         DC    A(WORK1)
001DEC  0002                599         DC    A(2)
001DEE  0001                600         DC    A(1)
001DF0  00C0                601         DC    X'00C0'
001DF2  1F36                602 LOPMG   DC    A(LPMSG)
001DF4  197C                603         DC    A(CNTWD)
001DF6  0002                604         DC    A(2)
001DF8  0001                605         DC    A(1)
001DFA  00C0                606         DC    X'00C0'
001DFC  1F20                607 DATRQ   DC    A(DTINN)
001DFE  194A                608         DC    A(DATIN)
001E00  0008                609         DC    A(8)
001E02  0001                610         DC    A(1)
001E04  00C0                611         DC    X'00C0'
001E06  1F86                612 IDMSG   DC    A(IDMG1)
001E08  1A18                613         DC    A(WORKA)
001E0A  0001                614         DC    A(1)
001E0C  0000                615         DC    A(0)
001E0E  0080                616         DC    X'0080'
001E10  1FE4                617 PLUSM   DC    A(PLUS1)
001E12  1946                618         DC    A(WORK1)
001E14  0001                619         DC    A(1)
001E16  0000                620         DC    A(0)
001E18  0080                621         DC    X'0080'
001E1A  1F58                622 LPSTM   DC    A(LPST)
001E1C  0080                623         DC    X'0080'
001E1E  1F70                624 LPENM   DC    A(LPEN)
001E20  00C0                625         DC    X'00C0'
001E22  1EBE                626 INCMD   DC    A(INCMG)
001E24  0000                627         DC    A(0)
001E26  E2C5D3C5C3E340C3D   628 M8      DC    C'SELECT COMMAND(S)  FOR DA '
001E3F  404040              629 M8A     DC    C'   '
001E42  00                  630         DC    X'00'
001E44  0000                631         DC    A(0)
001E46  F0F140D9C5C1C440C   632 M9B     DC    C'01 READ ID'
001E50  00                  633         DC    X'00'
001E52  0000                634         DC    A(0)
001E54  F0F240D9C5E2C5E3    635 M9C     DC    C'02 RESET'
001E5C  00                  636         DC    X'00'
001E5E  0000                637         DC    A(0)
001E60  F0F340C4C5D3C1E8    638 M9D     DC    C'03 DELAY'
001E68  00                  639         DC    X'00'
001E6A  0000                640         DC    A(0)
001E6C  F0F440D3D6D6D740E   641 M9E     DC    C'04 LOOP START'
001E79  00                  642         DC    X'00'
001E7A  0000                643         DC    A(0)
001E7C  F0F540D3D6D6D740C   644 M9F     DC    C'05 LOOP END'
001E87  00                  645         DC    X'00'
001E88  0000                646         DC    A(0)
001E8A  5C5C5C5C40C3C1E4E   647 M9G     DC    C'**** CAUTION ****'
001E9B  00                  648         DC    X'00'
001E9C  0000                649         DC    A(0)
001E9E  E2C5C3E4D9C540C3E   650 M9H     DC    C'SECURE CUSTOMER INTERFACE'
001EB7  00                  651         DC    X'00'
001EB8  3488                652         DC    A(CD8)
001EBA  00                  653 DUM     DC    X'00'
001EBC  349B                654         DC    A(CD1B)
001EBE  E6D9D6D5C740C9C4C   655 INCMG   DC    C'WRONG IDCB COMMAND,START OVER'
001EDB  00                  656         DC    X'00'
001EDC  34A3                657         DC    A(CD23)
001EDE  D3C5D5C7E3C840D6C   658 DMSGL   DC    C'LENGTH OF DELAY(IN MILLISECONDS)'
001EFE  00                  659         DC    X'00'
001F00  34A6                660         DC    A(CD26)
001F02  D3D6D6D740D5D6E34   661 NLOOP   DC    C'LOOP NOT STARTED,START OVER'
001F1D  00                  662         DC    X'00'
001F1E  34C7                663         DC    A(CD47)
001F20  E6C8C1E340C9E240E   664 DTINN   DC    C'WHAT IS THE VOLTAGE'
001F33  00                  665         DC    X'00'
001F34  34A7                666         DC    A(CD27)
001F36  C8D6E640D4C1D5E84   667 LPMSG   DC    C'HOW MANY TIMES THROUGH THE LOOP'
001F55  00                  668         DC    X'00'
001F56  0000                669         DC    A(0)
001F58  D3D6D6D740E2E3C1D   670 LPST    DC    C'LOOP STARTED AT '
001F68  F0F0F0F0            671 LPST1   DC    C'0000'
001F6C  00                  672         DC    X'00'
001F6E  0000                673         DC    A(0)
001F70  D3D6D6D740C5D5C4C   674 LPEN    DC    C'LOOP ENDED AT '
001F7E  F0F0F0F0            675 LPEN1   DC    C'0000'
001F82  00                  676         DC    X'00'
001F84  34A0                677         DC    A(CD20)
001F86  C9C5C1C440C9C440C   678 IDMG1   DC    C'READ ID EXPECTED '
001F97  F8F0F4F040C9C440E   679 IDMG2   DC    C'8040 ID WAS '
001FA3  E7E7E7E740C9E240E   680 IDMG3   DC    C'XXXX IS THIS O.K.?'
001FB5  00                  681         DC    X'00'
001FB6  0000                682         DC    A(0)
001FB8  F0F640E6D9C9E3C54   683 M14A    DC    C'06 WRITE AO POINT 0'
001FC8  00                  684         DC    X'00'
001FCC  0000                685         DC    A(0)
001FCE  F0F740E6D9C9E3C54   686 M14B    DC    C'07 WRITE AO POINT 1'
001FE1  00                  687         DC    X'00'
001FE2  34CB                688         DC    A(CD4B)
001FE4  C9E240E3C8C540E5D   689 PLUS1   DC    C'IS THE VOLTAGE POSITIVE?'
001FFC  00                  690         DC    X'00'
001FFE  0000                691         DC    A(0)
002000  E5D6D3E3C1C7C540D   692 VOLT4   DC    C'VOLTAGE RANGE 0 TO +10'
002016  00                  693         DC    X'00'
002018  0000                694         DC    A(0)
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 LOCTR   OBJECT TEXT         STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
00201A   E5D6D3E3C1C7C540D   695 VOLT5 DC    C'VOLTAGE RANGE +10 TO -10'
002032   00                  696       DC    X'00'
002034   0000                697       DC    A(0)
002036   E5D6D3E3C1C7C540D   698 VOLT6 DC    C'VOLTAGE RANGE +5 TO -5'
00204C   00                  699       DC    X'00'
000000                       700       END
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CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R0.     ABSOLUTE. HEX VALUE(00000000)
                   163   164   165   285   286   287   330   334   339
                   340   344   345   346   357   366   369   371   372
                   372   391   396   399   401   404   418   423   429
                   430   435   444   445   469   470   538   538   538
       0  .R1.     ABSOLUTE. HEX VALUE(00000001)
                   278   279   280   281   282   282   283   284   284
                   301   302   354   355   356   356   503   513
       0  .R2.     ABSOLUTE. HEX VALUE(00000002)
                   319   324   329   349   392   393   395   399   400
                   419   420   422   429   434   494   496   499   504
                   509   511
       0  .R3.     ABSOLUTE. HEX VALUE(00000003)
                   318   321   351   394   395   396   397   421   422
                   423   424   425   426   427   492   493   500   501
                   501   509   514
       0  .R4.     ABSOLUTE. HEX VALUE(00000004)
                   291   296   321   323   326   328   329   331   331
                   331   331   332   338   339   502   502   517   519
                   522   526   532   535   537   538   542   543   543
                   544   545   549   556
       0  .R5.     ABSOLUTE. HEX VALUE(00000005)
                   288   299   371   377   378   380   384   389   412
                   413   415   416   446   447   454   471   472   479
                   505   507   507   512   515   515   546   547   548
                   549   553   555
       0  .R6.     ABSOLUTE. HEX VALUE(00000006)
                   466   490   550   551   554   555
       0  .R7.     ABSOLUTE. HEX VALUE(00000007)
                   169   181   183   277   289   292   295   297   304
                   305   307   309   325   337   340   341   342   343
                   344   345   350   352   359   361   375   379   380
                   383   384   387   390   398   406   410   414   428
                   432   439   450   457   461   464   475   482   486
                   491   493   497   499   520   524   526   528   541
                   552   553
     272  ALBRT    ADDRESS. HEX LOCATION(00001A66) IN CSECT(OA9E8   ) LENGTH(1)
                   381
     243  AO0CD    ADDRESS. HEX LOCATION(00001A35) IN CSECT(OA9E8   ) LENGTH(1)
                   444
     244  AO1CD    ADDRESS. HEX LOCATION(00001A36) IN CSECT(OA9E8   ) LENGTH(1)
                   469
      97  BADCC    ABSOLUTE. HEX VALUE(0000181C)
                   169
     168  CCCHK    ADDRESS. HEX LOCATION(00001968) IN CSECT(OA9E8   ) LENGTH(4)
                   171   342   343
     171  CCDCP    ABSOLUTE. HEX VALUE(00000008)
                   341
      55  CD1B     ABSOLUTE. HEX VALUE(0000349B)
                   654
      56  CD20     ABSOLUTE. HEX VALUE(000034A0)
                   677
      57  CD23     ABSOLUTE. HEX VALUE(000034A3)
                   657
      58  CD26     ABSOLUTE. HEX VALUE(000034A6)
                   660
      59  CD27     ABSOLUTE. HEX VALUE(000034A7)
                   666
      61  CD4B     ABSOLUTE. HEX VALUE(000034CB)
                   688
      60  CD47     ABSOLUTE. HEX VALUE(000034C7)
                   663
      54  CD8      ABSOLUTE. HEX VALUE(00003488)
                   652
     264  CLPEN    ADDRESS. HEX LOCATION(00001A58) IN CSECT(OA9E8   ) LENGTH(2)
                   432
     261  CLPST    ADDRESS. HEX LOCATION(00001A52) IN CSECT(OA9E8   ) LENGTH(2)
                   439
     177  CNTAD    ADDRESS. HEX LOCATION(00001972) IN CSECT(OA9E8   ) LENGTH(1)
                   424
     172  CNTST    ADDRESS. HEX LOCATION(00001970) IN CSECT(OA9E8   ) LENGTH(6)
                   177   178   420
     175  CNTWT    ADDRESS. HEX LOCATION(0000197C) IN CSECT(OA9E8   ) LENGTH(2)
                   172   180   413   421   603
     370  COMCD    ADDRESS. HEX LOCATION(00001E94) IN CSECT(OA9E8   ) LENGTH(1)
                   367
     224  CON01    ADDRESS. HEX LOCATION(00001A16) IN CSECT(OA9E8   ) LENGTH(2)
                   514
      90  CPUTP    ABSOLUTE. HEX VALUE(00000232)
                   381
     258  CVADR    ADDRESS. HEX LOCATION(00001A4C) IN CSECT(OA9E8   ) LENGTH(2)
                   289
     259  CVAD1    ADDRESS. HEX LOCATION(00001A4E) IN CSECT(OA9E8   ) LENGTH(2)
                   288
     267  CVRID    ADDRESS. HEX LOCATION(00001A5E) IN CSECT(OA9E8   ) LENGTH(2)
                   305
     154  DATIN    ADDRESS. HEX LOCATION(0000194A) IN CSECT(OA9E8   ) LENGTH(2)
                   494   505   608
     607  DATRQ    ADDRESS. HEX LOCATION(00001DFC) IN CSECT(OA9E8   ) LENGTH(2)
                   464
     374  DELAY    ADDRESS. HEX LOCATION(00001B9C) IN CSECT(OA9E8   ) LENGTH(1)
                   250
     245  DELCT    ADDRESS. HEX LOCATION(00001A37) IN CSECT(OA9E8   ) LENGTH(1)
                   387
     107  DEVC1    ABSOLUTE. HEX VALUE(0000182E)
                   163
     562  DHSAV    ADDRESS. HEX LOCATION(00001DA2) IN CSECT(OA9E8   ) LENGTH(2)
                   542   556
     185  DLADR    ADDRESS. HEX LOCATION(00001988) IN CSECT(OA9E8   ) LENGTH(1)
                   397
     386  DLAY1    ADDRESS. HEX LOCATION(00001BBE) IN CSECT(OA9E8   ) LENGTH(1)
                   382
     388  DLAY2    ADDRESS. HEX LOCATION(00001BC2) IN CSECT(OA9E8   ) LENGTH(1)
                   385
     186  DLCNT    ADDRESS. HEX LOCATION(00001990) IN CSECT(OA9E8   ) LENGTH(2)
                   181   390   394
     182  DLIST    ADDRESS. HEX LOCATION(0000198A) IN CSECT(OA9E8   ) LENGTH(2)
                   183
     597  DLMSG    ADDRESS. HEX LOCATION(00001DE8) IN CSECT(OA9E8   ) LENGTH(2)
                   375
     181  DLNST    ADDRESS. HEX LOCATION(00001986) IN CSECT(OA9E8   ) LENGTH(4)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                     185   393
   658    DMSGL     ADDRESS. HEX LOCATION(00001EDE) IN CSECT(OA9E8   ) LENGTH(32)
                     597
   232    DTCSS     ADDRESS. HEX LOCATION(00001A26) IN CSECT(OA9E8   ) LENGTH(2)
                     282
   664    DTINN     ADDRESS. HEX LOCATION(00001F20) IN CSECT(OA9E8   ) LENGTH(19)
                     607
   540    DTOH      ADDRESS. HEX LOCATION(00001D6C) IN CSECT(OA9E8   ) LENGTH(1)
                     379   414
   489    DTOHM     ADDRESS. HEX LOCATION(00001CFA) IN CSECT(OA9E8   ) LENGTH(1)
                     466
   495    DTOH0     ADDRESS. HEX LOCATION(00001D08) IN CSECT(OA9E8   ) LENGTH(1)
                     497
   498    DTOH1     ADDRESS. HEX LOCATION(00001D0E) IN CSECT(OA9E8   ) LENGTH(1)
                     500
   506    DTOH2     ADDRESS. HEX LOCATION(00001D20) IN CSECT(OA9E8   ) LENGTH(1)
                     513
   510    DTOH4     ADDRESS. HEX LOCATION(00001D26) IN CSECT(OA9E8   ) LENGTH(1)
                     508
   518    DTOH5     ADDRESS. HEX LOCATION(00001D3A) IN CSECT(OA9E8   ) LENGTH(1)
                     516
   523    DTOH6     ADDRESS. HEX LOCATION(00001D44) IN CSECT(OA9E8   ) LENGTH(1)
                     521
   534    DTOH7     ADDRESS. HEX LOCATION(00001D62) IN CSECT(OA9E8   ) LENGTH(1)
                     531
   536    DTOH8     ADDRESS. HEX LOCATION(00001D64) IN CSECT(OA9E8   ) LENGTH(1)
                     525   527   533
   653    DUM       ADDRESS. HEX LOCATION(00001EBA) IN CSECT(OA9E8   ) LENGTH(1)
                     592
   592    DUMMY     ADDRESS. HEX LOCATION(00001DDE) IN CSECT(OA9E8   ) LENGTH(2)
                     297
   106    DVPNT     ABSOLUTE. HEX VALUE(0000182C)
                     278   354
   118    EIGHT     ABSOLUTE. HEX VALUE(00000008)
                     547   550
   115    FIVE      ABSOLUTE. HEX VALUE(00000005)
                     164   479
   142    FIVTW     ABSOLUTE. HEX VALUE(00000200)
                     532
   124    FORTN     ABSOLUTE. HEX VALUE(0000000E)
                     337
   114    FOUR      ABSOLUTE. HEX VALUE(00000004)
                     178   184   295   347   425   472   511   544   546
                     551
   170    GODCC     ADDRESS. HEX LOCATION(00001970) IN CSECT(OA9E8   ) LENGTH(1)
                     168   171
   103    HEXFF     ABSOLUTE. HEX VALUE(00001828)
                     441   449   456   474   481
    45    HTOE      ABSOLUTE. HEX VALUE(0000001A)
                     290   306   433   440
   559    HUN       ADDRESS. HEX LOCATION(00001D9E) IN CSECT(OA9E8   ) LENGTH(1)
                     548
    92    IDCPT     ABSOLUTE. HEX VALUE(00001812)
                     330   335   336   347
    44    IDLE      ABSOLUTE. HEX VALUE(00000002)
                     182
   678    IDMG1     ADDRESS. HEX LOCATION(00001F86) IN CSECT(OA9E8   ) LENGTH(17)
                     612
   680    IDMG3     ADDRESS. HEX LOCATION(00001FA3) IN CSECT(OA9E8   ) LENGTH(18)
                     269
   612    IDMSG     ADDRESS. HEX LOCATION(00001E06) IN CSECT(OA9E8   ) LENGTH(2)
                     307
   626    INCMD     ADDRESS. HEX LOCATION(00001E22) IN CSECT(OA9E8   ) LENGTH(2)
                     486
   655    INCMG     ADDRESS. HEX LOCATION(00001EBE) IN CSECT(OA9E8   ) LENGTH(29)
                     626
   163    INCOA     ADDRESS. HEX LOCATION(0000195A) IN CSECT(OA9E8   ) LENGTH(4)
                     280   338
   165    INCO1     ADDRESS. HEX LOCATION(00001960) IN CSECT(OA9E8   ) LENGTH(4)
                     336
   167    IOADR     ADDRESS. HEX LOCATION(00001966) IN CSECT(OA9E8   ) LENGTH(1)
                     165   335
   166    IONST     ADDRESS. HEX LOCATION(00001964) IN CSECT(OA9E8   ) LENGTH(4)
                     167
   187    JINST     ADDRESS. HEX LOCATION(00001992) IN CSECT(OA9E8   ) LENGTH(2)
                     286
   102    LOOPS     ABSOLUTE. HEX VALUE(00001826)
                     262   417   438
   409    LOOP1     ADDRESS. HEX LOCATION(00001C02) IN CSECT(OA9E8   ) LENGTH(1)
                     405
   602    LOPMG     ADDRESS. HEX LOCATION(00001DF2) IN CSECT(OA9E8   ) LENGTH(2)
                     410
   403    LOPND     ADDRESS. HEX LOCATION(00001BF2) IN CSECT(OA9E8   ) LENGTH(1)
                     252
   437    LOPST     ADDRESS. HEX LOCATION(00001C66) IN CSECT(OA9E8   ) LENGTH(1)
                     251
   179    LPADR     ADDRESS. HEX LOCATION(0000197A) IN CSECT(OA9E8   ) LENGTH(1)
                     417
   176    LPCNT     ADDRESS. HEX LOCATION(0000197E) IN CSECT(OA9E8   ) LENGTH(2)
                     180   415
   674    LPEN      ADDRESS. HEX LOCATION(00001F70) IN CSECT(OA9E8   ) LENGTH(14)
                     624
   231    LPEND     ADDRESS. HEX LOCATION(00001A24) IN CSECT(OA9E8   ) LENGTH(2)
                     265   430   431
   624    LPENM     ADDRESS. HEX LOCATION(00001E1E) IN CSECT(OA9E8   ) LENGTH(2)
                     361
   675    LPEN1     ADDRESS. HEX LOCATION(00001F7E) IN CSECT(OA9E8   ) LENGTH(4)
                     266
    99    LPIND     ABSOLUTE. HEX VALUE(0000181F)
                     357   404   441
   667    LPMSG     ADDRESS. HEX LOCATION(00001F36) IN CSECT(OA9E8   ) LENGTH(31)
                     602
   174    LPNST     ADDRESS. HEX LOCATION(00001978) IN CSECT(OA9E8   ) LENGTH(4)
                     179
   670    LPST      ADDRESS. HEX LOCATION(00001F58) IN CSECT(OA9E8   ) LENGTH(16)
                     622
   622    LPSTM     ADDRESS. HEX LOCATION(00001E1A) IN CSECT(OA9E8   ) LENGTH(2)
                     359
   671    LPST1     ADDRESS. HEX LOCATION(00001F68) IN CSECT(OA9E8   ) LENGTH(4)
                     263
   564    MG8       ADDRESS. HEX LOCATION(00001DA6) IN CSECT(OA9E8   ) LENGTH(2)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                     292
   145    M1        ABSOLUTE. HEX VALUE(FFFFFFFF)
                     172
   683    M14A      ADDRESS. HEX LOCATION(00001FB8) IN CSECT(OA9E8   ) LENGTH(19)
                     576
   686    M14B      ADDRESS. HEX LOCATION(00001FCE) IN CSECT(OA9E8   ) LENGTH(19)
                     578
   146    M4        ABSOLUTE. HEX VALUE(FFFFFFFC)
                     312
   147    M6        ABSOLUTE. HEX VALUE(FFFFFFFA)
                     431
   628    M8        ADDRESS. HEX LOCATION(00001E26) IN CSECT(OA9E8   ) LENGTH(25)
                     564
   629    M8A       ADDRESS. HEX LOCATION(00001E3F) IN CSECT(OA9E8   ) LENGTH(3)
                     260
   632    M9B       ADDRESS. HEX LOCATION(00001E46) IN CSECT(OA9E8   ) LENGTH(10)
                     566
   635    M9C       ADDRESS. HEX LOCATION(00001E54) IN CSECT(OA9E8   ) LENGTH(8)
                     568
   638    M9D       ADDRESS. HEX LOCATION(00001E60) IN CSECT(OA9E8   ) LENGTH(8)
                     570
   641    M9E       ADDRESS. HEX LOCATION(00001E6C) IN CSECT(OA9E8   ) LENGTH(13)
                     572
   644    M9F       ADDRESS. HEX LOCATION(00001E7C) IN CSECT(OA9E8   ) LENGTH(11)
                     574
   647    M9G       ADDRESS. HEX LOCATION(00001E8A) IN CSECT(OA9E8   ) LENGTH(17)
                     580
   650    M9H       ADDRESS. HEX LOCATION(00001E9E) IN CSECT(OA9E8   ) LENGTH(25)
                     582
   485    NGOOD     ADDRESS. HEX LOCATION(00001CF0) IN CSECT(OA9E8   ) LENGTH(1)
                     327
   661    NLOOP     ADDRESS. HEX LOCATION(00001F02) IN CSECT(OA9E8   ) LENGTH(27)
                     584
   270    NO        ADDRESS. HEX LOCATION(00001A64) IN CSECT(OA9E8   ) LENGTH(1)
                     310   530
   584    NOLOP     ADDRESS. HEX LOCATION(00001DCE) IN CSECT(OA9E8   ) LENGTH(2)
                     406
     3    OA9E8     CSECT. START(00001900) LENGTH(1869) ESDID(0)
                       3
   111    ONE       ABSOLUTE. HEX VALUE(00000001)
                     279   281   323   328   351   383   491   496   512
                     517   522
    42    OUT       ABSOLUTE. HEX VALUE(00000000)
                     294   360   362   407   451   458   462   476   483
                     487
    43    OUTIN     ABSOLUTE. HEX VALUE(00000001)
                     298   308   376   411   465   529
   274    PLMIN     ADDRESS. HEX LOCATION(00001A68) IN CSECT(OA9E8   ) LENGTH(1)
                     456   481   520
   273    PLUS      ADDRESS. HEX LOCATION(00001A67) IN CSECT(OA9E8   ) LENGTH(1)
                     449   474   524
   617    PLUSM     ADDRESS. HEX LOCATION(00001E10) IN CSECT(OA9E8   ) LENGTH(2)
                     528
   689    PLUS1     ADDRESS. HEX LOCATION(00001FE4) IN CSECT(OA9E8   ) LENGTH(24)
                     617
   453    P1        ADDRESS. HEX LOCATION(00001C9A) IN CSECT(OA9E8   ) LENGTH(1)
                     448
   460    P3        ADDRESS. HEX LOCATION(00001CAC) IN CSECT(OA9E8   ) LENGTH(1)
                     455   480
   463    P4        ADDRESS. HEX LOCATION(00001CB2) IN CSECT(OA9E8   ) LENGTH(1)
                     452   459   477   484
   478    P5        ADDRESS. HEX LOCATION(00001CDE) IN CSECT(OA9E8   ) LENGTH(1)
                     473
   234    RDADR     ADDRESS. HEX LOCATION(00001A29) IN CSECT(OA9E8   ) LENGTH(1)
                     299   315   445   470
   235    RDCOD     ADDRESS. HEX LOCATION(00001A2A) IN CSECT(OA9E8   ) LENGTH(2)
                     268   302
   233    RDID      ADDRESS. HEX LOCATION(00001A28) IN CSECT(OA9E8   ) LENGTH(1)
                     300
   238    RDSTA     ADDRESS. HEX LOCATION(00001A2F) IN CSECT(OA9E8   ) LENGTH(1)
                     315
   237    RDSTT     ADDRESS. HEX LOCATION(00001A2E) IN CSECT(OA9E8   ) LENGTH(1)
                     316
   365    REDID     ADDRESS. HEX LOCATION(00001B8A) IN CSECT(OA9E8   ) LENGTH(1)
                     248
   368    RESET     ADDRESS. HEX LOCATION(00001B90) IN CSECT(OA9E8   ) LENGTH(1)
                     249
   180    RESTR     ADDRESS. HEX LOCATION(00001980) IN CSECT(OA9E8   ) LENGTH(6)
                     425   427
   230    RETSV     ADDRESS. HEX LOCATION(00001A22) IN CSECT(OA9E8   ) LENGTH(2)
                     277   313   364
   241    RIDCD     ADDRESS. HEX LOCATION(00001A33) IN CSECT(OA9E8   ) LENGTH(1)
                     366
   242    RSTCD     ADDRESS. HEX LOCATION(00001A34) IN CSECT(OA9E8   ) LENGTH(1)
                     369
   561    RTRTN     ADDRESS. HEX LOCATION(00001DA0) IN CSECT(OA9E8   ) LENGTH(2)
                     490   539   541   557
   226    R2SAV     ADDRESS. HEX LOCATION(00001A1A) IN CSECT(OA9E8   ) LENGTH(2)
                     324   349   392   400   419   434
   228    R5SAV     ADDRESS. HEX LOCATION(00001A1E) IN CSECT(OA9E8   ) LENGTH(2)
                     377   389   412   416
   229    R7SAV     ADDRESS. HEX LOCATION(00001A20) IN CSECT(OA9E8   ) LENGTH(2)
                     304   309   325   350
   117    SEVEN     ABSOLUTE. HEX VALUE(00000007)
                     168   326
   236    SIOID     ADDRESS. HEX LOCATION(00001A2C) IN CSECT(OA9E8   ) LENGTH(2)
                     301
   276    SIO00     ADDRESS. HEX LOCATION(00001A6A) IN CSECT(OA9E8   ) LENGTH(1)
                     151
   293    SIO03     ADDRESS. HEX LOCATION(00001AA8) IN CSECT(OA9E8   ) LENGTH(1)
                     296
   314    SIO07     ADDRESS. HEX LOCATION(00001AEE) IN CSECT(OA9E8   ) LENGTH(1)
                     303   311
   320    SIO15     ADDRESS. HEX LOCATION(00001B00) IN CSECT(OA9E8   ) LENGTH(1)
                     352
   333    SIO20     ADDRESS. HEX LOCATION(00001B26) IN CSECT(OA9E8   ) LENGTH(1)
                     373   467   488
   348    SIO23     ADDRESS. HEX LOCATION(00001B5A) IN CSECT(OA9E8   ) LENGTH(1)
                     402   408   436   442
   353    SIO25     ADDRESS. HEX LOCATION(00001B68) IN CSECT(OA9E8   ) LENGTH(1)
                     322
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
   363    SIO26      ADDRESS. HEX LOCATION(00001B86) IN CSECT(OA9E8   ) LENGTH(1)
                     358
   116    SIX        ABSOLUTE. HEX VALUE(00000006)
                     537
   239    STATS      ADDRESS. HEX LOCATION(00001A30) IN CSECT(OA9E8   ) LENGTH(2)
                     446   471
    93    STRTB      ABSOLUTE. HEX VALUE(00001814)
                     284   285   287   312   334   346   356   391   401
                     418   435   438
   190    TABLE      ADDRESS. HEX LOCATION(00001996) IN CSECT(OA9E8   ) LENGTH(1)
                     504
   120    TEN        ABSOLUTE. HEX VALUE(0000000A)
                     173   291   492
   560    TENS       ADDRESS. HEX LOCATION(00001D9F) IN CSECT(OA9E8   ) LENGTH(1)
                     554
   133    THIR2      ABSOLUTE. HEX VALUE(00000020)
                     503
   558    THOUS      ADDRESS. HEX LOCATION(00001D9C) IN CSECT(OA9E8   ) LENGTH(2)
                     545
   113    THREE      ABSOLUTE. HEX VALUE(00000003)
                     454
   247    TTTBL      ADDRESS. HEX LOCATION(00001A38) IN CSECT(OA9E8   ) LENGTH(1)
                     319
   122    TWELV      ABSOLUTE. HEX VALUE(0000000C)
                     355   398   552
   129    TWEN2      ABSOLUTE. HEX VALUE(00000016)
                     428
   112    TWO        ABSOLUTE. HEX VALUE(00000002)
                     167   177   179   185   187   188   280   283   336
                     342   426   427   447   519
   152    UBUFR      ADDRESS. HEX LOCATION(00001906) IN CSECT(OA9E8   ) LENGTH(2)
                     318   593
   586    VOLT1      ADDRESS. HEX LOCATION(00001DD2) IN CSECT(OA9E8   ) LENGTH(2)
                     450   475
   588    VOLT2      ADDRESS. HEX LOCATION(00001DD6) IN CSECT(OA9E8   ) LENGTH(2)
                     457   482
   590    VOLT3      ADDRESS. HEX LOCATION(00001DDA) IN CSECT(OA9E8   ) LENGTH(2)
                     461
   692    VOLT4      ADDRESS. HEX LOCATION(00002000) IN CSECT(OA9E8   ) LENGTH(22)
                     586
   695    VOLT5      ADDRESS. HEX LOCATION(0000201A) IN CSECT(OA9E8   ) LENGTH(24)
                     588
   698    VOLT6      ADDRESS. HEX LOCATION(00002036) IN CSECT(OA9E8   ) LENGTH(22)
                     590
   443    WAOP0      ADDRESS. HEX LOCATION(00001C7C) IN CSECT(OA9E8   ) LENGTH(1)
                     253
   468    WAOP1      ADDRESS. HEX LOCATION(00001CC0) IN CSECT(OA9E8   ) LENGTH(1)
                     254
   225    WORKA      ADDRESS. HEX LOCATION(00001A18) IN CSECT(OA9E8   ) LENGTH(2)
                     310   613
   153    WORK1      ADDRESS. HEX LOCATION(00001946) IN CSECT(OA9E8   ) LENGTH(2)
                     378   530   598   618
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
001900                       3 OB0E8 START X'1900'
                             4 ********************************************************************
                             5 *                                                                  *
                             6 *                    ***       PREREQUISITES        ***           *
                             7 *                                                                  *
                             8 *                              NONE                                *
                             9 *                                                                  *
                            10 ********************************************************************
                            11 *                                                                  *
                            12 *                    ***       MODIFICATIONS        ***           *
                            13 *                                                                  *
                            14 *                              NONE                                *
                            15 *                                                                  *
                            16 ********************************************************************
                            17 *                                                                  *
                            18 *                    ***     REA'S INCORPORATED     ***           *
                            19 *                                                                  *
                            20 *                              NONE                                *
                            21 *                                                                  *
                            22 ********************************************************************
                            23 *                                                                  *
                            24 *                    ***    SPECIAL INSTRUCTIONS    ***           *
                            25 *                                                                  *
                            26 *                              NONE                                *
                            27 *                                                                  *
                            28 ********************************************************************
                            29 *                                                                  *
                            30 *                    ***       E. C. HISTORY        ***           *
                            31 *                                                                  *
                            32 *        DATE 15SEP77  DATE          DATE          DATE            *
                            33 *        E.C. 754882   E.C.          E.C.          E.C.            *
                            34 *                                                                  *
                            35 ********************************************************************
                            37 ********************************************************************
                            38 *                                                                  *
                            39 *     EQUATED NAMES FOR REQUIRED SVC'S                             *
                            40 *                                                                  *
                            41 ********************************************************************
000000                      42 OUT   EQU   0                    OUT SVC
000001                      43 OUTIN EQU   1                    OUTIN SVC
000002                      44 IDLE  EQU   2                    IDLE SVC
00001A                      45 HTOE  EQU   26                   HEX TO EBCDIC SVC
00001D                      46 ETOA  EQU   29                   EBCIDIC TO ASCII SVC (STRING)
                            48 ********************************************************************
                            49 *                                                                  *
                            50 *     EQUATES FOR CODED STOPS USED BY THIS UTILITY MONITOR         *
                            51 *          (NORMAL AND ERROR)                                      *
                            52 *                                                                  *
                            53 ********************************************************************
003489                      54 CD9   EQU   X'3489'              COMMANDS FOR 4982-DI/PI
00349B                      55 CD1B  EQU   X'349B'              INVALID COMMAND
0034A2                      56 CD22  EQU   X'34A2'              LEVEL TO INTERRUPT
0034A3                      57 CD23  EQU   X'34A3'              LENGTH OF DELAY
0034A6                      58 CD26  EQU   X'34A6'              LOOP NOT STARTED
0034A7                      59 CD27  EQU   X'34A7'              NUMBER OF TIMES THRU LOOP
0034C5                      60 CD45  EQU   X'34C5'              DO YOU WANT TO WRITE THE DATA TO LEDS
0034C6                      61 CD46  EQU   X'34C6'              NO DI/PI AT THIS ADDRESS
                            63 ********************************************************************
                            64 *                                                                  *
                            65 *     EQUATE TABLE                                                 *
                            66 *                                                                  *
                            67 ********************************************************************
000232                      68 CPUTP EQU   X'0232'              CPU TYPE
001810                      69 OPTN2 EQU   X'1810'              POINTER TO OPTION WORD 2
001812                      70 IDCPT EQU   X'1812'              POINTER TO IDCB BUILD AREA
001814                      71 STRTB EQU   X'1814'              POINTER TO I STREAM BUILD AREA
001816                      72 DTENT EQU   X'1816'              POINTER TO DATA BUILD AREA
001818                      73 DVCNT EQU   X'1818'              POINTER TO DEVICE UNDER TEST
00181A                      74 DCBPT EQU   X'181A'              POINTER TO DCB BUILD AREA
00181C                      75 BADCC EQU   X'181C'              POINTER TO BAD CODE ROUTINE
00181E                      76 KMODE EQU   X'181E'              POINTER TO DEVICE KEYING IN
00181F                      77 LPIND EQU   X'181F'              LOOP INDICATOR
001820                      78 KEYMD EQU   X'1820'              ADDRESS OF DEVICES KEYING
001824                      79 KYMOD EQU   X'1824'              INDICATOR A DEVICE IS KEYING IN
001826                      80 LOOPS EQU   X'1826'              ADDRESS OF LOOP START
001828                      81 HEXFF EQU   X'1828'
001829                      82 ZEROS EQU   X'1829'
00182A                      83 NUMDV EQU   X'182A'
00182C                      84 DVPNT EQU   X'182C'
00182E                      85 DEVC1 EQU   X'182E'
001830                      86 EPRNT EQU   X'1830'
001832                      87 LOST  EQU   X'1832'
000000                      88 ZERO  EQU   0                    VALUE OF 0
000001                      89 ONE   EQU   1                             1
000002                      90 TWO   EQU   2                             2
000003                      91 THREE EQU   3                             3
000004                      92 FOUR  EQU   4                             4
000005                      93 FIVE  EQU   5                             5
000006                      94 SIX   EQU   6                             6
000007                      95 SEVEN EQU   7                             7
000008                      96 EIGHT EQU   8                             8
000009                      97 NINE  EQU   9                             9
00000A                      98 TEN   EQU   10                           10
00000B                      99 ELEVN EQU   11                          11
00000C                     100 TWELV EQU   12                          12
00000D                     101 THRTN EQU   13                          13
00000E                     102 FORTN EQU   14                          14
00000F                     103 FIFTN EQU   15                          15
000010                     104 SIXTN EQU   16                          16
000012                     105 EIGTN EQU   18                          18
000014                     106 TWENY EQU   20                          20
000016                     107 TWEN2 EQU   22                          22
00001A                     108 TWEN6 EQU   26                          26
00001B                     109 TWEN7 EQU   27                          27
00001C                     110 TWEN8 EQU   28                          28
000020                     111 THIR2 EQU   32                          32
000028                     112 FORTY EQU   40                          40
00003C                     113 SIXTY EQU   60                          60
00003F                     114 SIXT3 EQU   63                          63
000040                     115 SIXT4 EQU   64                          64
000041                     116 SIXT5 EQU   65                          65
00007F                     117 ONE27 EQU   127                         127
000080                     118 ONE28 EQU   128                         128
000100                     119 TWO56 EQU   256                         256
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
000400                      120 OTH24 EQU   1024                        1024
001C00                      121 STH68 EQU   7168                        7168
FFFFFF                      122 M1    EQU   -1                          -1
FFFFFC                      123 M4    EQU   -4                          -4
FFFFFA                      124 M6    EQU   -6                          -6
000002                      125 INERR EQU   2
001900 B0E8                 127 PID   DC    X'B0E8'               PROGRAM IDENTIFIER
001902 6802 1A08            128 OVLST B     SI000                 BRANCH TO START OF OVERPLAY
001906 00000000000000000    129 UBUFR DC    32A(*-*)
001946 00000000             130 WORK1 DC    2A(*-*)
                            132 ********************************************************************
                            133 *                                                                  *
                            134 *     THE FOLLOWING INSTRUCTIONS WILL BE MODIFIED FOR TESTING.     *
                            135 *     CARE SHOULD BE TAKEN TO ENSURE THE INSTRUCTIONS MAINTAIN     *
                            136 *     THE SAME RELATIVE POSITION IN THE INSTRUCTION STREAM.        *
                            137 *                                                                  *
                            138 ********************************************************************
00194A 4324 FFFF            139 INCOM MVWI  M1,R3
00194E 4024 182E            140 INCOA MVWI  DEVC1,R0
001952 4800                 141       TBT   (R0,ZERO)
001954 1004                 142       JZ    INC01
001956 6002                 143       SVC   IDLE
001958 BBFA                 144       JCT   INCOA,R3
00195A 6F13 1832            145       BAL   LOST*,R7
00195E 4840                 146 INC01 TBTS  (R0,ZERO)
001960 0005                 147       ABI   FIVE,R0
001962 4000 1968            148       MVA   IOADR,(R0)
001966 680C 1966            149 IONST IO    *
001968                      150 IOADR EQU   IONST+TWO
00196A 6F04 1972            151 CCCHK BCC   SEVEN,GODCC
00196E 6F13 181C            152       BAL   BADCC*,R7
001972                      153 GODCC EQU   *
000008                      154 CCDCP EQU   GODCC-CCCHK
001972 4029 197E FFFF       155 CNTST AWI   M1,CNTWD
001978 1004                 156       JZ    *+TEN
00197A 6802 197A            157 LPNST B     *
00197E 0000                 158 CNTWD DC    A(*-*)
001980 0000                 159 LPCNT DC    A(*-*)
001974                      160 CNTAD EQU   CNTST+TWO
001976                      161 JBNST EQU   CNTST+FOUR
00197C                      162 LPADR EQU   LPNST+TWO
001982 8828 1980 197E       163 RESTR MVW   LPCNT,CNTWD
001988 6F08 1992            164 DLNST MVW   DLCNT,R7
00198C 6002                 165 DLIST SVC   IDLE
00198E BFFE                 166       JCT   DLIST,R7
001990 5001                 167       J     *+FOUR
00198A                      168 DLADR EQU   DLNST+TWO
001992 0000                 169 DLCNT DC    A(*-*)
001994 5000                 170 JINST J     *+TWO
001996 5000                 171       J     *+TWO
001998 4724 1810            172 ERTST MVWI  OPTN2,R7
00199C 4F02                 173       TBT   (R7,INERR)
00199E 1002                 174       JZ    ERTS1
0019A0 6F13 1830            175       BAL   EPRNT*,R7
0019A4                      176 ERTS1 EQU   *
0019A4 6F08 19A4            177 LIGHT MVW   *,R7
0019A8 78F0                 178       SECON R7
0019AA 0000                 180 WORKA DC    A(*-*)
0019AC 0000                 181 R0SAV DC    A(*-*)
0019AE 0000                 182 R2SAV DC    A(*-*)
0019B0 0000                 183 R3SAV DC    A(*-*)
0019B2 0000                 184 R5SAV DC    A(*-*)
0019B4 0000                 185 R7SAV DC    A(*-*)
0019B6 0000                 186 RETSV DC    A(*-*)
0019B8 0000                 187 LPEND DC    A(*-*)
0019BA B0C0                 188 DTCSS DC    X'B0C0'
0019BC 20                   189 RDID  DC    X'20'
0019BD 00                   190 RDADR DC    X'00'
0019BE 0000                 191 RDCOD DC    X'0000'
0019C0 8008                 192 SIOID DC    X'8008'               ISOLATED DI/PI
0019C2 8010                 193       DC    X'8010'               NONISOLATED DI/PI
0019C4 60                   194 PRPRE DC    X'60'
0019C5 00                   195 PRADR DC    X'00'
0019C6 0005                 196       DC    X'0005'
0019C8 60                   197 PRPCD DC    X'60'
0019C9 20                   198 RIDCD DC    X'20'
0019CA 6F                   199 RSTCD DC    X'6F'
0019CB 00                   200 RDICD DC    X'00'
0019CC 01                   201 RPICD DC    X'01'
0019CD 02                   202 RPWCD DC    X'02'
0019CE 68                   203 APICD DC    X'68'
0019CF 69                   204 ADICD DC    X'69'
0019D0 05                   205 DELCT DC    X'05'
0019D1 28                   206 RSACD DC    X'28'
                            207       ALIGN WORD
0019D2                      208 TTTBL EQU   *
0019D2 1B34                 209       DC    A(PREPR)
0019D4 1B82                 210       DC    A(UNPRP)
0019D6 1B8C                 211       DC    A(REDID)
0019D8 1B92                 212       DC    A(RESET)
0019DA 1BA2                 213       DC    A(DELAY)
0019DC 1C6C                 214       DC    A(LOPST)
0019DE 1BF8                 215       DC    A(LOPND)
0019E0 1CB4                 216       DC    A(RMDIE)
0019E2 1C8A                 217       DC    A(REDDI)
0019E4 1CAE                 218       DC    A(ARMPI)
0019E6 1C96                 219       DC    A(REDPI)
0019E8 1CA2                 220       DC    A(RDPIR)
0019EA 1C82                 221       DC    A(RDSTA)
0019EC 0000                 222 AECVT DC    A(0)
0019EE 0000                 223 AETCV DC    A(0)
0019F0 0000                 224 AECTV DC    A(0)
0019F2 0001                 225 CVADR DC    A(1)
0019F4 0000                 226 CVAD1 DC    A(*-*)
0019F6 1DEF                 227 CVAD2 DC    A(M8A)
0019F8 0002                 228 CLPST DC    A(2)
0019FA 1826                 229       DC    A(LOOPS)
0019FC 1F72                 230       DC    A(LPST1)
0019FE 0002                 231 CLPEN DC    A(2)
001A00 19B8                 232       DC    A(LPEND)
001A02 1F88                 233       DC    A(LPEN1)
001A04 D5                   234 NO    DC    C'N'
001A05 40                   235 EBCBK DC    C' '
001A06 23                   236 ALBRT DC    X'23'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001A07  00                  237 WRITE DC    X'00'
                            238       ALIGN WORD
001A08                      239 SIO00 EQU   *
001A08  6F0D 19B6           240       MVW   R7,RETSV                 SAVE THE RETURN ADDRESS
001A0C  6908 182C           241       MVW   DVPNT,R1                 DEVICE PARAMETERS UNDER TEST
001A10  7921 0001           242       AWI   ONE,R1                   BUMP POINTER
001A14  690D 1950           243       MVW   R1,INCOA+TWO             PUT IN THE INSTR STREAM
001A18  7921 0001           244       AWI   ONE,R1                   BUMP THE ADR
001A1C  8860 19BA           245       MVW   DTCSS,(R1)               IND THE TYPE OF DEVICE
001A20  7921 0002           246       AWI   TWO,R1                   BUMP POINTER
001A24  8860 1814           247       MVW   STRTB,(R1)               START ADR FOR THIS TEST
001A28  6808 1814           248       MVW   STRTB,R0                 SET R0
001A2C  9024 1994           249       MVD   JINST,(R0)+              MOVE IN DUMMY INSTR'S
001A30  680D 1814           250       MVW   R0,STRTB                 SAVE THE INSTR STREAM POINTER
001A34  6D0D 19F4           251       MVW   R5,CVAD1                 PREPARE TO CONVERT
001A38  4724 19F2           252       MVA   CVADR,R7                 CONTROL BLOCK ADDRESS
001A3C  601A                253       SVC   HTOE                     GO CONVERT
001A3E  4424 000E           254       MVWI  FORTN,R4                 NUM OF POSSIBLE MESSAGES
001A42  4724 1D52           255       MVA   MSG,R7                   START ADR OF MESSAGES
001A46                      256 SIO03 EQU   *
001A46  6000                257       SVC   OUT                      OUTPUT THE MESSAGE
001A48  7FE1 0004           258       AWI   FOUR,R7                  POSITION FOR NEXT MESSAGE
001A4C  BCFC                259       JCT   SIO03,R4                 OUTPUT THE NEXT MESSAGE
001A4E  4724 1D8E           260       MVA   DUMMY,R7                 DUMMY OUTIN TO GET COMMANDS
001A52  6001                261       SVC   OUTIN
001A54  6F0D 19B4           262       MVW   R7,R7SAV                 SAVE THE REGISTER
001A58  8508 19BD           263       MVB   (R5),RDADR               PUT THE DEVICE ADR IN READ ID
001A5C  680C 19BC           264       IO    RDID                     DO A READ ID
001A60  4724 0002           265       MVWI  TWO,R7                   NUMBER OF CHECKS
001A64  4124 19C0           266       MVA   SIOID,R1                 POSSIBLE ID'S
001A68  891B 19BE           267       CW    (R1)+,RDCOD              COMPARE ID'S
001A6C  100F                268       JE    SIO12                    J-EQUAL
001A6E  891B 19BE           269       CW    (R1)+,RDCOD              COMPARE ID'S
001A72  100C                270       JE    SIO12                    J-EQUAL
001A74  4724 1DB6           271       MVA   NODIC,R7                 CONTROL BLOCK
001A78  6001                272       SVC   OUTIN
001A7A  802B 1946 1A04      273       CB    WORK1,NO                 WAS THE ANSWER NEGATIVE
001A80  1805                274       JNE   SIO12                    J-NO
001A82  4029 1814 FFFC      275       AWI   M4,STRTB                 RESET THE POINTER
001A88  6812 19B6           276       B     RETSV*
001A8C                      277 SIO12 EQU   *
001A8C  6F08 19B4           278       MVW   R7SAV,R7                 RESTORE THE REGISTER
001A90  4324 1906           279       MVA   UBUFR,R3                 INPUT DATA
001A94  4224 19D2           280       MVA   TTTBL,R2                 ADR OF BR TABLE
001A98                      281 SIO15 EQU   *
001A98  C4C0                282       MVB   (R3),R4                  GET THE COMMAND
001A9A  103B                283       JZ    SIO25                    J-IF THE END
001A9C  7C81 FFFF           284       AWI   M1,R4                    REDUCE THE POINTER
001AA0  D228 19AE           285       MVD   R2,R2SAV                 SAVE THE REGISTER
001AA4  6F0D 19B4           286       MVW   R7,R7SAV                 SAVE THE REGISTER
001AA8  7C06 000D           287       CWI   THRTN,R4                 IS IT A VALID COMMAND
001AAC  6D01 1D0E           288       BGT   NGOOD                    J-NO--TOO HIGH
001AB0  3409                289       SLL   ONE,R4                   DOUBLE FOR DISPL INTO COMMAND TABLE
001AB2  7288                290       AW    R2,R4                    GET THE COMMAND PROCESSOR ADDRESS
001AB4  6808 1812           291       MVW   IDCPT,R0                 ADR TO PUT THE IDCB
001AB8  6C88 0000           292       MVW   (R4),R4                  GET THE ADDRESS IN THE TABLE
001ABC  5400                293       BXS   (R4)                     GO COMPLETE THE IDCB
001ABE                      294 SIO20 EQU   *
001ABE  6808 1814           295       MVW   STRTB,R0                 ADR TO PUT OIO INSTR
001AC2  8828 1812 1968      296       MVW   IDCPT,IOADR              ADR OF THE IDCB
001AC8  8828 1812 1964      297       MVW   IDCPT,INCO1+SIX          ADR OF THE IDCB
001ACE  0F14                298       MVBI  TWENY,R7                 NUM OF BYTES IN THE INSTR STREAM
001AD0  4424 194A           299       MVA   INCOM,R4                 START ADR OF INSTR STREAM
001AD4  2C04                300       MVFN  (R4),(R0)                MOVE THE INSTRUCTIONS
001AD6  9024 1966           301       MVD   IONST,(R0)+              MOVE THE I/O INSTR
001ADA  70E4                302       MVW   R0,R7                    SAVE R0
001ADC  7FE1 0008           303       AWI   CCDCP,R7                 COMPUTE A NEW ADDRESS
001AE0  6F0D 196C           304       MVW   R7,CCCHK+TWO             INSERT NEW ADDRESS
001AE4  4724 196A           305       MVA   CCCHK,R7                 ADDRESS OF DATA TO MOVE
001AE8  9714                306       MVD   (R7)+,(R0)+              MOVE THE INSTR'S
001AEA  9714                307       MVD   (R7)+,(R0)+
001AEC  C725 1A07           308       MVBZ  WRITE,R7                 IS THE INDICATOR ON
001AF0  1004                309       JZ    SIO22                    J-NO
001AF2  4424 19A4           310       MVA   LIGHT,R4                 ADR OF INSTR'S TO MOVE
001AF6  9414                311       MVD   (R4)+,(R0)+              MOVE
001AF8  8C04                312       MVW   (R4),(R0)+                   THEM
001AFA                      313 SIO22 EQU   *
001AFA  680D 1814           314       MVW   R0,STRTB                 BUMP THE INSTR ADR
001AFE  4029 1812 0004      315       AWI   FOUR,IDCPT               BUMP THE IDCB ADR POINTER
001B04                      316 SIO23 EQU   *
001B04  D220 19AE           317       MVD   R2SAV,R2                 RESTORE R2-R3
001B08  6F08 19B4           318       MVW   R7SAV,R7                 RESTORE R7
001B0C  7B61 0001           319       AWI   ONE,R3                   BUMP INPUT POINTER
001B10  BFC3                320       JCT   SIO15,R7                 GO SET UP FOR NEXT COMMAND
001B12                      321 SIO25 EQU   *
001B12  6908 182C           322       MVW   DVPNT,R1                 DEVICE PARAMETERS UNDER TEST
001B16  7921 000C           323       AWI   TWELV,R1                 BUMP THE POINTER
001B1A  8860 1814           324       MVW   STRTB,(R1)               SAVE THE END ADR
001B1E  C025 181F           325       MVBZ  LPIND,R0                 WAS A LOOP STARTED
001B22  1006                326       JZ    SIO26                    J-NO
001B24  4724 1DCA           327       MVA   LPSTM,R7                 MSG ADR
001B28  6000                328       SVC   OUT
001B2A  4724 1DCE           329       MVA   LPENM,R7                 MSG ADR
001B2E  6000                330       SVC   OUT
001B30                      331 SIO26 EQU   *
001B30  6812 19B6           332       B     RETSV*                   RETURN TO FRIEND
001B34                      333 PREPR EQU   *
001B34  8024 19C8           334       MVB   PRPCD,(R0)+              MOVE THE COMMAND TO THE IDCB ADR
001B38  8504                335       MVB   (R5),(R0)+               MOVE THE DEVICE ADR TO THE IDCB
001B3A  C715                336       MVBZ  (R0)+,R7                 CLEAR THE BYTE
001B3C  4724 1DA2           337       MVA   PRMSG,R7                 MSG ASKING FOR PREP LEVEL
001B40  6001                338       SVC   OUTIN
001B42  6F08 1946           339       MVW   WORK1,R7                 GET THE DATA INPUT
001B46  3749                340       SLL   NINE,R7                  POSITION THE LEVEL
001B48  6F0D 1946           341       MVW   R7,WORK1                 PUT IT BACK IN THE WORK AREA
001B4C  4724 1946           342       MVA   WORK1,R7                 ADR OF DATA
001B50  4F47                343       TBTS  (R7,SEVEN)               SET THE I BIT
001B52  8020 1946           344       MVB   WORK1,(R0)               MOVE LEVEL & I BIT INTO IDCB
001B56                      345 PREPB EQU   *
001B56  6808 1814           346       MVW   STRTB,R0                 ADR TO PUT OIO INSTR
001B5A  8828 1812 1968      347       MVW   IDCPT,IOADR              ADR OF THE IDCB
001B60  9024 1966           348       MVD   IONST,(R0)+              MOVE THE I/O INSTR
001B64  70E4                349       MVW   R0,R7                    SAVE R0
001B66  7FE1 0008           350       AWI   CCDCP,R7                 COMPUTE A NEW ADDRESS
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001B6A  6F0D 196C           351       MVW   R7,CCCHK+TWO             INSERT NEW ADDRESS
001B6E  4724 196A           352       MVA   CCCHK,R7                 ADDRESS OF DATA TO MOVE
001B72  9714                353       MVD   (R7)+,(R0)+              MOVE THE INSTR'S
001B74  9714                354       MVD   (R7)+,(R0)+
001B76  680D 1814           355       MVW   R0,STRTB                 BUMP THE INSTR ADR
001B7A  4029 1812 0004      356       AWI   FOUR,IDCPT               BUMP THE IDCB ADR POINTER
001B80  50C1                357       J     SIO23
001B82                      358 UNPRP EQU   *
001B82  8024 19C8           359       MVB   PRPCD,(R0)+              IDCB COMMAND
001B86  8504                360       MVB   (R5),(R0)+               ENTER THE DEVICE ADDRESS
001B88  C805                361       MVWZ  (R0),R0                  CLEAR THE DATA AREA
001B8A  50E5                362       J     PREPB                    GO FINISH THE IDCB
001B8C                      363 REDID EQU   *
001B8C  8024 19C9           364       MVB   RIDCD,(R0)+              READ ID IDCB COMMAND
001B90  5002                365       J     COMCD                    GO FINISH THE IDCB
001B92                      366 RESET EQU   *
001B92  8024 19CA           367       MVB   RSTCD,(R0)+              RESET IDCB COMMAND
001B96                      368 COMCD EQU   *
001B96  8504                369       MVB   (R5),(R0)+               ENTER THE DEVICE ADDRESS
001B98  680D 19A6           370       MVW   R0,LIGHT+TWO             SAVE THE ADDRESS
001B9C  C805                371       MVWZ  (R0),R0                  CLEAR THE DATA AREA
001B9E  6802 1ABE           372       B     SIO20
001BA2                      373 DELAY EQU   *
001BA2  4724 1D98           374       MVA   DLMSG,R7                 ASK FOR THE AMOUNT OF DELAY
001BA6  6001                375       SVC   OUTIN
001BA8  6D0D 19B2           376       MVW   R5,R5SAV                 SAVE R5
001BAC  6908 1946           377       MVW   WORK1,R5                 GET THE DATA
001BB0  6F03 1D18           378       BAL   DTOH,R7                  GO CONVERT
001BB4  75E4                379       MVW   R5,R7                    MOVE TO CONVERT
001BB6  802B 1A06 0232      380       CB    ALBRT,CPUTP              IS THIS A 4953 PROCESSOR
001BBC  1803                381       JNE   DLAY1                    J-NO
001BBE  370A                382       SRL   ONE,R7                   DIVIDE BY 2
001BC0  75E8                383       AW    R5,R7                    THIS WILL MULTIPLY BY 1 1/2
001BC2  5002                384       J     DLAY2
001BC4                      385 DLAY1 EQU   *
001BC4  EF21 19D0           386       MB    DELCT,R7                 MULTIPLY BY THE DELAY FACTOR
001BC8                      387 DLAY2 EQU   *
001BC8  6D08 19B2           388       MVW   R5SAV,R5                 RESTORE R5
001BCC  6F0D 1992           389       MVW   R7,DLCNT                 PUT THE DELAY INTO THE INSTRUCTION
001BD0  6808 1814           390       MVW   STRTB,R0                 ADR TO PUT THE DELAY
001BD4  D228 19AE           391       MVD   R2,R2SAV                 SAVE THESE REGISTERS
001BD8  4224 1988           392       MVA   DLNST,R2                 GET THE START OF THE INSTR'S
001BDC  4324 1992           393       MVA   DLCNT,R3                 DELAY COUNT
001BE0  726A                394       SW    R2,R3                    COMPUTE THE DIFFERENCE
001BE2  7068                395       AW    R0,R3
001BE4  6B0D 198A           396       MVW   R3,DLADR                 MOVE THE ADDRESS INTO THE INSTR
001BE8  0F0C                397       MVBI  TWELV,R7                 NUMBER OF BYTES IN THE STREAM
001BEA  2A04                398       MVFN  (R2),(R0)                MOVE THE INSTRUCTIONS
001BEC  D220 19AE           399       MVD   R2SAV,R2                 RESTORE THE REGS
001BF0  680D 1814           400       MVW   R0,STRTB                 BUMP ADR FOR THE NEXT INSTR
001BF4  6802 1B04           401       B     SIO23
001BF8                      402 LOPND EQU   *
001BF8  C020 181F           403       MVB   LPIND,R0                 WAS A LOOP STARTED
001BFC  1805                404       JNZ   LOOP1                    J-YES
001BFE  4724 1D8A           405       MVA   NOLOP,R7                 MSG-NO LOOP STARTED
001C02  6001                406       SVC   OUT
001C04  6802 1B04           407       B     SIO23
001C08                      408 LOOP1 EQU   *
001C08  4724 1DAC           409       MVA   LOPMG,R7                 MESSAGE ADDRESS
001C0C  6001                410       SVC   OUTIN
001C0E  6D0D 19B2           411       MVW   R5,R5SAV                 SAVE THE REG
001C12  6D08 197E           412       MVW   CNTWD,R5                 GET THE DATA
001C16  6F03 1D18           413       BAL   DTOH,R7                  GO CONVERT
001C1A  6D0D 1980           414       MVW   R5,LPCNT
001C1E  6D08 19B2           415       MVW   R5SAV,R5                 RESTORE R5
001C22  8828 1826 197C      416       MVW   LOOPS,LPADR              MOVE THE START ADR OF THE LOOP
001C28  6808 1814           417       MVW   STRTB,R0                 ADR TO PUT THE BRANCH INSTR
001C2C  D228 19AE           418       MVD   R2,R2SAV                 SAVE THE REGISTERS
001C30  4224 1972           419       MVA   CNTST,R2                 INSTR START ADDRESS
001C34  4324 197E           420       MVA   CNTWD,R3                 LOOP COUNT ADDRESS
001C38  726A                421       SW    R2,R3                    COMPUTE THE DIFFERENCE
001C3A  7068                422       AW    R0,R3                    ADD TO THE STARTING ADDRESS
001C3C  6B0D 1974           423       MVW   R3,CNTAD                 PUT THE ADDRESS INTO THE INSTR
001C40  6B0D 1986           424       MVW   R3,RESTR+FOUR            ADR INTO THE INSTR
001C44  7B61 0002           425       AWI   TWO,R3                   BUMP THE ADR
001C48  6B0D 1984           426       MVW   R3,RESTR+TWO             NEXT ADR INTO INSTR
001C4C  0F16                427       MVBI  TWEN2,R7                 NUMBER OF BYTES TO MOVE
001C4E  2A04                428       MVFN  (R2),(R0)                MOVE THE INSTRUCTIONS
001C50  680D 19B8           429       MVW   R0,LPEND                 SET UP
001C54  4029 19B8 FFFA      430       AWI   M6,LPEND                     LOOP END
001C5A  4724 19FE           431       MVA   CLPEN,R7                     ADDRESS
001C5E  601A                432       SVC   HTOE
001C60  D220 19AE           433       MVD   R2SAV,R2                 RESTORE THE REGISTERS
001C64  680D 1814           434       MVW   R0,STRTB                 UPDATE THE INSTR STREAM ADR
001C68  6802 1B04           435       B     SIO23
001C6C                      436 LOPST EQU   *
001C6C  8828 1814 1826      437       MVW   STRTB,LOOPS              SAVE THE LOOP START ADR
001C72  4724 19F8           438       MVA   CLPST,R7                 CONTROL BLOCK
001C76  601A                439       SVC   HTOE
001C78  8028 1828 181F      440       MVB   HEXFF,LPIND              SET THE LOOP IND
001C7E  6802 1B04           441       B     SIO23
001C82                      442 RDSTA EQU   *
001C82  8024 19D1           443       MVB   RSACD,(R0)+              IDCB COMMAND
001C86  6802 1B96           444       B     COMCD
001C8A                      445 REDDI EQU   *
001C8A  8024 19CB           446       MVB   RDICD,(R0)+              IDCB COMMAND
001C8E  6E03 1CF8           447       BAL   QUEST,R6                 ASK THE QUESTION
001C92  6802 1B96           448       B     COMCD
001C96                      449 REDPI EQU   *
001C96  8024 19CC           450       MVB   RPICD,(R0)+              IDCB COMMAND
001C9A  6E03 1CF8           451       BAL   QUEST,R6                 ASK THE QUESTION
001C9E  6802 1B96           452       B     COMCD
001CA2                      453 RDPIR EQU   *
001CA2  8024 19CD           454       MVB   RPWCD,(R0)+              IDCB COMMAND
001CA6  6E03 1CF8           455       BAL   QUEST,R6                 ASK THE QUESTION
001CAA  6802 1B96           456       B     COMCD
001CAE                      457 ARMPI EQU   *
001CAE  8024 19CE           458       MVB   APICD,(R0)+              IDCB COMMAND
001CB2  5002                459       J     ARMCD
001CB4                      460 RMDIE EQU   *
001CB4  8024 19CF           461       MVB   ADICD,(R0)+              IDCB COMMAND
001CB8                      462 ARMCD EQU   *
001CB8  8504                463       MVB   (R5),(R0)+               ENTER THE DEVICE ADDRESS
001CBA  680D 19A6           464       MVW   R0,LIGHT+TWO             SAVE THE ADDRESS
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001CBE  C805                465         MVWZ  (R0),R0              CLEAR THE DATA AREA
001CC0  6808 1814           466         MVW   STRTB,R0             ADR TO PUT OIO INSTR
001CC4  8828 1812 1968      467         MVW   IDCPT,IOADR          ADR OF THE IDCB
001CCA  8828 1812 1964      468         MVW   IDCPT,INCO1+SIX      ADR OF THE IDCB
001CD0  0F20                469         MVBI  THIR2,R7             NUM OF BYTES IN THE INSTR STREAM
001CD2  4424 194A           470         MVA   INCOM,R4             START ADR OF INSTR STREAM
001CD6  2C04                471         MVWN  (R4),(R0)            MOVE THE INSTRUCTIONS
001CD8  70E4                472         MVW   R0,R4                SAVE R0
001CDA  7FE1 0008           473         AWI   CCDCP,R7             COMPUTE A NEW ADDRESS
001CDE  6F0D 196C           474         MVW   R7,CCCHK+TWO         INSERT NEW ADDRESS
001CE2  4724 196A           475         MVA   CCCHK,R7             ADDRESS OF DATA TO MOVE
001CE6  9714                476         MVD   (R7)+,(R0)+          MOVE THE INSTR'S
001CE8  9714                477         MVD   (R7)+,(R0)+
001CEA  680D 1814           478         MVW   R0,STRTB             BUMP THE INSTR ADR
001CEE  4029 1812 0004      479         AWI   FOUR,IDCPT           BUMP THE IDCB ADR POINTER
001CF4  6802 1B04           480         B     SIO23
001CF8                      481 QUEST   EQU   *
001CF8  4724 1DC0           482         MVA   WRLTS,R7             CONTROL BLOCK
001CFC  6001                483         SVC   OUTIN
001CFE  802B 1946 1A04      484         CB    WORK1,NO             IS THE ANSWER NEGATIVE
001D04  1003                485         JE    QUESR                J-YES
001D06  8028 1828 1A07      486         MVB   HEXFF,WRITE          SET THE INDICATOR
001D0C                      487 QUESR   EQU   *
001D0C  5600                488         BXS   (R6)                 RETURN
001D0E                      489 NGOOD   EQU   *
001D0E  4724 1DD2           490         MVA   INCMD,R7             ADR OF INVALID COMMAND MSG
001D12  6000                491         SVC   OUT                  OUTPUT THE MESSAGE
001D14  6802 1ABE           492         B     SIO20
001D18                      493 DTOH    EQU   *
001D18  6F0D 1D4C           494         MVW   R7,RTRTN
001D1C  6C0D 1D4E           495         MVW   R4,DHSAV             SAVE R4
001D20  748A                496         SW    R4,R4                CLEAR THE REG
001D22  3425                497         SLLD  FOUR,R4              MOVE THOUSAND INTO R4
001D24  EC25 1D48           498         MW    THOUS,R4             MULTIPLY THOUSANDS
001D28  3522                499         SRL   FOUR,R5              POSITION THE HUNS,TENS
001D2A  3546                500         SRLD  EIGHT,R5             MOVE TENS AND UNITS INTO R6
001D2C  ED21 1D4A           501         MB    HUN,R5               MULTIPLY HUNDREDS
001D30  74A8                502         AW    R4,R5                ADD THOUS AND HUNS
001D32  3642                503         SRL   EIGHT,R6
001D34  3626                504         SRLD  FOUR,R6              MOVE UNITS INTO R7
001D36  3762                505         SRL   TWELV,R7             POSITION THE UNITS
001D38  77A8                506         AW    R7,R5                ADD UNITS TO THOUS AND HUNS
001D3A  EE21 1D4B           507         MB    TENS,R6              MULTIPLY TENS
001D3E  76A8                508         AW    R6,R5                GET THE GRAND TOTAL
001D40  6C08 1D4E           509         MVW   DHSAV,R4             RESTORE R4
001D44  6812 1D4C           510         B     RTRTN*
001D48  03E8                511 THOUS   DC    A(1000)
001D4A  64                  512 HUN     DC    H'100'
001D4B  0A                  513 TENS    DC    H'10'
001D4C  0000                514 RTRTN   DC    A(*-*)
001D4E  0000                515 DHSAV   DC    A(*-*)
001D50  0080                516         DC    X'0080'
001D52  1DD6                517 MG8     DC    A(M8)
001D54  0080                518         DC    X'0080'
001D56  1DF6                519         DC    A(M9)
001D58  0080                520         DC    X'0080'
001D5A  1E0C                521         DC    A(M9A)
001D5C  0080                522         DC    X'0080'
001D5E  1E24                523         DC    A(M9B)
001D60  0080                524         DC    X'0080'
001D62  1E32                525         DC    A(M9C)
001D64  0080                526         DC    X'0080'
001D66  1E3E                527         DC    A(M9D)
001D68  0080                528         DC    X'0080'
001D6A  1E4A                529         DC    A(M9E)
001D6C  0080                530         DC    X'0080'
001D6E  1E5A                531         DC    A(M9F)
001D70  0080                532         DC    X'0080'
001D72  1FD0                533         DC    A(M15A)
001D74  0080                534         DC    X'0080'
001D76  1F90                535         DC    A(M15B)
001D78  0080                536         DC    X'0080'
001D7A  1FC4                537         DC    A(M15C)
001D7C  0080                538         DC    X'0080'
001D7E  1F9E                539         DC    A(M15D)
001D80  0080                540         DC    X'0080'
001D82  1FAC                541         DC    A(M15E)
001D84  0080                542         DC    X'0080'
001D86  1FEA                543         DC    A(M15F)
001D88  0080                544         DC    X'0080'
001D8A  1EC6                545 NOLOP   DC    A(NLOOP)
001D8C  00C0                546         DC    X'00C0'
001D8E  1E68                547 DUMMY   DC    A(DUM)
001D90  1906                548         DC    A(UBUFR)
001D92  0040                549         DC    A(64)
001D94  0001                550         DC    A(1)
001D96  00C0                551         DC    X'00C0'
001D98  1EA2                552 DLMSG   DC    A(DMSGL)
001D9A  1946                553         DC    A(WORK1)
001D9C  0002                554         DC    A(2)
001D9E  0001                555         DC    A(1)
001DA0  00C0                556         DC    X'00C0'
001DA2  1E8C                557 PRMSG   DC    A(PMSGR)
001DA4  1946                558         DC    A(WORK1)
001DA6  0002                559         DC    A(2)
001DA8  0001                560         DC    A(1)
001DAA  00C0                561         DC    X'00C0'
001DAC  1F12                562 LOPMG   DC    A(LPMSG)
001DAE  197E                563         DC    A(CNTWD)
001DB0  0002                564         DC    A(2)
001DB2  0001                565         DC    A(1)
001DB4  00C0                566         DC    X'00C0'
001DB6  1F34                567 NODIC   DC    A(NOTDI)
001DB8  1946                568         DC    A(WORK1)
001DBA  0001                569         DC    A(1)
001DBC  0000                570         DC    A(0)
001DBE  00C0                571         DC    X'00C0'
001DC0  1EE4                572 WRLTS   DC    A(WRLIT)
001DC2  1946                573         DC    A(WORK1)
001DC4  0001                574         DC    A(1)
001DC6  0000                575         DC    A(0)
001DC8  0080                576         DC    X'0080'
001DCA  1F62                577 LPSTM   DC    A(LPST)
001DCC  0080                578         DC    X'0080'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001DCE  1F7A                579 LPENM   DC    A(LPEN)
001DD0  00C0                580         DC    X'00C0'
001DD2  1E6C                581 INCMD   DC    A(INCMG)
001DD4  0000                582         DC    A(0)
001DD6  E2C5D3C5C3E340C3D   583 M8      DC    C'SELECT COMMAND(S) FOR DA '
001DE5  404040              584 M8A     DC    C'   '
001DE8  00                  585         DC    X'00'
001DF4  0000                586         DC    A(0)
001DF6  F0F140D7D9C5D7C1D   587 M9      DC    C'01 PREPARE I BIT ON'
001E09  00                  588         DC    X'00'
001E0A  0000                589         DC    A(0)
001E0C  F0F240D7D9C5D7C1D   590 M9A     DC    C'02 PREPARE I BIT OFF'
001E20  00                  591         DC    X'00'
001E22  0000                592         DC    A(0)
001E24  F0F340D9C5C1C440C   593 M9B     DC    C'03 READ ID'
001E2E  00                  594         DC    X'00'
001E30  0000                595         DC    A(0)
001E32  F0F440D9C5E2C5E3    596 M9C     DC    C'04 RESET'
001E3A  00                  597         DC    X'00'
001E3C  0000                598         DC    A(0)
001E3E  F0F540C4C5D3C1E8    599 M9D     DC    C'05 DELAY'
001E46  00                  600         DC    X'00'
001E48  0000                601         DC    A(0)
001E4A  F0F640D3D6D6D740E   602 M9E     DC    C'06 LOOP START'
001E57  00                  603         DC    X'00'
001E58  0000                604         DC    A(0)
001E5A  F0F740D3D6D6D740C   605 M9F     DC    C'07 LOOP END'
001E65  00                  606         DC    X'00'
001E66  3489                607         DC    A(CD9)
001E68  00                  608 DUM     DC    X'00'
001E6A  349B                609         DC    A(CD1B)
001E6C  E6D9D6D5C740C9C4C   610 INCMG   DC    C'WRONG IDCB COMMAND,START OVER'
001E89  00                  611         DC    X'00'
001E8A  34A2                612         DC    A(CD22)
001E8C  D3C5E5C5D340E3D64   613 PMSGR   DC    C'LEVEL TO INTERRUPT'
001E9E  00                  614         DC    X'00'
001EA0  34A3                615         DC    A(CD23)
001EA2  D3C5D5C7E3C840D6C   616 DMSGL   DC    C'LENGTH OF DELAY(IN MILLISECONDS)'
001EC2  00                  617         DC    X'00'
001EC4  34A6                618         DC    A(CD26)
001EC6  D3D6D6D740D5D6E34   619 NLOOP   DC    C'LOOP NOT STARTED,START OVER'
001EE1  00                  620         DC    X'00'
001EE2  34C5                621         DC    A(CD45)
001EE4  C4D640E8D6E440E6C   622 WRLIT   DC    C'DO YOU WANT TO WRITE THE DATA TO THE LED''S?'
001F0F  00                  623         DC    X'00'
001F10  34A7                624         DC    A(CD27)
001F12  C8D6E640D4C1D5E84   625 LPMSG   DC    C'HOW MANY TIMES THROUGH THE LOOP'
001F31  00                  626         DC    X'00'
001F32  34C6                627         DC    A(CD46)
001F34  D5D640C4C961D7C94   628 NOTDI   DC    C'NO DI/PI FEATURE AT THIS ADR IS THIS O.K.?'
001F5E  00                  629         DC    X'00'
001F60  0000                630         DC    A(0)
001F62  D3D6D6D740E2E3C1D   631 LPST    DC    C'LOOP STARTED AT '
001F72  F0F0F0F0            632 LPST1   DC    C'0000'
001F76  00                  633         DC    X'00'
001F78  0000                634         DC    A(0)
001F7A  D3D6D6D740C5D5C4C   635 LPEN    DC    C'LOOP ENDED AT '
001F88  F0F0F0F0            636 LPEN1   DC    C'0000'
001F8C  00                  637         DC    X'00'
001F8E  0000                638         DC    A(0)
001F90  F0F940D9C5C1C440C   639 M15B    DC    C'09 READ DI'
001F9A  00                  640         DC    X'00'
001F9C  0000                641         DC    A(0)
001F9E  F0C240D9C5C1C440D   642 M15D    DC    C'0B READ PI'
001FA8  00                  643         DC    X'00'
001FAA  0000                644         DC    A(0)
001FAC  F0C340D9C5C1C440D   645 M15E    DC    C'0C READ PI WITH RESET'
001FC1  00                  646         DC    X'00'
001FC2  0000                647         DC    A(0)
001FC4  F0C140C1D9D440D7C   648 M15C    DC    C'0A ARM PI'
001FCD  00                  649         DC    X'00'
001FCE  0000                650         DC    A(0)
001FD0  F0F840C1D9D440C4C   651 M15A    DC    C'08 ARM DI EXTERNAL SYNC'
001FE7  00                  652         DC    X'00'
001FE8  0000                653         DC    A(0)
001FEA  F0C440D9C5C1C440E   654 M15F    DC    C'0D READ STATUS'
001FF8  00                  655         DC    X'00'
000000                      656         END
```

CROSS-REFERENCE LISTING

DECLARED NAME ATTRIBUTES AND REFERENCES

```
    0   .R0.      ABSOLUTE. HEX VALUE(00000000)
                  140   141   146   147   148   248   249   250   291
                  295   300   301   302   306   307   311   312   312
                  314   325   334   335   336   344   346   348   349
                  353   354   355   359   360   361   361   364   367
                  369   370   371   371   390   395   398   400   403
                  417   422   428   429   434   443   446   450   454
                  458   461   463   464   465   465   466   471   472
                  476   477   478
    0   .R1.      ABSOLUTE. HEX VALUE(00000001)
                  241   242   243   244   245   245   246   247   247
                  266   267   269   322   323   324   324
    0   .R2.      ABSOLUTE. HEX VALUE(00000002)
                  280   285   290   317   391   392   394   398   399
                  418   419   421   428   433
    0   .R3.      ABSOLUTE. HEX VALUE(00000003)
                  139   144   279   282   319   393   394   395   396
                  420   421   422   423   424   425   426
    0   .R4.      ABSOLUTE. HEX VALUE(00000004)
                  254   259   282   284   287   289   290   292   292
                  292   292   293   299   300   310   311   312   470
                  471   495   496   496   497   498   502   509
    0   .R5.      ABSOLUTE. HEX VALUE(00000005)
                  251   263   335   360   369   376   377   379   383
                  388   411   412   414   415   463   499   500   501
                  502   506   508
    0   .R6.      ABSOLUTE. HEX VALUE(00000006)
                  447   451   455   488   503   504   507   508
    0   .R7.      ABSOLUTE. HEX VALUE(00000007)
                  145   152   164   166   172   173   175   177   178
                  240   252   255   258   260   262   265   271   278
                  286   298   302   303   304   305   306   307   308
                  318   320   327   329   336   337   339   340   341
                  342   343   349   350   351   352   353   354   374
                  378   379   382   383   386   389   397   405   409
                  413   427   431   438   469   472   473   474   475
                  476   477   482   490   494   505   506
  204   ADICD     ADDRESS. HEX LOCATION(000019CF) IN CSECT(OB0E8   ) LENGTH(1)
                  461
  236   ALBRT     ADDRESS. HEX LOCATION(00001A06) IN CSECT(OB0E8   ) LENGTH(1)
                  380
  203   APICD     ADDRESS. HEX LOCATION(000019CE) IN CSECT(OB0E8   ) LENGTH(1)
                  458
  462   ARMCD     ADDRESS. HEX LOCATION(00001CB8) IN CSECT(OB0E8   ) LENGTH(1)
                  459
  457   ARMPI     ADDRESS. HEX LOCATION(00001CAE) IN CSECT(OB0E8   ) LENGTH(1)
                  218
   75   BADCC     ABSOLUTE. HEX VALUE(0000181C)
                  152
  151   CCCHK     ADDRESS. HEX LOCATION(0000196A) IN CSECT(OB0E8   ) LENGTH(4)
                  154   304   305   351   352   474   475
  154   CCDCP     ABSOLUTE. HEX VALUE(00000008)
                  303   350   473
   55   CD1B      ABSOLUTE. HEX VALUE(0000349B)
                  609
   56   CD22      ABSOLUTE. HEX VALUE(000034A2)
                  612
   57   CD23      ABSOLUTE. HEX VALUE(000034A3)
                  615
   58   CD26      ABSOLUTE. HEX VALUE(000034A6)
                  618
   59   CD27      ABSOLUTE. HEX VALUE(000034A7)
                  624
   60   CD45      ABSOLUTE. HEX VALUE(000034C5)
                  621
   61   CD46      ABSOLUTE. HEX VALUE(000034C6)
                  627
   54   CD9       ABSOLUTE. HEX VALUE(00003489)
                  607
  231   CLPEN     ADDRESS. HEX LOCATION(000019FE) IN CSECT(OB0E8   ) LENGTH(2)
                  431
  228   CLPST     ADDRESS. HEX LOCATION(000019F8) IN CSECT(OB0E8   ) LENGTH(2)
                  438
  160   CNTAD     ADDRESS. HEX LOCATION(00001974) IN CSECT(OB0E8   ) LENGTH(1)
                  423
  155   CNTST     ADDRESS. HEX LOCATION(00001972) IN CSECT(OB0E8   ) LENGTH(6)
                  160   161   419
  158   CNTWD     ADDRESS. HEX LOCATION(0000197E) IN CSECT(OB0E8   ) LENGTH(2)
                  155   163   412   420   563
  368   COMCD     ADDRESS. HEX LOCATION(00001B96) IN CSECT(OB0E8   ) LENGTH(1)
                  365   444   448   452   456
   68   CPUTP     ABSOLUTE. HEX VALUE(00000232)
                  380
  225   CVADR     ADDRESS. HEX LOCATION(000019F2) IN CSECT(OB0E8   ) LENGTH(2)
                  252
  226   CVAD1     ADDRESS. HEX LOCATION(000019F4) IN CSECT(OB0E8   ) LENGTH(2)
                  251
  373   DELAY     ADDRESS. HEX LOCATION(00001BA2) IN CSECT(OB0E8   ) LENGTH(1)
                  213
  205   DELCT     ADDRESS. HEX LOCATION(000019D0) IN CSECT(OB0E8   ) LENGTH(1)
                  386
   85   DEVC1     ABSOLUTE. HEX VALUE(0000182E)
                  140
  515   DHSAV     ADDRESS. HEX LOCATION(00001D4E) IN CSECT(OB0E8   ) LENGTH(2)
                  495   509
  168   DLADR     ADDRESS. HEX LOCATION(0000198A) IN CSECT(OB0E8   ) LENGTH(1)
                  396
  385   DLAY1     ADDRESS. HEX LOCATION(00001BC4) IN CSECT(OB0E8   ) LENGTH(1)
                  381
  387   DLAY2     ADDRESS. HEX LOCATION(00001BC8) IN CSECT(OB0E8   ) LENGTH(1)
                  384
  169   DLCNT     ADDRESS. HEX LOCATION(00001992) IN CSECT(OB0E8   ) LENGTH(2)
                  164   389   393
  165   DLIST     ADDRESS. HEX LOCATION(0000198C) IN CSECT(OB0E8   ) LENGTH(2)
                  166
  552   DLMSG     ADDRESS. HEX LOCATION(00001D98) IN CSECT(OB0E8   ) LENGTH(2)
                  374
  164   DLNST     ADDRESS. HEX LOCATION(00001988) IN CSECT(OB0E8   ) LENGTH(4)
                  168   392
  616   DMSGL     ADDRESS. HEX LOCATION(00001EA2) IN CSECT(OB0E8   ) LENGTH(32)
                  552
```


CROSS-REFERENCE LISTING

DECLARED NAME ATTRIBUTES AND REFERENCES

```
  188   DTCSS     ADDRESS. HEX LOCATION(000019BA) IN CSECT(OB0E8   ) LENGTH(2)
                  245
  493   DTOH      ADDRESS. HEX LOCATION(00001D18) IN CSECT(OB0E8   ) LENGTH(1)
                  378   413
  608   DUM       ADDRESS. HEX LOCATION(00001E68) IN CSECT(OB0E8   ) LENGTH(1)
                  547
  547   DUMMY     ADDRESS. HEX LOCATION(00001D8E) IN CSECT(OB0E8   ) LENGTH(2)
                  260
   84   DVPNT     ABSOLUTE. HEX VALUE(0000182C)
                  241   322
   96   EIGHT     ABSOLUTE. HEX VALUE(00000008)
                  500   503
   86   EPRNT     ABSOLUTE. HEX VALUE(00001830)
                  175
  176   ERTS1     ADDRESS. HEX LOCATION(000019A4) IN CSECT(OB0E8   ) LENGTH(1)
                  174
   93   FIVE      ABSOLUTE. HEX VALUE(00000005)
                  147
  102   FORTN     ABSOLUTE. HEX VALUE(0000000E)
                  254
   92   FOUR      ABSOLUTE. HEX VALUE(00000004)
                  161   167   258   315   356   424   479   497   499
                  504
  153   GODCC     ADDRESS. HEX LOCATION(00001972) IN CSECT(OB0E8   ) LENGTH(1)
                  151   154
   81   HEXFF     ABSOLUTE. HEX VALUE(00001828)
                  440   486
   45   HTOE      ABSOLUTE. HEX VALUE(0000001A)
                  253   432   439
  512   HUN       ADDRESS. HEX LOCATION(00001D4A) IN CSECT(OB0E8   ) LENGTH(1)
                  501
   70   IDCPT     ABSOLUTE. HEX VALUE(00001812)
                  291   296   297   315   347   356   467   468   479
   44   IDLE      ABSOLUTE. HEX VALUE(00000002)
                  143   165
  581   INCMD     ADDRESS. HEX LOCATION(00001DD2) IN CSECT(OB0E8   ) LENGTH(2)
                  490
  610   INCMG     ADDRESS. HEX LOCATION(00001E6C) IN CSECT(OB0E8   ) LENGTH(29)
                  581
  140   INCOA     ADDRESS. HEX LOCATION(0000194E) IN CSECT(OB0E8   ) LENGTH(4)
                  144   243
  139   INCOM     ADDRESS. HEX LOCATION(0000194A) IN CSECT(OB0E8   ) LENGTH(4)
                  299   470
  146   INCO1     ADDRESS. HEX LOCATION(0000195E) IN CSECT(OB0E8   ) LENGTH(2)
                  142   297   468
  125   INERR     ABSOLUTE. HEX VALUE(00000002)
                  173
  150   IOADR     ADDRESS. HEX LOCATION(00001968) IN CSECT(OB0E8   ) LENGTH(1)
                  148   296   347   467
  149   IONST     ADDRESS. HEX LOCATION(00001966) IN CSECT(OB0E8   ) LENGTH(4)
                  150   301   348
  170   JINST     ADDRESS. HEX LOCATION(00001994) IN CSECT(OB0E8   ) LENGTH(2)
                  249
  177   LIGHT     ADDRESS. HEX LOCATION(000019A4) IN CSECT(OB0E8   ) LENGTH(4)
                  310   370   464
   80   LOOPS     ABSOLUTE. HEX VALUE(00001826)
                  229   416   437
  408   LOOP1     ADDRESS. HEX LOCATION(00001C08) IN CSECT(OB0E8   ) LENGTH(1)
                  404
  562   LOPMG     ADDRESS. HEX LOCATION(00001DAC) IN CSECT(OB0E8   ) LENGTH(2)
                  409
  402   LOPND     ADDRESS. HEX LOCATION(00001BF8) IN CSECT(OB0E8   ) LENGTH(1)
                  215
  436   LOPST     ADDRESS. HEX LOCATION(00001C6C) IN CSECT(OB0E8   ) LENGTH(1)
                  214
   87   LOST      ABSOLUTE. HEX VALUE(00001832)
                  145
  162   LPADR     ADDRESS. HEX LOCATION(0000197C) IN CSECT(OB0E8   ) LENGTH(1)
                  416
  159   LPCNT     ADDRESS. HEX LOCATION(00001980) IN CSECT(OB0E8   ) LENGTH(2)
                  163   414
  635   LPEN      ADDRESS. HEX LOCATION(00001F7A) IN CSECT(OB0E8   ) LENGTH(14)
                  579
  187   LPEND     ADDRESS. HEX LOCATION(000019B8) IN CSECT(OB0E8   ) LENGTH(2)
                  232   429   430
  579   LPENM     ADDRESS. HEX LOCATION(00001DCE) IN CSECT(OB0E8   ) LENGTH(2)
                  329
  636   LPEN1     ADDRESS. HEX LOCATION(00001F88) IN CSECT(OB0E8   ) LENGTH(4)
                  233
   77   LPIND     ABSOLUTE. HEX VALUE(0000181F)
                  325   403   440
  625   LPMSG     ADDRESS. HEX LOCATION(00001F12) IN CSECT(OB0E8   ) LENGTH(31)
                  562
  157   LPNST     ADDRESS. HEX LOCATION(0000197A) IN CSECT(OB0E8   ) LENGTH(4)
                  162
  631   LPST      ADDRESS. HEX LOCATION(00001F62) IN CSECT(OB0E8   ) LENGTH(16)
                  577
  577   LPSTM     ADDRESS. HEX LOCATION(00001DCA) IN CSECT(OB0E8   ) LENGTH(2)
                  327
  632   LPST1     ADDRESS. HEX LOCATION(00001F72) IN CSECT(OB0E8   ) LENGTH(4)
                  230
  517   MG8       ADDRESS. HEX LOCATION(00001D52) IN CSECT(OB0E8   ) LENGTH(2)
                  255
  122   M1        ABSOLUTE. HEX VALUE(FFFFFFFF)
                  139   155   284
  651   M15A      ADDRESS. HEX LOCATION(00001FD0) IN CSECT(OB0E8   ) LENGTH(23)
                  533
  639   M15B      ADDRESS. HEX LOCATION(00001F90) IN CSECT(OB0E8   ) LENGTH(10)
                  535
  648   M15C      ADDRESS. HEX LOCATION(00001FC4) IN CSECT(OB0E8   ) LENGTH(9)
                  537
  642   M15D      ADDRESS. HEX LOCATION(00001F9E) IN CSECT(OB0E8   ) LENGTH(10)
                  539
  645   M15E      ADDRESS. HEX LOCATION(00001FAC) IN CSECT(OB0E8   ) LENGTH(21)
                  541
  654   M15F      ADDRESS. HEX LOCATION(00001FEA) IN CSECT(OB0E8   ) LENGTH(14)
                  543
  123   M4        ABSOLUTE. HEX VALUE(FFFFFFFC)
                  275
  124   M6        ABSOLUTE. HEX VALUE(FFFFFFFA)
                  430
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CROSS-REFERENCE LISTING

```
DECLARED  NAME     ATTRIBUTES AND REFERENCES
     583  M8         ADDRESS. HEX LOCATION(00001DD6) IN CSECT(OB0E8   ) LENGTH(25)
                     517
     584  M8A        ADDRESS. HEX LOCATION(00001DEF) IN CSECT(OB0E8   ) LENGTH(3)
                     227
     587  M9         ADDRESS. HEX LOCATION(00001DF6) IN CSECT(OB0E8   ) LENGTH(19)
                     519
     590  M9A        ADDRESS. HEX LOCATION(00001E0C) IN CSECT(OB0E8   ) LENGTH(20)
                     521
     593  M9B        ADDRESS. HEX LOCATION(00001E24) IN CSECT(OB0E8   ) LENGTH(10)
                     523
     596  M9C        ADDRESS. HEX LOCATION(00001E32) IN CSECT(OB0E8   ) LENGTH(8)
                     525
     599  M9D        ADDRESS. HEX LOCATION(00001E3E) IN CSECT(OB0E8   ) LENGTH(8)
                     527
     602  M9E        ADDRESS. HEX LOCATION(00001E4A) IN CSECT(OB0E8   ) LENGTH(13)
                     529
     605  M9F        ADDRESS. HEX LOCATION(00001E5A) IN CSECT(OB0E8   ) LENGTH(11)
                     531
     489  NGOOD      ADDRESS. HEX LOCATION(00001D0E) IN CSECT(OB0E8   ) LENGTH(1)
                     288
      97  NINE       ABSOLUTE. HEX VALUE(00000009)
                     340
     619  NLOOP      ADDRESS. HEX LOCATION(00001EC6) IN CSECT(OB0E8   ) LENGTH(27)
                     545
     234  NO         ADDRESS. HEX LOCATION(00001A04) IN CSECT(OB0E8   ) LENGTH(1)
                     273   484
     567  NODIC      ADDRESS. HEX LOCATION(00001DB6) IN CSECT(OB0E8   ) LENGTH(2)
                     271
     545  NOLOP      ADDRESS. HEX LOCATION(00001D8A) IN CSECT(OB0E8   ) LENGTH(2)
                     405
     628  NOTDI      ADDRESS. HEX LOCATION(00001F34) IN CSECT(OB0E8   ) LENGTH(42)
                     567
       3  OB0E8      CSECT. START(00001900) LENGTH(1785) ESDID(0)
                       3
      89  ONE        ABSOLUTE. HEX VALUE(00000001)
                     242   244   289   319   382
      69  OPTN2      ABSOLUTE. HEX VALUE(00001810)
                     172
      42  OUT        ABSOLUTE. HEX VALUE(00000000)
                     257   328   330   406   491
      43  OUTIN      ABSOLUTE. HEX VALUE(00000001)
                     261   272   338   375   410   483
     613  PMSGR      ADDRESS. HEX LOCATION(00001E8C) IN CSECT(OB0E8   ) LENGTH(18)
                     557
     345  PREPB      ADDRESS. HEX LOCATION(00001B56) IN CSECT(OB0E8   ) LENGTH(1)
                     362
     333  PREPR      ADDRESS. HEX LOCATION(00001B34) IN CSECT(OB0E8   ) LENGTH(1)
                     209
     557  PRMSG      ADDRESS. HEX LOCATION(00001DA2) IN CSECT(OB0E8   ) LENGTH(2)
                     337
     197  PRPCD      ADDRESS. HEX LOCATION(000019C8) IN CSECT(OB0E8   ) LENGTH(1)
                     334   359
     487  QUESR      ADDRESS. HEX LOCATION(00001D0C) IN CSECT(OB0E8   ) LENGTH(1)
                     485
     481  QUEST      ADDRESS. HEX LOCATION(00001CF8) IN CSECT(OB0E8   ) LENGTH(1)
                     447   451   455
     190  RDADR      ADDRESS. HEX LOCATION(000019BD) IN CSECT(OB0E8   ) LENGTH(1)
                     263
     191  RDCOD      ADDRESS. HEX LOCATION(000019BE) IN CSECT(OB0E8   ) LENGTH(2)
                     267   269
     200  RDICD      ADDRESS. HEX LOCATION(000019CB) IN CSECT(OB0E8   ) LENGTH(1)
                     446
     189  RDID       ADDRESS. HEX LOCATION(000019BC) IN CSECT(OB0E8   ) LENGTH(1)
                     264
     453  RDPIR      ADDRESS. HEX LOCATION(00001CA2) IN CSECT(OB0E8   ) LENGTH(1)
                     220
     442  RDSTA      ADDRESS. HEX LOCATION(00001C82) IN CSECT(OB0E8   ) LENGTH(1)
                     221
     445  REDDI      ADDRESS. HEX LOCATION(00001C8A) IN CSECT(OB0E8   ) LENGTH(1)
                     217
     363  REDID      ADDRESS. HEX LOCATION(00001B8C) IN CSECT(OB0E8   ) LENGTH(1)
                     211
     449  REDPI      ADDRESS. HEX LOCATION(00001C96) IN CSECT(OB0E8   ) LENGTH(1)
                     219
     366  RESET      ADDRESS. HEX LOCATION(00001B92) IN CSECT(OB0E8   ) LENGTH(1)
                     212
     163  RESTR      ADDRESS. HEX LOCATION(00001982) IN CSECT(OB0E8   ) LENGTH(6)
                     424   426
     186  RETSV      ADDRESS. HEX LOCATION(000019B6) IN CSECT(OB0E8   ) LENGTH(2)
                     240   276   332
     198  RIDCD      ADDRESS. HEX LOCATION(000019C9) IN CSECT(OB0E8   ) LENGTH(1)
                     364
     460  RMDIE      ADDRESS. HEX LOCATION(00001CB4) IN CSECT(OB0E8   ) LENGTH(1)
                     216
     201  RPICD      ADDRESS. HEX LOCATION(000019CC) IN CSECT(OB0E8   ) LENGTH(1)
                     450
     202  RPWCD      ADDRESS. HEX LOCATION(000019CD) IN CSECT(OB0E8   ) LENGTH(1)
                     454
     206  RSACD      ADDRESS. HEX LOCATION(000019D1) IN CSECT(OB0E8   ) LENGTH(1)
                     443
     199  RSTCD      ADDRESS. HEX LOCATION(000019CA) IN CSECT(OB0E8   ) LENGTH(1)
                     367
     514  RTRTN      ADDRESS. HEX LOCATION(00001D4C) IN CSECT(OB0E8   ) LENGTH(2)
                     494   510
     182  R2SAV      ADDRESS. HEX LOCATION(000019AE) IN CSECT(OB0E8   ) LENGTH(2)
                     285   317   391   399   418   433
     184  R5SAV      ADDRESS. HEX LOCATION(000019B2) IN CSECT(OB0E8   ) LENGTH(2)
                     376   388   411   415
     185  R7SAV      ADDRESS. HEX LOCATION(000019B4) IN CSECT(OB0E8   ) LENGTH(2)
                     262   278   286   318
      95  SEVEN      ABSOLUTE. HEX VALUE(00000007)
                     151   343
     192  SIOID      ADDRESS. HEX LOCATION(000019C0) IN CSECT(OB0E8   ) LENGTH(2)
                     266
     239  SIO00      ADDRESS. HEX LOCATION(00001A08) IN CSECT(OB0E8   ) LENGTH(1)
                     128
     256  SIO03      ADDRESS. HEX LOCATION(00001A46) IN CSECT(OB0E8   ) LENGTH(1)
                     259
     277  SIO12      ADDRESS. HEX LOCATION(00001A8C) IN CSECT(OB0E8   ) LENGTH(1)
                     268   270   274
     281  SIO15      ADDRESS. HEX LOCATION(00001A98) IN CSECT(OB0E8   ) LENGTH(1)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                     320
     294  SIO20      ADDRESS. HEX LOCATION(00001ABE) IN CSECT(OB0E8   ) LENGTH(1)
                     372   492
     313  SIO22      ADDRESS. HEX LOCATION(00001AFA) IN CSECT(OB0E8   ) LENGTH(1)
                     309
     316  SIO23      ADDRESS. HEX LOCATION(00001B04) IN CSECT(OB0E8   ) LENGTH(1)
                     357   401   407   435   441   480
     321  SIO25      ADDRESS. HEX LOCATION(00001B12) IN CSECT(OB0E8   ) LENGTH(1)
                     283
     331  SIO26      ADDRESS. HEX LOCATION(00001B30) IN CSECT(OB0E8   ) LENGTH(1)
                     326
      94  SIX        ABSOLUTE. HEX VALUE(00000006)
                     297   468
      71  STRTB      ABSOLUTE. HEX VALUE(00001814)
                     247   248   250   275   295   314   324   346   355
                     390   400   417   434   437   466   478
      98  TEN        ABSOLUTE. HEX VALUE(0000000A)
                     156
     513  TENS       ADDRESS. HEX LOCATION(00001D4B) IN CSECT(OB0E8   ) LENGTH(1)
                     507
     111  THIR2      ABSOLUTE. HEX VALUE(00000020)
                     469
     511  THOUS      ADDRESS. HEX LOCATION(00001D48) IN CSECT(OB0E8   ) LENGTH(2)
                     498
     101  THRTN      ABSOLUTE. HEX VALUE(0000000D)
                     287
     208  TTTBL      ADDRESS. HEX LOCATION(000019D2) IN CSECT(OB0E8   ) LENGTH(1)
                     280
     100  TWELV      ABSOLUTE. HEX VALUE(0000000C)
                     323   397   505
     106  TWENY      ABSOLUTE. HEX VALUE(00000014)
                     298
     107  TWEN2      ABSOLUTE. HEX VALUE(00000016)
                     427
      90  TWO        ABSOLUTE. HEX VALUE(00000002)
                     150   160   162   168   170   171   243   246   265
                     304   351   370   425   426   464   474
     129  UBUFR      ADDRESS. HEX LOCATION(00001906) IN CSECT(OB0E8   ) LENGTH(2)
                     279   548
     358  UNPRP      ADDRESS. HEX LOCATION(00001B82) IN CSECT(OB0E8   ) LENGTH(1)
                     210
     130  WORK1      ADDRESS. HEX LOCATION(00001946) IN CSECT(OB0E8   ) LENGTH(2)
                     273   339   341   342   344   377   484   553   558
                     568   573
     237  WRITF      ADDRESS. HEX LOCATION(00001A07) IN CSECT(OB0E8   ) LENGTH(1)
                     308   486
     622  WRLIT      ADDRESS. HEX LOCATION(00001EE4) IN CSECT(OB0E8   ) LENGTH(43)
                     572
     572  WRLTS      ADDRESS. HEX LOCATION(00001DC0) IN CSECT(OB0E8   ) LENGTH(2)
                     482
      88  ZERO       ABSOLUTE. HEX VALUE(00000000)
                     141   146
```

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001900                       3 OB4E8 START X'1900'
                             4 ********************************************************************************
                             5 *                                                                              *
                             6 *                     ***       PREREQUISITES        ***                       *
                             7 *                                                                              *
                             8 *                               NONE                                           *
                             9 *                                                                              *
                            10 ********************************************************************************
                            11 *                                                                              *
                            12 *                     ***       MODIFICATIONS        ***                       *
                            13 *                                                                              *
                            14 *                               NONE                                           *
                            15 *                                                                              *
                            16 ********************************************************************************
                            17 *                                                                              *
                            18 *                     ***     REA'S INCORPORATED     ***                       *
                            19 *                                                                              *
                            20 *                               NONE                                           *
                            21 *                                                                              *
                            22 ********************************************************************************
                            23 *                                                                              *
                            24 *                     ***    SPECIAL INSTRUCTIONS    ***                       *
                            25 *                                                                              *
                            26 *                               NONE                                           *
                            27 *                                                                              *
                            28 ********************************************************************************
                            29 *                                                                              *
                            30 *                     ***       E. C. HISTORY        ***                       *
                            31 *                                                                              *
                            32 *        DATE 15SEP77  DATE          DATE          DATE                        *
                            33 *        E.C. 754882   E.C.          E.C.          E.C.                        *
                            34 *                                                                              *
                            35 ********************************************************************************
                            37 ********************************************************************************
                            38 *                                                                              *
                            39 *     EQUATED NAMES FOR REQUIRED SVC'S                                         *
                            40 *                                                                              *
                            41 ********************************************************************************
000000                      42 OUT   EQU   0                    OUT SVC
000001                      43 OUTIN EQU   1                    OUTIN SVC
000002                      44 IDLE  EQU   2                    IDLE SVC
00001A                      45 HTOE  EQU   26                   HEX TO EBCDIC SVC
00001D                      46 ETOA  EQU   29                   EBCDIC TO ASCII SVC (STRING)
                            48 ********************************************************************************
                            49 *                                                                              *
                            50 *     EQUATES FOR CODED STOPS USED BY THIS UTILITY MONITOR                     *
                            51 *           (NORMAL AND ERROR)                                                 *
                            52 *                                                                              *
                            53 ********************************************************************************
00348A                      54 CDA   EQU   X'348A'              COMMANDS FOR 4982-DO
00349B                      55 CD1B  EQU   X'349B'              INVALID COMMAND
0034A0                      56 CD20  EQU   X'34A0'              READ I.D. MISMATCH
0034A3                      57 CD23  EQU   X'34A3'              LENGTH OF DELAY
0034A4                      58 CD24  EQU   X'34A4'              DATA TO BE USED FOR THIS TEST
0034A6                      59 CD26  EQU   X'34A6'              LOOP NOT STARTED
0034A7                      60 CD27  EQU   X'34A7'              NUMBER OF TIMES THRU LOOP
                            62 ********************************************************************************
                            63 *                                                                              *
                            64 *     EQUATE TABLE                                                             *
                            65 *                                                                              *
                            66 ********************************************************************************
000232                      67 CPUTP EQU   X'0232'              CPU TYPE
001810                      68 OPTN2 EQU   X'1810'              POINTER TO OPTION WORD 2
001812                      69 IDCPT EQU   X'1812'              POINTER TO IDCB BUILD AREA
001814                      70 STRTB EQU   X'1814'              POINTER TO I STREAM BUILD AREA
001816                      71 DTENT EQU   X'1816'              POINTER TO DATA BUILD AREA
001818                      72 DVCNT EQU   X'1818'              POINTER TO DEVICE UNDER TEST
00181A                      73 DCBPT EQU   X'181A'              POINTER TO DCB BUILD AREA
00181C                      74 BADCC EQU   X'181C'              POINTER TO BAD CODE ROUTINE
00181E                      75 KMODE EQU   X'181E'              POINTER TO DEVICE KEYING IN
00181F                      76 LPIND EQU   X'181F'              LOOP INDICATOR
001820                      77 KEYND EQU   X'1820'              ADDRESS OF DEVICES KEYING
001824                      78 KYMOD EQU   X'1824'              INDICATOR A DEVICE IS KEYING IN
001826                      79 LOOPS EQU   X'1826'              ADDRESS OF LOOP START
001828                      80 HEXFF EQU   X'1828'
001829                      81 ZEROS EQU   X'1829'
00182A                      82 NUMDV EQU   X'182A'
00182C                      83 DVPNT EQU   X'182C'
00182E                      84 DEVC1 EQU   X'182E'
001830                      85 EPRNT EQU   X'1830'
001832                      86 LOST  EQU   X'1832'
000000                      87 ZERO  EQU   0                    VALUE OF 0
000001                      88 ONE   EQU   1                              1
000002                      89 TWO   EQU   2                              2
000003                      90 THREE EQU   3                              3
000004                      91 FOUR  EQU   4                              4
000005                      92 FIVE  EQU   5                              5
000006                      93 SIX   EQU   6                              6
000007                      94 SEVEN EQU   7                              7
000008                      95 EIGHT EQU   8                              8
000009                      96 NINE  EQU   9                              9
00000A                      97 TEN   EQU   10                             10
00000B                      98 ELEVN EQU   11                             11
00000C                      99 TWELV EQU   12                             12
00000D                     100 THRTN EQU   13                             13
00000E                     101 FORTN EQU   14                             14
00000F                     102 FIFTN EQU   15                             15
000010                     103 SIXTN EQU   16                             16
000012                     104 EIGTN EQU   18                             18
000014                     105 TWENY EQU   20                             20
000016                     106 TWEN2 EQU   22                             22
00001A                     107 TWEN6 EQU   26                             26
00001B                     108 TWEN7 EQU   27                             27
00001C                     109 TWEN8 EQU   28                             28
000020                     110 THIR6 EQU   32                             32
000028                     111 FORTY EQU   40                             40
00003C                     112 SIXTY EQU   60                             60
00003F                     113 SIXT3 EQU   63                             63
000040                     114 SIXT4 EQU   64                             64
000041                     115 SIXT5 EQU   65                             65
00007F                     116 ONE27 EQU   127                            127
000080                     117 ONE28 EQU   128                            128
000100                     118 TWO56 EQU   256                            256
000400                     119 OTH24 EQU   1024                           1024
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001C00                     120 STH68 EQU   7168                           7168
FFFFFF                     121 M1    EQU   -1                             -1
FFFFFC                     122 M4    EQU   -4                             -4
FFFFFA                     123 M6    EQU   -6                             -6
000002                     124 INERR EQU   2
001900  B4E8               125 PID   DC    X'B4E8'           PROGRAM IDENTIFIER
001902  6802 19E4          126 OVLST B     SIO00             BRANCH TO START OF OVERLAY
001906  0000000000000000   127 UBUFR DC    32A(*-*)
001946  00000000           128 WORK1 DC    2A(*-*)
00194A  00000000           129 DATIN DC    2A(*-*)
                           130 ********************************************************************************
                           131 *                                                                              *
                           132 *     THE FOLLOWING INSTRUCTIONS WILL BE MODIFIED FOR TESTING.                 *
                           133 *     CARE SHOULD BE TAKEN TO ENSURE THE INSTRUCTIONS MAINTAIN                 *
                           134 *     THE SAME RELATIVE POSITION IN THE INSTRUCTION STREAM.                    *
                           135 *                                                                              *
                           136 ********************************************************************************
00194E  4024 182E          137 INCOA MVWI  DEVC1,R0
001952  0005               138       ABI   FIVE,R0
001954  4000 195A          139 INCO1 MVA   IOADR,(R0)
001958  680C 1958          140 IONST IO    *
00195A                     141 IOADR EQU   IONST+TWO
00195C  6F04 1964          142 CCCHK BCC   SEVEN,GODCC
001960  6F13 181C          143       BAL   BADCC*,R7
001964                     144 GODCC EQU   *
000008                     145 CCDCP EQU   GODCC-CCCHK
001964  4029 1970 FFFF     146 CNTST AWI   M1,CNTWD
00196A  1004               147       JZ    *+TEN
00196C  6802 196C          148       B     *
001970  0000               149 CNTWD DC    A(*-*)
001972  0000               150 LPCNT DC    A(*-*)
001966                     151 CNTAD EQU   CNTST+TWO
001968                     152 JBNST EQU   CNTST+FOUR
00196E                     153 LPADR EQU   LPNST+TWO
001974  8828 1972 1970     154 RESTR MVW   LPCNT,CNTWD
00197A  6F08 1984          155 DLNST MVW   DLCNT,R7
00197E  6002               156 DLIST SVC   IDLE
001980  BFFE               157       JCT   DLIST,R7
001982  5001               158       J     *+FOUR
00197C                     159 DLADR EQU   DLNST+TWO
001984  0000               160 DLCNT DC    A(*-*)
001986  5000               161 JINST J     *+TWO
001988  5000               162       J     *+TWO
00198A  4724 1810          163 ERTST MVWI  OPTN2,R7
00198E  4F02               164       TBT   (R7,INERR)
001990  1002               165       JZ    ERTS1
001992  6F13 1830          166       BAL   EPRNT*,R7
001996                     167 ERTS1 EQU   *
001996  0000               168 WORKA DC    A(*-*)
001998  0000               169 R2SAV DC    A(*-*)
00199A  0000               170 R3SAV DC    A(*-*)
00199C  0000               171 R5SAV DC    A(*-*)
00199E  0000               172 R7SAV DC    A(*-*)
0019A0  0000               173 RETSV DC    A(*-*)
0019A2  0000               174 LPEND DC    A(*-*)
0019A4  B480               175 DTCSS DC    X'B480'
0019A6  20                 176 RDID  DC    X'20'
0019A7  00                 177 RDADR DC    X'00'
0019A8  0000               178 RDCOD DC    X'0000'
0019AA  8018               179 SIOID DC    X'8018'           DIGITAL OUTPUT
0019AC  60                 180 PRPRE DC    X'60'
0019AD  00                 181 PRADR DC    X'00'
0019AE  0005               182       DC    X'0005'
0019B0  60                 183 PRPCD DC    X'60'
0019B1  20                 184 RIDCD DC    X'20'
0019B2  48                 185 DOCMD DC    X'48'
0019B3  6F                 186 RSTCD DC    X'6F'
0019B4  05                 187 DELCT DC    X'05'
0019B5  00                 188       ALIGN WORD
0019B6                     189 TTTBL EQU   *
0019B6  1AFA               190       DC    A(REDID)
0019B8  1B00               191       DC    A(RESET)
0019BA  1B0C               192       DC    A(DELAY)
0019BC  1BD6               193       DC    A(LOPST)
0019BE  1B62               194       DC    A(LOPND)
0019C0  1BEC               195       DC    A(DORTN)
0019C2  0000               196 AECVT DC    A(0)
0019C4  0000               197 AETCV DC    A(0)
0019C6  0000               198 AECTV DC    A(0)
0019C8  0001               199 CVADR DC    A(1)
0019CA  0000               200 CVAD1 DC    A(*-*)
0019CC  1CC5               201 CVAD2 DC    A(M8A)
0019CE  0002               202 CLPST DC    A(2)
0019D0  1826               203       DC    A(LOOPS)
0019D2  1DB2               204       DC    A(LPST1)
0019D4  0002               205 CLPEN DC    A(2)
0019D6  19A2               206       DC    A(LPEND)
0019D8  1DC8               207       DC    A(LPEN1)
0019DA  0002               208 CVRID DC    A(2)
0019DC  19A8               209       DC    A(RDCOD)
0019DE  1DED               210       DC    A(IDMG3)
0019E0  D5                 211 NO    DC    C'N'
0019E1  40                 212 EBCBK DC    C' '
0019E2  23                 213 ALBRT DC    X'23'
0019E3  00                 214       ALIGN WORD
0019E4                     215 SIO00 EQU   *
0019E4  6F0D 19A0          216       MVW   R7,RETSV            SAVE THE RETURN ADDRESS
0019E8  6908 182C          217       MVW   DVPNT,R1            DEVICE PARAMETERS UNDER TEST
0019EC  7921 0001          218       AWI   ONE,R1              BUMP POINTER
0019F0  690D 1950          219       MVW   R1,INCOA+TWO        PUT IN THE INSTR STREAM
0019F4  7921 0001          220       AWI   ONE,R1              BUMP THE ADR
0019F8  8860 19A4          221       MVW   DTCSS,(R1)          IND THE TYPE OF DEVICE
0019FC  7921 0002          222       AWI   TWO,R1              BUMP POINTER
001A00  8860 1814          223       MVW   STRTB,(R1)          START ADR FOR THIS TEST
001A04  6808 1814          224       MVW   STRTB,R0            SET R0
001A08  9024 1986          225       MVD   JINST,(R0)+         MOVE IN DUMMY INSTR'S
001A0C  680D 1814          226       MVW   R0,STRTB            SAVE THE INSTR STREAM POINTER
001A10  6D0D 19CA          227       MVW   R5,CVAD1            PREPARE TO CONVERT
001A14  4724 19C8          228       MVA   CVADR,R7            CONTROL BLOCK ADDRESS
001A18  601A               229       SVC   HTOE                GO CONVERT
001A1A  4424 0009          230       MVWI  NINE,R4             NUM OF POSSIBLE MESSAGES
001A1E  4724 1C46          231       MVA   MG8,R7              START ADR OF MESSAGES
001A22                     232 SIO03 EQU   *
001A22  6000               233       SVC   OUT                 OUTPUT THE MESSAGE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001A24  7FE1 0004            237         AWI   FOUR,R7                 POSITION FOR NEXT MESSAGE
001A28  BCFC                 238         JCT   SIO03,R4                OUTPUT THE NEXT MESSAGE
001A2A  4724 1C6E            239         MVA   DUMMY,R7                DUMMY OUTIN TO GET COMMANDS
001A2E  6001                 240         SVC   OUTIN
001A30  8508 19A7            241         MVB   (R5),RDADR              PUT THE DEVICE ADR IN READ ID
001A34  680C 19A6            242         IO    RDID                    DO A READ ID
001A38  4124 19AA            243         MVA   SIOID,R1                POSSIBLE ID'S
001A3C  891B 19A8            244         CW    (R1)+,RDCOD             COMPARE ID'S
001A40  1013                 245         JE    SIO12                   J-EQUAL
001A42  6F0D 199E            246         MVW   R7,R7SAV                SAVE FOR LATER
001A46  4724 19DA            247         MVA   CVRID,R7                CONVERT CONTROL BLOCK
001A4A  601A                 248         SVC   HTOE
001A4C  4724 1C96            249         MVA   IDMSG,R7                MESSAGE CONTROL BLOCK
001A50  6001                 250         SVC   OUTIN
001A52  6F08 199E            251         MVW   R7SAV,R7                RESTORE R7
001A56  802B 1996 19E0       252         CB    WORKA,NO                WAS THE RESPONCE NEGATIVE
001A5C  1805                 253         JNE   SIO12                   J-NO
001A5E  4029 1814 FFFC       254         AWI   M4,STRTB                RESET THE POINTER
001A64  6812 19A0            255         B     RETSV*
001A68                       256 SIO12   EQU   *
001A68  4324 1906            257         MVA   UBUFR,R3                INPUT DATA
001A6C  4224 19B6            258         MVA   TTTBL,R2                ADR OF BR TABLE
001A70                       259 SIO15   EQU   *
001A70  C4C0                 260         MVB   (R3),R4                 GET THE COMMAND
001A72  1032                 261         JZ    SIO25                   J-THE END
001A74  7C82 0001            262         SWI   ONE,R4                  REDUCE BY ONE
001A78  D228 1998            263         MVD   R2,R2SAV                SAVE THE REGISTER
001A7C  6F0D 199E            264         MVW   R7,R7SAV                SAVE THE REGISTER
001A80  7C06 0006            265         CWI   SIX,R4                  IS IT A VALID COMMAND
001A84  6D01 1C02            266         BGT   NGOOD                   J-NO--TOO HIGH
001A88  3409                 267         SLL   ONE,R4                  DOUBLE FOR DISPL INTO COMMAND TABLE
001A8A  7288                 268         AW    R2,R4                   GET THE COMMAND PROCESSOR ADDRESS
001A8C  6808 1812            269         MVW   IDCPT,R0                ADR TO PUT THE IDCB
001A90  6C88 0000            270         MVW   (R4),R4                 GET THE ADDRESS IN THE TABLE
001A94  5400                 271         BXS   (R4)                    GO COMPLETE THE IDCB
001A96                       272 SIO20   EQU   *
001A96  6808 1814            273         MVW   STRTB,R0                ADR TO PUT OIO INSTR
001A9A  8828 1812 195A       274         MVW   IDCPT,IOADR             ADR OF THE IDCB
001AA0  8828 1812 1956       275         MVW   IDCPT,INCO1+TWO         ADR OF THE IDCB
001AA6  0F0E                 276         MVBI  FORTN,R7                NUM OF BYTES IN THE INSTR STREAM
001AA8  4424 194E            277         MVA   INCOA,R4                START ADR OF INSTR STREAM
001AAC  2C04                 278         MVFN  (R4),(R0)               MOVE THE INSTRUCTIONS
001AAE  70E4                 279         MVW   R0,R7                   SAVE R0
001AB0  7FE1 0008            280         AWI   CCDCP,R7                COMPUTE A NEW ADDRESS
001AB4  6F0D 195E            281         MVW   R7,CCCHK+TWO            INSERT NEW ADDRESS
001AB8  4724 195C            282         MVA   CCCHK,R7                ADDRESS OF DATA TO MOVE
001ABC  9714                 283         MVD   (R7)+,(R0)+             MOVE THE INSTR'S
001ABE  9714                 284         MVD   (R7)+,(R0)+
001AC0  680D 1814            285         MVW   R0,STRTB                BUMP THE INSTR ADR
001AC4  4029 1812 0004       286         AWI   FOUR,IDCPT              BUMP THE IDCB ADR POINTER
001ACA                       287 SIO23   EQU   *
001ACA  D220 1998            288         MVD   R2SAV,R2                RESTORE R2-R3
001ACE  6F08 199E            289         MVW   R7SAV,R7                RESTORE R7
001AD2  7B61 0001            290         AWI   ONE,R3                  BUMP INPUT POINTER
001AD6  BFCC                 291         JCT   SIO15,R7                GO SET UP FOR NEXT COMMAND
001AD8                       292 SIO25   EQU   *
001AD8  6908 182C            293         MVW   DVPNT,R1                DEVICE PARAMETERS UNDER TEST
001ADC  7921 000C            294         AWI   TWELV,R1                BUMP THE POINTER
001AE0  8860 1814            295         MVW   STRTB,(R1)              SAVE THE END ADR
001AE4  C025 181F            296         MVBZ  LPIND,R0                WAS A LOOP STARTED
001AE8  1006                 297         JZ    SIO26                   J-NO
001AEA  4724 1CA0            298         MVA   LPSTM,R7                MSG ADR
001AEE  6000                 299         SVC   OUT
001AF0  4724 1CA4            300         MVA   LPENM,R7                MSG ADR
001AF4  6000                 301         SVC   OUT
001AF6                       302 SIO26   EQU   *
001AF6  6812 19A0            303         B     RETSV*                  RETURN TO FRIEND
001AFA                       304 REDID   EQU   *
001AFA  8024 19B1            305         MVB   RIDCD,(R0)+             READ ID IDCB COMMAND
001AFE  5002                 306         J     COMCD
001B00                       307 RESET   EQU   *
001B00  8024 19B3            308         MVB   RSTCD,(R0)+             RESET IDCB COMMAND
001B04                       309 COMCD   EQU   *
001B04  8504                 310         MVB   (R5),(R0)+              ENTER THE DEVICE ADDRESS
001B06  C805                 311         MVWZ  (R0),R0                 CLEAR THE DATA AREA
001B08  6802 1A96            312         B     SIO20
001B0C                       313 DELAY   EQU   *
001B0C  4724 1C78            314         MVA   DLMSG,R7                ASK FOR THE AMOUNT OF DELAY
001B10  6001                 315         SVC   OUTIN
001B12  6D0D 199C            316         MVW   R5,R5SAV                SAVE R5
001B16  6D08 1946            317         MVW   WORK1,R5                GET THE DATA
001B1A  6F03 1C0C            318         BAL   DTOH,R7                 GO CONVERT
001B1E  75E4                 319         MVW   R5,R7                   MOVE TO CONVERT
001B20  802B 19E2 0232       320         CB    ALBRT,CPUTP             IS THIS A 4953 PROCESSOR
001B26  1803                 321         JNE   DLAY1                   J-NO
001B28  370A                 322         SRL   ONE,R7                  DIVIDE BY 2
001B2A  75E8                 323         AW    R5,R7                   THIS WILL MULTIPLY BY 1 1/2
001B2C  5002                 324         J     DLAY2
001B2E                       325 DLAY1   EQU   *
001B2E  EF21 19B4            326         MB    DELCT,R7                MULTIPLY BY THE DELAY FACTOR
001B32                       327 DLAY2   EQU   *
001B32  6D08 199C            328         MVW   R5SAV,R5                RESTORE R5
001B36  6F0D 1984            329         MVW   R7,DLCNT                PUT THE DELAY INTO THE INSTRUCTION
001B3A  6808 1814            330         MVW   STRTB,R0                ADR TO PUT THE DELAY
001B3E  D228 1998            331         MVD   R2,R2SAV                SAVE THESE REGISTERS
001B42  4224 197A            332         MVA   DLNST,R2                GET THE START OF THE INSTR'S
001B46  4324 1984            333         MVA   DLCNT,R3                DELAY COUNT
001B4A  726A                 334         SW    R2,R3                   COMPUTE THE DIFFERENCE
001B4C  7068                 335         AW    R0,R3
001B4E  6B0D 197C            336         MVW   R3,DLADR                MOVE THE ADDRESS INTO THE INSTR
001B52  0F0C                 337         MVBI  TWELV,R7                NUMBER OF BYTES IN THE STREAM
001B54  2A04                 338         MVFN  (R2),(R0)               MOVE THE INSTRUCTIONS
001B56  D220 1998            339         MVD   R2SAV,R2                RESTORE THE REGS
001B5A  680D 1814            340         MVW   R0,STRTB                BUMP ADR FOR THE NEXT INSTR
001B5E  6802 1ACA            341         B     SIO23
001B62                       342 LOPND   EQU   *
001B62  C020 181F            343         MVB   LPIND,R0                WAS A LOOP STARTED
001B66  1805                 344         JNZ   LOOP1                   J-YES
001B68  4724 1C6A            345         MVA   NOLOP,R7                MSG-NO LOOP STARTED
001B6C  6000                 346         SVC   OUT
001B6E  6802 1ACA            347         B     SIO23
001B72                       348 LOOP1   EQU   *
001B72  4724 1C82            349         MVA   LOPMG,R7                MESSAGE ADDRESS
001B76  6001                 350         SVC   OUTIN
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001B78  6D0D 199C            351         MVW   R5,R5SAV                SAVE THE REG
001B7C  6D08 1970            352         MVW   CNTWD,R5                GET THE DATA
001B80  6F03 1C0C            353         BAL   DTOH,R7                 GO CONVERT
001B84  6D0D 1972            354         MVW   R5,LPCNT
001B88  6D08 199C            355         MVW   R5SAV,R5                RESTORE R5
001B8C  8828 1826 196E       356         MVW   LOOPS,LPADR             MOVE THE START ADR OF THE LOOP
001B92  6808 1814            357         MVW   STRTB,R0                ADR TO PUT THE BRANCH INSTR
001B96  D228 1998            358         MVD   R2,R2SAV                SAVE THE REGISTERS
001B9A  4224 1964            359         MVA   CNTST,R2                INSTR START ADDRESS
001B9E  4324 1970            360         MVA   CNTWD,R3                LOOP COUNT ADDRESS
001BA2  726A                 361         SW    R2,R3                   COMPUTE THE DIFFERENCE
001BA4  7068                 362         AW    R0,R3                   ADD TO THE STARTING ADDRESS
001BA6  6B0D 1966            363         MVW   R3,CNTAD                PUT THE ADDRESS INTO THE INSTR
001BAA  6B0D 1978            364         MVW   R3,RESTR+FOUR           ADR INTO THE INSTR
001BAE  7B61 0002            365         AWI   TWO,R3                  BUMP THE ADR
001BB2  6B0D 1976            366         MVW   R3,RESTR+TWO            NEXT ADR INTO INSTR
001BB6  0F16                 367         MVBI  TWEN2,R7                NUMBER OF BYTES TO MOVE
001BB8  2A04                 368         MVFN  (R2),(R0)               MOVE THE INSTRUCTIONS
001BBA  680D 19A2            369         MVW   R0,LPEND                SET UP
001BBE  4029 19A2 FFFA       370         AWI   M6,LPEND                    LOOP END
001BC4  4724 19D4            371         MVA   CLPEN,R7                      ADDRESS
001BC8  601A                 372         SVC   HTOE
001BCA  D220 1998            373         MVD   R2SAV,R2                RESTORE THE REGISTERS
001BCE  680D 1814            374         MVW   R0,STRTB                UPDATE THE INSTR STREAM ADR
001BD2  6802 1ACA            375         B     SIO23
001BD6                       376 LOPST   EQU   *
001BD6  8828 1814 1826       377         MVW   STRTB,LOOPS             SAVE THE LOOP START ADR
001BDC  4724 19CE            378         MVA   CLPST,R7                CONTPOL BLOCK
001BE0  601A                 379         SVC   HTOE
001BE2  8028 1828 181F       380         MVB   HEXFF,LPIND             SET THE LOOP IND
001BE8  6802 1ACA            381         B     SIO23
001BEC                       382 DORTN   EQU   *
001BEC  8024 19B2            383         MVB   DOCMD,(R0)+             IDCB COMMAND
001BF0  8024 19A7            384         MVB   FDADR,(R0)+             ADR OF DEVICE UNDER TEST
001BF4  4724 1C8C            385         MVA   DATER,R7                ADR OF MSG TO REQUEST DATA
001BF8  6001                 386         SVC   OUTIN
001BFA  8820 194A            387         MVW   DATIN,(R0)              DATA INTO THE IDCB
001BFE  6802 1A96            388         B     SIO20
001C02                       389 NGOOD   EQU   *
001C02  4724 1CA8            390         MVA   INCMD,R7                 ADR OF INVALID COMMAND MSG
001C06  6000                 391         SVC   OUT                      OUTPUT THE MESSAGE
001C08  6802 1A96            392         B     SIO20
001C0C                       393 DTOH    EQU   *
001C0C  6F0D 1C40            394         MVW   R7,RTRTN
001C10  6C0D 1C42            395         MVW   R4,DHSAV                SAVE R4
001C14  748A                 396         SW    R4,R4                   CLEAR THE REG
001C16  3425                 397         SLLD  FOUR,R4                 MOVE THOUSAND INTO R4
001C18  EC25 1C3C            398         MW    THOUS,R4                MULTIPLY THOUSANDS
001C1C  3522                 399         SRL   FOUR,R5                 POSITION THE HUNS,TENS
001C1E  3546                 400         SRLD  EIGHT,R5                MOVE TENS AND UNITS INTO R6
001C20  ED21 1C3E            401         MB    HUN,R5                  MULTIPLY HUNDREDS
001C24  74A6                 402         AW    R4,R5                   ADD THOUS AND HUNS
001C26  3642                 403         SRL   EIGHT,R6
001C28  3626                 404         SRLD  FOUR,R6                 MOVE UNITS INTO R7
001C2A  3762                 405         SRL   TWELV,R7                POSITION THE UNITS
001C2C  77A8                 406         AW    R7,R5                   ADD UNITS TO THOUS AND HUNS
001C2E  EE21 1C3F            407         MB    TENS,R6                 MULTIPLY TENS
001C32  76A8                 408         AW    R6,R5                   GET THE GRAND TOTAL
001C34  6C0B 1C42            409         MVW   DHSAV,R4                RESTORE R4
001C38  6812 1C40            410         B     RTRTN*
001C3C  03E8                 411 THOUS   DC    A(1000)
001C3E  64                   412 HUN     DC    H'100'
001C3F  0A                   413 TENS    DC    H'10'
001C40  0000                 414 RTRTN   DC    A(*-*)
001C42  0000                 415 DHSAV   DC    A(*-*)
001C44  0080                 416         DC    X'0080'
001C46  1CAC                 417 MG8     DC    A(M8)
001C48  0080                 418         DC    X'0080'
001C4A  1CCC                 419         DC    A(M9B)
001C4C  0080                 420         DC    X'0080'
001C4E  1CDA                 421         DC    A(M9C)
001C50  0080                 422         DC    X'0080'
001C52  1CE6                 423         DC    A(M9D)
001C54  0080                 424         DC    X'0080'
001C56  1CF2                 425         DC    A(M9E)
001C58  0080                 426         DC    X'0080'
001C5A  1D02                 427         DC    A(M9F)
001C5C  0080                 428         DC    X'0080'
001C5E  1E02                 429         DC    A(M16A)
001C60  0080                 430         DC    X'0080'
001C62  1E10                 431         DC    A(M16B)
001C64  0080                 432         DC    X'0080'
001C66  1E24                 433         DC    A(M16C)
001C68  0080                 434         DC    X'0080'
001C6A  1D58                 435 NOLOP   DC    A(NLOOP)
001C6C  00C0                 436         DC    X'00C0'
001C6E  1D10                 437 DUMMY   DC    A(DUM)
001C70  1906                 438         DC    A(UBUFR)
001C72  0040                 439         DC    A(64)
001C74  0001                 440         DC    A(1)
001C76  00C0                 441         DC    X'00C0'
001C78  1D34                 442 DLMSG   DC    A(DMSGL)
001C7A  1946                 443         DC    A(WORK1)
001C7C  0002                 444         DC    A(2)
001C7E  0001                 445         DC    A(1)
001C80  00C0                 446         DC    X'00C0'
001C82  1D80                 447 LOPMG   DC    A(LPMSG)
001C84  1970                 448         DC    A(CNTWD)
001C86  0002                 449         DC    A(2)
001C88  0001                 450         DC    A(1)
001C8A  00C0                 451         DC    X'00C0'
001C8C  1D76                 452 DATER   DC    A(DTINN)
001C8E  194A                 453         DC    A(DATIN)
001C90  0002                 454         DC    A(2)
001C92  0001                 455         DC    A(1)
001C94  00C0                 456         DC    X'00C0'
001C96  1DD0                 457 IDMSG   DC    A(IDMG1)
001C98  1996                 458         DC    A(WORKA)
001C9A  0001                 459         DC    A(1)
001C9C  0000                 460         DC    A(0)
001C9E  0080                 461         DC    X'0080'
001CA0  1DA2                 462 LPSTM   DC    A(LPST)
001CA2  0080                 463         DC    X'0080'
001CA4  1DBA                 464 LPENM   DC    A(LPEN)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                    COPYRIGHT IBM CORP 1976
001CA6  00C0                465         DC    X'00C0'
001CA8  1D14                466 INCMD   DC    A(INCMG)
001CAA  0000                467         DC    A(0)
001CAC  E2C5D3C5C3E340C3D   468 M8      DC    C'SELECT COMMAND(S) FOR DA '
001CC5  404040              469 M8A     DC    C'   '
001CC8  00                  470         DC    X'00'
001CC9  0000                471         DC    A(0)
001CCC  F0F140D9C5C1C440C   472 M9B     DC    C'01 READ ID'
001CD6  00                  473         DC    X'00'
001CD8  0000                474         DC    A(0)
001CDA  F0F240D9C5E2C5E3    475 M9C     DC    C'02 RESET'
001CE2  00                  476         DC    X'00'
001CE4  0000                477         DC    A(0)
001CE6  F0F340C4C5D3C1E8    478 M9D     DC    C'03 DELAY'
001CEE  00                  479         DC    X'00'
001CF0  0000                480         DC    A(0)
001CF2  F0F440D3D6D6D740E   481 M9E     DC    C'04 LOOP START'
001CFF  00                  482         DC    X'00'
001D00  0000                483         DC    A(0)
001D02  F0F540D3D6D6D740C   484 M9F     DC    C'05 LOOP END'
001D0D  00                  485         DC    X'00'
001D0E  348A                486         DC    A(CDA)
001D10  00                  487 DUM     DC    X'00'
001D12  349B                488         DC    A(CD1B)
001D14  E6D9D6D5C740C9C4C   489 INCMG   DC    C'WRONG IDCB COMMAND,START OVER'
001D31  00                  490         DC    X'00'
001D32  34A3                491         DC    A(CD23)
001D34  D3C5D5C7E3C840D6C   492 DMSGL   DC    C'LENGTH OF DELAY(IN MILLISECONDS)'
001D51  00                  493         DC    X'00'
001D52  34A6                494         DC    A(CD26)
001D58  D3D6D6D740D5D6E34   495 NLOOP   DC    C'LOOP NOT STARTED,START OVER'
001D73  00                  496         DC    X'00'
001D74  34A4                497         DC    A(CD24)
001D76  C4C1E3C140C9E2      498 DTINN   DC    C'DATA IS'
001D7D  00                  499         DC    X'00'
001D7E  34A7                500         DC    A(CD27)
001D80  C8D6E640D4C1D5E84   501 LPMSG   DC    C'HOW MANY TIMES THROUGH THE LOOP'
001D9F  00                  502         DC    X'00'
001DA0  0000                503         DC    A(0)
001DA2  D3D6D6D740E2E3C1D   504 LPST    DC    C'LOOP STARTED AT '
001DB2  F0F0F0F0            505 LPST1   DC    C'0000'
001DB6  00                  506         DC    X'00'
001DB8  0000                507         DC    A(0)
001DBA  D3D6D6D740C5D5C4C   508 LPEN    DC    C'LOOP ENDED AT '
001DC8  F0F0F0F0            509 LPEN1   DC    C'0000'
001DCC  00                  510         DC    X'00'
001DCE  34A0                511         DC    A(CD20)
001DD0  D9C5C1C440C9C440C   512 IDMG1   DC    C'READ ID EXPECTED '
001DE1  F8F0F1F840C9C440E   513 IDMG2   DC    C'8018 ID WAS '
001DED  E7E7E7E740C9E240E   514 IDMG3   DC    C'XXXX IS THIS O.K.?'
001DFF  00                  515         DC    X'00'
001E00  0000                516         DC    A(0)
001E02  F0F640E6D9C9E3C54   517 M16A    DC    C'06 WRITE DO'
001E0D  00                  518         DC    X'00'
001E0E  0000                519         DC    A(0)
001E10  5C5C5C5C40C3C1E4E   520 M16B    DC    C'**** CAUTION ****'
001E21  00                  521         DC    X'00'
001E22  0000                522         DC    A(0)
001E24  E2C5C3E4D9C540C3E   523 M16C    DC    C'SECURE CUSTOMER INTERFACE'
001E3D  00                  524         DC    X'00'
000000                      525         END
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CROSS-REFERENCE LISTING COPYRIGHT IBM CORP 1976

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R0.     ABSOLUTE. HEX VALUE(00000000)
                   139   140   141   227   228   229   269   273   278
                   279   283   284   285   296   305   308   310   311
                   311   330   335   338   340   343   357   362   368
                   369   374   383   384   387   387
       0  .R1.     ABSOLUTE. HEX VALUE(00000001)
                   220   221   222   223   224   224   225   226   226
                   243   244   293   294   295   295
       0  .R2.     ABSOLUTE. HEX VALUE(00000002)
                   258   263   268   288   331   332   334   338   339
                   358   359   361   368   373
       0  .R3.     ABSOLUTE. HEX VALUE(00000003)
                   257   260   290   333   334   335   336   360   361
                   362   363   364   365   366
       0  .R4.     ABSOLUTE. HEX VALUE(00000004)
                   233   238   260   262   265   267   268   270   270
                   270   270   271   277   278   395   396   396   397
                   398   402   409
       0  .R5.     ABSOLUTE. HEX VALUE(00000005)
                   230   241   310   316   317   319   323   328   351
                   352   354   355   399   400   401   402   406   408
       0  .R6.     ABSOLUTE. HEX VALUE(00000006)
                   403   404   407   408
       0  .R7.     ABSOLUTE. HEX VALUE(00000007)
                   145   157   159   165   166   168   219   231   234
                   237   239   246   247   249   251   264   276   279
                   280   281   282   283   284   289   291   298   300
                   314   318   319   322   323   326   329   337   345
                   349   353   367   371   378   385   390   394   405
                   406
     216  ALBRT    ADDRESS. HEX LOCATION(000019E2) IN CSECT(OB4E8   ) LENGTH(1)
                   320
      74  BADCC    ABSOLUTE. HEX VALUE(0000181C)
                   145
     144  CCCHK    ADDRESS. HEX LOCATION(0000195C) IN CSECT(OB4E8   ) LENGTH(4)
                   147   281   282
     147  CCDCP    ABSOLUTE. HEX VALUE(00000008)
                   280
      54  CDA      ABSOLUTE. HEX VALUE(0000348A)
                   486
      55  CD1B     ABSOLUTE. HEX VALUE(0000349B)
                   488
      56  CD20     ABSOLUTE. HEX VALUE(000034A0)
                   511
      57  CD23     ABSOLUTE. HEX VALUE(000034A3)
                   491
      58  CD24     ABSOLUTE. HEX VALUE(000034A4)
                   497
      59  CD26     ABSOLUTE. HEX VALUE(000034A6)
                   494
      60  CD27     ABSOLUTE. HEX VALUE(000034A7)
                   500
     208  CLPEN    ADDRESS. HEX LOCATION(000019D4) IN CSECT(OB4E8   ) LENGTH(2)
                   371
     205  CLPST    ADDRESS. HEX LOCATION(000019CE) IN CSECT(OB4E8   ) LENGTH(2)
                   378
     153  CNTAD    ADDRESS. HEX LOCATION(00001966) IN CSECT(OB4E8   ) LENGTH(1)
                   363
     148  CNTST    ADDRESS. HEX LOCATION(00001964) IN CSECT(OB4E8   ) LENGTH(6)
                   153   154   359
     151  CNTWD    ADDRESS. HEX LOCATION(00001970) IN CSECT(OB4E8   ) LENGTH(2)
                   148   156   352   360   448
     309  COMCD    ADDRESS. HEX LOCATION(00001B04) IN CSECT(OB4E8   ) LENGTH(1)
                   306
      67  CPUTP    ABSOLUTE. HEX VALUE(00000232)
                   320
     202  CVADR    ADDRESS. HEX LOCATION(000019C8) IN CSECT(OB4E8   ) LENGTH(2)
                   231
     203  CVAD1    ADDRESS. HEX LOCATION(000019CA) IN CSECT(OB4E8   ) LENGTH(2)
                   230
     211  CVRID    ADDRESS. HEX LOCATION(000019DA) IN CSECT(OB4E8   ) LENGTH(2)
                   247
     452  DATER    ADDRESS. HEX LOCATION(00001C8C) IN CSECT(OB4E8   ) LENGTH(2)
                   385
     130  DATIN    ADDRESS. HEX LOCATION(0000194A) IN CSECT(OB4E8   ) LENGTH(2)
                   387   453
     313  DELAY    ADDRESS. HEX LOCATION(00001B0C) IN CSECT(OB4E8   ) LENGTH(1)
                   195
     190  DELCT    ADDRESS. HEX LOCATION(000019B4) IN CSECT(OB4E8   ) LENGTH(1)
                   326
      84  DEVC1    ABSOLUTE. HEX VALUE(0000182E)
                   139
     415  DHSAV    ADDRESS. HEX LOCATION(00001C42) IN CSECT(OB4E8   ) LENGTH(2)
                   395   409
     161  DLADR    ADDRESS. HEX LOCATION(0000197C) IN CSECT(OB4E8   ) LENGTH(1)
                   336
     325  DLAY1    ADDRESS. HEX LOCATION(00001B2E) IN CSECT(OB4E8   ) LENGTH(1)
                   321
     327  DLAY2    ADDRESS. HEX LOCATION(00001B32) IN CSECT(OB4E8   ) LENGTH(1)
                   324
     162  DLCNT    ADDRESS. HEX LOCATION(00001984) IN CSECT(OB4E8   ) LENGTH(2)
                   157   329   333
     158  DLIST    ADDRESS. HEX LOCATION(0000197E) IN CSECT(OB4E8   ) LENGTH(2)
                   159
     442  DLMSG    ADDRESS. HEX LOCATION(00001C78) IN CSECT(OB4E8   ) LENGTH(2)
                   314
     157  DLNST    ADDRESS. HEX LOCATION(0000197A) IN CSECT(OB4E8   ) LENGTH(4)
                   161   332
     492  DMSGL    ADDRESS. HEX LOCATION(00001D34) IN CSECT(OB4E8   ) LENGTH(32)
                   442
     188  DOCMD    ADDRESS. HEX LOCATION(000019B2) IN CSECT(OB4E8   ) LENGTH(1)
                   383
     382  DORTN    ADDRESS. HEX LOCATION(00001BEC) IN CSECT(OB4E8   ) LENGTH(1)
                   198
     178  DTCSS    ADDRESS. HEX LOCATION(000019A4) IN CSECT(OB4E8   ) LENGTH(2)
                   224
     498  DTINN    ADDRESS. HEX LOCATION(00001D76) IN CSECT(OB4E8   ) LENGTH(7)
                   452
     393  DTOH     ADDRESS. HEX LOCATION(00001C0C) IN CSECT(OB4E8   ) LENGTH(1)
                   318   353
     487  DUM      ADDRESS. HEX LOCATION(00001D10) IN CSECT(OB4E8   ) LENGTH(1)
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CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		437
437	DUMMY	ADDRESS. HEX LOCATION(00001C6E) IN CSECT(OB4E8) LENGTH(2)
		239
83	DVPNT	ABSOLUTE. HEX VALUE(0000182C)
		220 293
95	EIGHT	ABSOLUTE. HEX VALUE(00000008)
		400 403
85	EPRNT	ABSOLUTE. HEX VALUE(00001830)
		168
169	ERTS1	ADDRESS. HEX LOCATION(00001996) IN CSECT(OB4E8) LENGTH(1)
		167
92	FIVE	ABSOLUTE. HEX VALUE(00000005)
		140
101	FORTN	ABSOLUTE. HEX VALUE(0000000E)
		276
91	FOUR	ABSOLUTE. HEX VALUE(00000004)
		154 160 237 286 364 397 399 404
146	GODCC	ADDRESS. HEX LOCATION(00001964) IN CSECT(OB4E8) LENGTH(1)
		144 147
80	HEXFF	ABSOLUTE. HEX VALUE(00001828)
		380
45	HTOE	ABSOLUTE. HEX VALUE(0000001A)
		232 248 372 379
412	HUN	ADDRESS. HEX LOCATION(00001C3E) IN CSECT(OB4E8) LENGTH(1)
		401
69	IDCPT	ABSOLUTE. HEX VALUE(00001812)
		269 274 275 286
44	IDLE	ABSOLUTE. HEX VALUE(00000002)
		158
512	IDMG1	ADDRESS. HEX LOCATION(00001DD0) IN CSECT(OB4E8) LENGTH(17)
		457
514	IDMG3	ADDRESS. HEX LOCATION(00001DED) IN CSECT(OB4E8) LENGTH(18)
		213
457	IDMSG	ADDRESS. HEX LOCATION(00001C96) IN CSECT(OB4E8) LENGTH(2)
		249
466	INCMD	ADDRESS. HEX LOCATION(00001CA8) IN CSECT(OB4E8) LENGTH(2)
		390
489	INCMG	ADDRESS. HEX LOCATION(00001D14) IN CSECT(OB4E8) LENGTH(29)
		466
139	INCOA	ADDRESS. HEX LOCATION(0000194E) IN CSECT(OB4E8) LENGTH(4)
		222 277
141	INCO1	ADDRESS. HEX LOCATION(00001954) IN CSECT(OB4E8) LENGTH(4)
		275
124	INERR	ABSOLUTE. HEX VALUE(00000002)
		166
143	IOADR	ADDRESS. HEX LOCATION(0000195A) IN CSECT(OB4E8) LENGTH(1)
		141 274
142	IONST	ADDRESS. HEX LOCATION(00001958) IN CSECT(OB4E8) LENGTH(4)
		143
163	JINST	ADDRESS. HEX LOCATION(00001986) IN CSECT(OB4E8) LENGTH(2)
		228
79	LOOPS	ABSOLUTE. HEX VALUE(00001826)
		206 356 377
348	LOOP1	ADDRESS. HEX LOCATION(00001B72) IN CSECT(OB4E8) LENGTH(1)
		344
447	LOPMG	ADDRESS. HEX LOCATION(00001C82) IN CSECT(OB4E8) LENGTH(2)
		349
342	LOPND	ADDRESS. HEX LOCATION(00001B62) IN CSECT(OB4E8) LENGTH(1)
		197
376	LOPST	ADDRESS. HEX LOCATION(00001BD6) IN CSECT(OB4E8) LENGTH(1)
		196
155	LPADR	ADDRESS. HEX LOCATION(0000196E) IN CSECT(OB4E8) LENGTH(1)
		356
152	LPCNT	ADDRESS. HEX LOCATION(00001972) IN CSECT(OB4E8) LENGTH(2)
		156 354
508	LPEN	ADDRESS. HEX LOCATION(00001DBA) IN CSECT(OB4E8) LENGTH(14)
		464
177	LPEND	ADDRESS. HEX LOCATION(000019A2) IN CSECT(OB4E8) LENGTH(2)
		209 369 370
464	LPENM	ADDRESS. HEX LOCATION(00001CA4) IN CSECT(OB4E8) LENGTH(2)
		300
509	LPEN1	ADDRESS. HEX LOCATION(00001DC8) IN CSECT(OB4E8) LENGTH(4)
		210
76	LPIND	ABSOLUTE. HEX VALUE(0000181F)
		296 343 380
501	LPMSG	ADDRESS. HEX LOCATION(00001D80) IN CSECT(OB4E8) LENGTH(31)
		447
150	LPNST	ADDRESS. HEX LOCATION(0000196C) IN CSECT(OB4E8) LENGTH(4)
		155
504	LPST	ADDRESS. HEX LOCATION(00001DA2) IN CSECT(OB4E8) LENGTH(16)
		462
462	LPSTM	ADDRESS. HEX LOCATION(00001CA0) IN CSECT(OB4E8) LENGTH(2)
		298
505	LPST1	ADDRESS. HEX LOCATION(00001DB2) IN CSECT(OB4E8) LENGTH(4)
		207
417	MG8	ADDRESS. HEX LOCATION(00001C46) IN CSECT(OB4E8) LENGTH(2)
		234
121	M1	ABSOLUTE. HEX VALUE(FFFFFFFF)
		148
517	M16A	ADDRESS. HEX LOCATION(00001E02) IN CSECT(OB4E8) LENGTH(11)
		429
520	M16B	ADDRESS. HEX LOCATION(00001E10) IN CSECT(OB4E8) LENGTH(17)
		431
523	M16C	ADDRESS. HEX LOCATION(00001E24) IN CSECT(OB4E8) LENGTH(25)
		433
122	M4	ABSOLUTE. HEX VALUE(FFFFFFFC)
		254
123	M6	ABSOLUTE. HEX VALUE(FFFFFFFA)
		370
468	M8	ADDRESS. HEX LOCATION(00001CAC) IN CSECT(OB4E8) LENGTH(25)
		417
469	M8A	ADDRESS. HEX LOCATION(00001CC5) IN CSECT(OB4E8) LENGTH(3)
		204
472	M9B	ADDRESS. HEX LOCATION(00001CCC) IN CSECT(OB4E8) LENGTH(10)
		419
475	M9C	ADDRESS. HEX LOCATION(00001CDA) IN CSECT(OB4E8) LENGTH(8)
		421
478	M9D	ADDRESS. HEX LOCATION(00001CE6) IN CSECT(OB4E8) LENGTH(8)
		423
481	M9E	ADDRESS. HEX LOCATION(00001CF2) IN CSECT(OB4E8) LENGTH(13)
		425

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
484	M9F	ADDRESS. HEX LOCATION(00001D02) IN CSECT(OB4E8) LENGTH(11)
		427
389	NGOOD	ADDRESS. HEX LOCATION(00001C02) IN CSECT(OB4E8) LENGTH(1)
		266
96	NINE	ABSOLUTE. HEX VALUE(00000009)
		233
495	NLOOP	ADDRESS. HEX LOCATION(00001D58) IN CSECT(OB4E8) LENGTH(27)
		435
214	NO	ADDRESS. HEX LOCATION(000019E0) IN CSECT(OB4E8) LENGTH(1)
		252
435	NOLOP	ADDRESS. HEX LOCATION(00001C6A) IN CSECT(OB4E8) LENGTH(2)
		345
3	OB4E8	CSECT. START(00001900) LENGTH(1342) ESDID(0)
		3
88	ONE	ABSOLUTE. HEX VALUE(00000001)
		221 223 262 267 290 322
68	OPTN2	ABSOLUTE. HEX VALUE(00001810)
		165
42	OUT	ABSOLUTE. HEX VALUE(00000000)
		236 299 301 346 391
43	OUTIN	ABSOLUTE. HEX VALUE(00000001)
		240 250 315 350 386
180	RDADR	ADDRESS. HEX LOCATION(000019A7) IN CSECT(OB4E8) LENGTH(1)
		241 384
181	RDCOD	ADDRESS. HEX LOCATION(000019A8) IN CSECT(OB4E8) LENGTH(2)
		212 244
179	RDID	ADDRESS. HEX LOCATION(000019A6) IN CSECT(OB4E8) LENGTH(1)
		242
304	REDID	ADDRESS. HEX LOCATION(00001AFA) IN CSECT(OB4E8) LENGTH(1)
		193
307	RESET	ADDRESS. HEX LOCATION(00001B00) IN CSECT(OB4E8) LENGTH(1)
		194
156	RESTR	ADDRESS. HEX LOCATION(00001974) IN CSECT(OB4E8) LENGTH(6)
		364 366
176	RETSV	ADDRESS. HEX LOCATION(000019A0) IN CSECT(OB4E8) LENGTH(2)
		219 255 303
187	RIDCD	ADDRESS. HEX LOCATION(000019B1) IN CSECT(OB4E8) LENGTH(1)
		305
189	RSTCD	ADDRESS. HEX LOCATION(000019B3) IN CSECT(OB4E8) LENGTH(1)
		308
414	RTRTN	ADDRESS. HEX LOCATION(00001C40) IN CSECT(OB4E8) LENGTH(2)
		394 410
172	R2SAV	ADDRESS. HEX LOCATION(00001998) IN CSECT(OB4E8) LENGTH(2)
		263 288 331 339 358 373
174	R5SAV	ADDRESS. HEX LOCATION(0000199C) IN CSECT(OB4E8) LENGTH(2)
		316 328 351 355
175	R7SAV	ADDRESS. HEX LOCATION(0000199E) IN CSECT(OB4E8) LENGTH(2)
		246 251 264 289
94	SEVEN	ABSOLUTE. HEX VALUE(00000007)
		144
182	SIOID	ADDRESS. HEX LOCATION(000019AA) IN CSECT(OB4E8) LENGTH(2)
		243
218	SIO00	ADDRESS. HEX LOCATION(000019E4) IN CSECT(OB4E8) LENGTH(1)
		127
235	SIO03	ADDRESS. HEX LOCATION(00001A22) IN CSECT(OB4E8) LENGTH(1)
		238
256	SIO12	ADDRESS. HEX LOCATION(00001A68) IN CSECT(OB4E8) LENGTH(1)
		245 253
259	SIO15	ADDRESS. HEX LOCATION(00001A70) IN CSECT(OB4E8) LENGTH(1)
		291
272	SIO20	ADDRESS. HEX LOCATION(00001A96) IN CSECT(OB4E8) LENGTH(1)
		312 388 392
287	SIO23	ADDRESS. HEX LOCATION(00001ACA) IN CSECT(OB4E8) LENGTH(1)
		341 347 375 381
292	SIO25	ADDRESS. HEX LOCATION(00001AD8) IN CSECT(OB4E8) LENGTH(1)
		261
302	SIO26	ADDRESS. HEX LOCATION(00001AF6) IN CSECT(OB4E8) LENGTH(1)
		297
93	SIX	ABSOLUTE. HEX VALUE(00000006)
		265
70	STRTB	ABSOLUTE. HEX VALUE(00001814)
		226 227 229 254 273 285 295 330 340
		357 374 377
97	TEN	ABSOLUTE. HEX VALUE(0000000A)
		149
413	TENS	ADDRESS. HEX LOCATION(00001C3F) IN CSECT(OB4E8) LENGTH(1)
		407
411	THOUS	ADDRESS. HEX LOCATION(00001C3C) IN CSECT(OB4E8) LENGTH(2)
		398
192	TTABL	ADDRESS. HEX LOCATION(000019B6) IN CSECT(OB4E8) LENGTH(1)
		258
99	TWELV	ABSOLUTE. HEX VALUE(0000000C)
		294 337 405
106	TWEN2	ABSOLUTE. HEX VALUE(00000016)
		367
89	TWO	ABSOLUTE. HEX VALUE(00000002)
		143 153 155 161 163 164 222 225 275
		281 365 366
128	UBUFR	ADDRESS. HEX LOCATION(00001906) IN CSECT(OB4E8) LENGTH(2)
		257 438
171	WORKA	ADDRESS. HEX LOCATION(00001996) IN CSECT(OB4E8) LENGTH(2)
		252 458
129	WORK1	ADDRESS. HEX LOCATION(00001946) IN CSECT(OB4E8) LENGTH(2)
		317 443

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

001900                       3 040E8 START X'1900'
                             4 ************************************************************************
                             5 *                                                                      *
                             6 *                     ***       PREREQUISITES        ***               *
                             7 *                                                                      *
                             8 *                          NONE                                        *
                             9 *                                                                      *
                            10 ************************************************************************
                            11 *                                                                      *
                            12 *                     ***       MODIFICATIONS        ***               *
                            13 *                                                                      *
                            14 *                     1. MODIFICATIONS FOR PROGRAMMER'S CONSOLE.       *
                            15 *                                                                      *
                            16 ************************************************************************
                            17 *                                                                      *
                            18 *                     ***     REA'S INCORPORATED     ***               *
                            19 *                                                                      *
                            20 *                          NONE                                        *
                            21 *                                                                      *
                            22 ************************************************************************
                            23 *                                                                      *
                            24 *                     ***    SPECIAL INSTRUCTIONS    ***               *
                            25 *                                                                      *
                            26 *                          NONE                                        *
                            27 *                                                                      *
                            28 ************************************************************************
                            29 *                                                                      *
                            30 *                     ***       E. C. HISTORY        ***               *
                            31 *                                                                      *
                            32 *          DATE 06MAY77  DATE 15SEP77  DATE           DATE            *
                            33 *          E.C. 578756   E.C. 754882   E.C.           E.C.            *
                            34 *                                                                      *
                            35 ************************************************************************
                            37 ************************************************************************
                            38 *                                                                      *
                            39 *     EQUATED NAMES FOR REQUIRED SVC'S                                 *
                            40 *                                                                      *
                            41 ************************************************************************
000000                      42 OUT   EQU   0                    OUT SVC
000001                      43 OUTIN EQU   1                    OUTIN SVC
000002                      44 IDLE  EQU   2                    IDLE SVC
00001A                      45 HTOE  EQU   26                   HEX TO EBCDIC SVC
00001D                      46 ETOA  EQU   29                   EBCIDIC TO ASCII SVC (STRING)
                            48 ************************************************************************
                            49 *                                                                      *
                            50 *     EQUATES FOR CODED STOPS USED BY THIS UTILITY MONITOR             *
                            51 *           (NORMAL AND ERROR)                                         *
                            52 *                                                                      *
                            53 ************************************************************************
003481                      54 CD1   EQU   X'3481'              COMMANDS FOR TTY
00349B                      55 CD1B  EQU   X'349B'              INVALID COMMAND
0034A0                      56 CD20  EQU   X'34A0'              READ I.D. MISMATCH
0034A1                      57 CD21  EQU   X'34A1'              STANDARD DATA PATTERN TO BE USED
0034A2                      58 CD22  EQU   X'34A2'              LEVEL TO INTERRUPT
0034A3                      59 CD23  EQU   X'34A3'              LENGTH OF DELAY
0034A4                      60 CD24  EQU   X'34A4'              DATA TO BE USED FOR THIS TEST
0034A6                      61 CD26  EQU   X'34A6'              LOOP NOT STARTED
0034A7                      62 CD27  EQU   X'34A7'              NUMBER OF TIMES THRU LOOP
                            64 ************************************************************************
                            65 *                                                                      *
                            66 *     EQUATE TABLE                                                     *
                            67 *                                                                      *
                            68 ************************************************************************
000232                      69 CPUTP EQU   X'0232'              CPU TYPE
001810                      70 OPTN2 EQU   X'1810'              POINTER TO OPTION WORD 2
001812                      71 IDCPT EQU   X'1812'              POINTER TO IDCB BUILD AREA
001814                      72 STRTB EQU   X'1814'              POINTER TO I STREAM BUILD AREA
001816                      73 DTENT EQU   X'1816'              POINTER TO DATA BUILD AREA
001818                      74 DVCNT EQU   X'1818'              POINTER TO DEVICE UNDER TEST
00181A                      75 DCBPT EQU   X'181A'              POINTER TO DCB BUILD AREA
00181C                      76 BADCC EQU   X'181C'              POINTER TO BAD CODE ROUTINE
00181E                      77 KMODE EQU   X'181E'              POINTER TO DEVICE KEYING IN
00181F                      78 LPIND EQU   X'181F'              LOOP INDICATOR
001820                      79 KEYMD EQU   X'1820'              ADDRESS OF DEVICES KEYING
001824                      80 KYMOD EQU   X'1824'              INDICATOR A DEVICE IS KEYING IN
001826                      81 LOOPS EQU   X'1826'              ADDRESS OF LOOP START
001828                      82 HEXFF EQU   X'1828'
001829                      83 ZEROS EQU   X'1829'
00182A                      84 NUMDV EQU   X'182A'
00182C                      85 DVPNT EQU   X'182C'
00182E                      86 DEVC1 EQU   X'182E'
001830                      87 EPRNT EQU   X'1830'
001832                      88 LOST  EQU   X'1832'
000000                      89 ZERO  EQU   0                    VALUE OF 0
000001                      90 ONE   EQU   1                             1
000002                      91 TWO   EQU   2                             2
000003                      92 THREE EQU   3                             3
000004                      93 FOUR  EQU   4                             4
000005                      94 FIVE  EQU   5                             5
000006                      95 SIX   EQU   6                             6
000007                      96 SEVEN EQU   7                             7
000008                      97 EIGHT EQU   8                             8
000009                      98 NINE  EQU   9                             9
00000A                      99 TEN   EQU   10                            10
00000B                     100 ELEVN EQU   11                            11
00000C                     101 TWELV EQU   12                            12
00000D                     102 THRTN EQU   13                            13
00000E                     103 FORTN EQU   14                            14
00000F                     104 FIFTN EQU   15                            15
000010                     105 SIXTN EQU   16                            16
000012                     106 EIGTN EQU   18                            18
000014                     107 TWENY EQU   20                            20
000016                     108 TWEN2 EQU   22                            22
00001A                     109 TWEN6 EQU   26                            26
00001B                     110 TWEN7 EQU   27                            27
00001C                     111 TWEN8 EQU   28                            28
000020                     112 THIR6 EQU   32                            32
000028                     113 FORTY EQU   40                            40
00003C                     114 SIXTY EQU   60                            60
00003F                     115 SIXT3 EQU   63                            63
000040                     116 SIXT4 EQU   64                            64
000041                     117 SIXT5 EQU   65                            65
00007F                     118 ONE27 EQU   127                           127
000080                     119 ONE28 EQU   128                           128
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

000100                     120 TWO56 EQU   256                           256
000400                     121 OTH24 EQU   1024                          1024
001C00                     122 STH68 EQU   7168                          7168
FFFFFF                     123 M1    EQU   -1                            -1
FFFFFC                     124 M4    EQU   -4                            -4
FFFFFA                     125 M6    EQU   -6                            -6
000002                     126 INERR EQU   2
001900  40E8               128 PID   DC    X'40E8'           PROGRAM IDENTIFIER
001902  6802 1AAC          129 OVLST B     TTY00             BRANCH TO START OF OVERLAY
001906  0000000000000000   130 UBUFR DC    32A(*-*)
001946  00000000           131 WORK1 DC    2A(*-*)
00194A  0000000000000000   132 DATIN DC    32A(*-*)
00198A  4142434445464748   133 TTYDT DC    S'ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890-=¬;'',./|@#$%¢£§*()'
0019C0  5F2B213A203C3E3F   134       DC    S' +!: <>?'
0019C8  0A0D00             135       DC    X'0A0D00'
0019CB  00                 136       ALIGN WORD
0019CC  0A                 137 LF    DC    X'0A'
0019CD  0D                 138 CR    DC    X'0D'
                           140 ************************************************************************
                           141 *                                                                      *
                           142 *     THE FOLLOWING INSTRUCTIONS WILL BE MODIFIED FOR TESTING.         *
                           143 *     CARE SHOULD BE TAKEN TO ENSURE THE INSTRUCTIONS MAINTAIN         *
                           144 *     THE SAME RELATIVE POSITION IN THE INSTRUCTION STREAM.            *
                           145 *                                                                      *
                           146 ************************************************************************
0019CE  4324 1C00          147 INCOM MVWI  STH68,R3
0019D2  4024 182E          148 INCOA MVWI  DEVC1,R0
0019D6  4800               149       TBT   (R0,ZERO)
0019D8  1004               150       JZ    INCO1
0019DA  6002               151       SVC   IDLE
0019DC  BBFA               152       JCT   INCOA,R3
0019DE  6F13 1832          153       BAI   LOST*,R7
0019E2  4840               154 INCO1 TBTS  (R0,ZERO)
0019E4  0005               155       ABI   FIVE,R0
0019E6  4000 19EC          156       MVA   IOADR,(R0)
0019EA  680C 19EA          157 IONST IO    *
0019EC                     158 IOADR EQU   IONST+TWO
0019EE  6F04 19F6          159 CCCHK BCC   SEVEN,GODCC
0019F2  6F13 181C          160       BAL   BADCC*,R7
0019F6                     161 GODCC EQU   *
000008                     162 CCDCP EQU   GODCC-CCCHK
0019F6  6A08 19EC          163 IODC0 MVW   IOADR,R2
0019FA  7A41 0003          164       AWI   THREE,R2
0019FE  80B0 1A14          165 IODC1 MVB   DATF1*,(R2)
001A02  180A               166       JNZ   IODC4
001A04  8828 1A16 1A14     167 IODC2 MVW   DATF2,DATF1
001A0A  4324 0400          168       MVWI  OTH24,R3
001A0E  6002               169 IODC3 SVC   IDLE
001A10  BBFE               170       JCT   IODC3,R3
001A12  50F5               171       J     IODC1
001A14  0000               172 DATF1 DC    A(*-*)
001A16  0000               173 DATF2 DC    A(*-*)
000032                     174 DAT1  EQU   DATF1-INCO1
000034                     175 DAT2  EQU   DATF2-INCO1
001A18  4029 1A14 0001     176 IODC4 AWI   ONE,DATF1
001A1E                     177 IODC5 EQU   *
001A1E  4029 1A2A FFFF     178 CNTST AWI   M1,CNTWD
001A24  1004               179       JZ    *+TEN
001A26  6802 1A26          180 LPNST B     *
001A2A  0000               181 CNTWD DC    A(*-*)
001A2C  0000               182 LPCNT DC    A(*-*)
001A20                     183 CNTAD EQU   CNTST+TWO
001A22                     184 JENST EQU   CNTST+FOUR
001A28                     185 LPADR EQU   LPNST+TWO
001A2E  8828 1A2C 1A2A     186 RESTR MVW   LPCNT,CNTWD
001A34  6F08 1A3E          187 DLNST MVW   DLCNT,R7
001A38  6002               188 DLIST SVC   IDLE
001A3A  BFFE               189       JCT   DLIST,R7
001A3C  5001               190       J     *+FOUR
001A36                     191 DLADR EQU   DLNST+TWO
001A3E  0000               192 DLCNT DC    A(*-*)
001A40  5000               193 JINST J     *+TWO
001A42  5000               194       J     *+TWO
001A44  4724 1810          195 ERTST MVWI  OPTN2,R7
001A48  4F02               196       TBT   (R7,INERR)
001A4A  1002               197       JZ    ERTS1
001A4C  6F13 1830          198       BAL   EPRNT*,R7
001A50                     199 ERTS1 EQU   *
001A50  0000               201 WORKA DC    A(*-*)
001A52  0000               202 R2SAV DC    A(*-*)
001A54  0000               203 R3SAV DC    A(*-*)
001A56  0000               204 R5SAV DC    A(*-*)
001A58  0000               205 R7SAV DC    A(*-*)
001A5A  0000               206 RETSV DC    A(*-*)
001A5C  0000               207 LPEND DC    A(*-*)
001A5E  4000               208 DTCSS DC    X'4000'
001A60  20                 209 RDID  DC    X'20'
001A61  00                 210 RDADR DC    X'00'
001A62  0000               211 RDCOD DC    X'0000'
001A64  0010               212 TTYID DC    X'0010'
001A66  60                 213 PRPCD DC    X'60'
001A67  20                 214 RIDCD DC    X'20'
001A68  6F                 215 RSTCD DC    X'6F'
001A69  10                 216 R70FC DC    X'10'
001A6A  50                 217 W70FC DC    X'50'
001A6B  05                 218 DELCT DC    X'05'
001A6C  00                 219 DFALT DC    X'00'
001A6D  05                 220 FIVDF DC    X'05'
001A6E  0A                 221 DVALU DC    X'0A'
001A6F  00                 222       ALIGN WORD
001A70                     223 TTTBL EQU   *
001A70  1E38               224       DC    A(DFLT1)
001A72  1BCA               225       DC    A(PREPR)
001A74  1C24               226       DC    A(UNPRP)
001A76  1C2E               227       DC    A(REDID)
001A78  1C34               228       DC    A(RESET)
001A7A  1C40               229       DC    A(DELAY)
001A7C  1D0A               230       DC    A(LOPST)
001A7E  1C96               231       DC    A(LOPND)
001A80  1D20               232       DC    A(READ)
001A82  1D3A               233       DC    A(WRITE)
001A84  0000               234 AECVT DC    A(0)
001A86  0000               235 AETCV DC    A(0)
001A88  0000               236 AECTV DC    A(0)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001A8A  0001               237 CVADR DC    A(1)
001A8C  0000               238 CVAD1 DC    A(*-*)
001A8E  1F25               239 CVAD2 DC    A(M8A)
001A90  0002               240 CLPST DC    A(2)
001A92  1826               241       DC    A(LOOPS)
001A94  20B8               242       DC    A(LPST1)
001A96  0002               243 CLPEN DC    A(2)
001A98  1A5C               244       DC    A(LPEND)
001A9A  20CE               245       DC    A(LPEN1)
001A9C  0002               246 CVRID DC    A(2)
001A9E  1A62               247       DC    A(RDCOD)
001AA0  20F3               248       DC    A(IDMG3)
001AA2  0002               249 CVEXP DC A(2)
001AA4  1A64               250       DC    A(TTYID)
001AA6  20E7               251       DC    A(IDMG2)
001AA8  D5                 252 NO    DC    C'N'
001AA9  40                 253 EBCBK DC    C' '
001AAA  23                 254 ALBRT DC    X'23'
001AAB  00                 255       ALIGN WORD
001AAC                     256 TTY00 EQU   *
001AAC  6F0D 1A5A          257       MVW   R7,RETSV              SAVE THE RETURN ADDRESS
001AB0  6908 182C          258       MVW   DVPNT,R1              DEVICE PARAMETERS UNDER TEST
001AB4  7921 0001          259       AWI   ONE,R1                BUMP POINTER
001AB8  690D 19D4          260       MVW   R1,INCOA+TWO          PUT IN THE INSTR STREAM
001ABC  7921 0001          261       AWI   ONE,R1                BUMP THE ADR
001AC0  8860 1A5E          262       MVW   DTCSS,(R1)            IND THE TYPE OF DEVICE
001AC4  7921 0002          263       AWI   TWO,R1                BUMP POINTER
001AC8  8860 1814          264       MVW   STRTB,(R1)            START ADR FOR THIS TEST
001ACC  6808 1814          265       MVW   STRTB,R0              SET R0
001AD0  9024 1A40          266       MVD   JINST,(R0)+           MOVE IN DUMMY INSTR'S
001AD4  680D 1814          267       MVW   R0,STRTB              SAVE THE INSTR STREAM POINTER
001AD8  6D0D 1A8C          268       MVW   R5,CVAD1              PREPARE TO CONVERT
001ADC  4724 1A8A          269       MVA   CVADR,R7              CONTROL BLOCK ADDRESS
001AE0  601A               270       SVC   HTOE                  GO CONVERT
001AE2  4424 000A          271       MVWI  TEN,R4                NUM OF POSSIBLE MESSAGES
001AE6  4724 1E8E          272       MVA   MG8,R7                START ADR OF MESSAGES
001AEA                     273 TTY10 EQU   *
001AEA  6000               274       SVC   OUT                   OUTPUT THE MESSAGE
001AEC  7FE1 0004          275       AWI   FOUR,R7               POSITION FOR NEXT MESSAGE
001AF0  BCFC               276       JCT   TTY10,R4              OUTPUT THE NEXT MESSAGE
001AF2  4724 1EBA          277       MVA   TMG2,R7               DUMMY SVC TO GET DATA
001AF6  6001               278       SVC   OUTIN                ISSUE THE OUTIN
001AF8  8508 1A61          279       MVB   (R5),RDADR           PUT THE DEVICE ADR IN READ ID
001AFC  680C 1A60          280       IO    RDID                 DO A READ ID
001B00  882B 1A62 1A64     281       CW    RDCOD,TTYID          IS IT O.K.
001B06  1016               282       JE    TTY12                J-YES
001B08  6F0D 1A58          283       MVW   R7,R7SAV             SAVE R7
001B0C  4724 1A9C          284       MVA   CVRID,R7             CONVERT CONTROL BLOCK
001B10  601A               285       SVC   HTOE
001B12  4724 1AA2          286       MVA   CVEXP,R7             CONVERT CONTROL BLOCK
001B16  601A               287       SVC   HTOE
001B18  4724 1EF6          288       MVA   IDMSG,R7            ADR OF MSG
001B1C  6001               289       SVC   OUTIN
001B1E  6F08 1A58          290       MVW   R7SAV,R7             RESTORE R7
001B22  802B 1A50 1AA8     291       CB    WORKA,NO             WAS THE ANSWER NO
001B28  1805               292       JNE   TTY12                J-NO
001B2A  4029 1814 FFFC     293       AWI   M4,STRTB             RESTORE POINTER
001B30  6812 1A5A          294       B     RETSV*               RETURN TO SENDER
001B34                     295 TTY12 EQU   *
001B34  4324 1906          296       MVA   UBUFR,R3             INPUT DATA
001B38  4224 1A70          297       MVA   TTTBL,R2             ADR OF BR TABLE
001B3C                     298 TTY15 EQU   *
001B3C  C4C0               299       MVB   (R3),R4              GET THE COMMAND
001B3E  1034               300       JZ    TTY25                END
001B40  7C82 0001          301       SWI   ONE,R4               REDUCE BY ONE
001B44  D228 1A52          302       MVD   R2,R2SAV             SAVE THE REGISTER
001B48  6F0D 1A58          303       MVW   R7,R7SAV             SAVE THE REGISTER
001B4C  7C06 0009          304       CWI   NINE,R4              IS IT A VALID COMMAND
001B50  6D01 1E4A          305       BGT   NGOOD                J-NO--TOO HIGH
001B54  3409               306       SLL   ONE,R4               DOUBLE FOR DISPL INTO COMMAND TABLE
001B56  7288               307       AW    R2,R4                GET THE COMMAND PROCESSOR ADDRESS
001B58  6808 1812          308       MVW   IDCPT,R0             ADR TO PUT THE IDCB
001B5C  6C88 0000          309       MVW   (R4),R4              GET THE ADDRESS IN THE TABLE
001B60  5400               310       BXS   (R4)                 GO COMPLETE THE IDCB
001B62                     311 TTY20 EQU   *
001B62  6808 1814          312       MVW   STRTB,R0             ADR TO PUT OIO INSTR
001B66  8828 1812 19EC     313       MVW   IDCPT,IOADR          ADR OF THE IDCB
001B6C  8828 1812 19E8     314       MVW   IDCPT,INCO1+SIX      ADR OF THE IDCB
001B72  0F14               315       MVBI  TWENY,R7             NUM OF BYTES IN THE INSTR STREAM
001B74  4424 19CE          316       MVA   INCOM,R4             START ADR OF INSTR STREAM
001B78  2C04               317       MVFN  (R4),(R0)            MOVE THE INSTRUCTIONS
001B7A  9024 19EA          318       MVD   IONST,(R0)+          MOVE THE I/O INSTR
001B7E  70E4               319       MVW   R0,R7                SAVE R0
001B80  7FE1 0008          320       AWI   CCDCP,R7             COMPUTE A NEW ADDRESS
001B84  6F0D 19F0          321       MVW   R7,CCCHK+TWO         INSERT NEW ADDRESS
001B88  4724 19EE          322       MVA   CCCHK,R7             ADDRESS OF DATA TO MOVE
001B8C  9714               323       MVD   (R7)+,(R0)+          MOVE THE INSTR'S
001B8E  9714               324       MVD   (R7)+,(R0)+
001B90  680D 1814          325       MVW   R0,STRTB             BUMP THE INSTR ADR
001B94  4029 1812 0004     326       AWI   FOUR,IDCPT           BUMP THE IDCB ADR POINTER
001B9A                     327 TTY23 EQU   *
001B9A  D220 1A52          328       MVD   R2SAV,R2             RESTORE R2-R3
001B9E  6F08 1A58          329       MVW   R7SAV,R7             RESTORE R7
001BA2  7B61 0001          330       AWI   ONE,R3               BUMP INPUT POINTER
001BA6  BFCA               331       JCT   TTY15,R7             GO SET UP FOR NEXT COMMAND
001BA8                     332 TTY25 EQU   *
001BA8  6908 182C          333       MVW   DVPNT,R1             DEVICE PARAMETERS UNDER TEST
001BAC  7921 000C          334       AWI   TWELV,R1             BUMP THE POINTER
001BB0  8860 1814          335       MVW   STRTB,(R1)           SAVE THE END ADR
001BB4  C025 181F          336       MVBZ  LPIND,R0             WAS A LOOP STARTED
001BB8  1006               337       JZ    TTY26                J-NO
001BBA  4724 1F00          338       MVA   LPSTM,R7             MSG ADR
001BBE  6000               339       SVC   OUT
001BC0  4724 1F04          340       MVA   LPENM,R7             MSG ADR
001BC4  6000               341       SVC   OUT
001BC6                     342 TTY26 EQU   *
001BC6  6812 1A5A          343       B     RETSV*               RETURN TO FRIEND
001BCA                     344 PREPR EQU   *
001BCA  8024 1A66          345       MVB   PRPCD,(R0)+          MOVE THE COMMAND TO THE IDCB ADR
001BCE  8504               346       MVB   (R5),(R0)+           MOVE THE DEVICE ADR TO THE IDCB
001BD0  C715               347       MVBZ  (R0),R7              CLEAR THE BYTE
001BD2  C720 1A6C          348       MVB   DFALT,R7             IS THE DEFAULT TO BE USED
001BD6  1003               349       JZ    PREPA                J-NO
001BD8  8020 1A6D          350       MVB   FIVDF,(R0)           MOVE IN THE DEFAULT VALUE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001BDC  500D               351       J     PREPB
001BDE                     352 PREPA EQU   *
001BDE  4724 1ECE          353       MVA   PRMSG,R7             MSG ASKING FOR PREP LEVEL
001BE2  6001               354       SVC   OUTIN
001BE4  6F08 1946          355       MVW   WORK1,R7             GET THE DATA INPUT
001BE8  3749               356       SLL   NINE,R7             POSITION THE LEVEL
001BEA  6F0D 1946          357       MVW   R7,WORK1             PUT IT BACK IN THE WORK AREA
001BEE  4724 1946          358       MVA   WORK1,R7             ADR OF DATA
001BF2  7BE1 0007          359       AWI   R7,SEVEN             SET THE I BIT
001BF4  8020 1946          360       MVB   WORK1,(R0)           MOVE LEVEL & I BIT INTO IDCB
001BF8                     361 PREPB EQU   *
001BF8  6808 1814          362       MVW   STRTB,R0             ADR TO PUT OIO INSTR
001BFC  8828 1812 19EC     363       MVW   IDCPT,IOADR          ADR OF THE IDCB
001C02  9024 19EA          364       MVD   IONST,(R0)+          MOVE THE I/O INSTR
001C06  70E4               365       MVW   R0,R7                SAVE R0
001C08  7FE1 0008          366       AWI   CCDCP,R7             COMPUTE A NEW ADDRESS
001C0C  6F0D 19F0          367       MVW   R7,CCCHK+TWO         INSERT NEW ADDRESS
001C10  4724 19EE          368       MVA   CCCHK,R7             ADDRESS OF DATA TO MOVE
001C14  9714               369       MVD   (R7)+,(R0)+          MOVE THE INSTR'S
001C16  9714               370       MVD   (R7)+,(R0)+
001C18  680D 1814          371       MVW   R0,STRTB             BUMP THE INSTR ADR
001C1C  4029 1812 0004     372       AWI   FOUR,IDCPT           BUMP THE IDCB ADR POINTER
001C22  50BB               373       J     TTY23
001C24                     374 UNPRP EQU   *
001C24  8024 1A66          375       MVB   PRPCD,(R0)+          IDCB COMMAND
001C28  8504               376       MVB   (R5),(R0)+           ENTER THE DEVICE ADDRESS
001C2A  C805               377       MVWZ  (R0),R0              CLEAR THE DATA AREA
001C2C  50E5               378       J     PREPB                GO FINISH THE IDCB
001C2E                     379 REDID EQU   *
001C2E  8024 1A67          380       MVB   RIDCD,(R0)+          READ ID IDCB COMMAND
001C32  5002               381       J     COMCD                GO FINISH THE IDCB
001C34                     382 RESET EQU   *
001C34  8024 1A68          383       MVB   RSTCD,(R0)+          RESET IDCB COMMAND
001C38                     384 COMCD EQU   *
001C38  8504               385       MVB   (R5),(R0)+           ENTER THE DEVICE ADDRESS
001C3A  C805               386       MVWZ  (R0),R0              CLEAR THE DATA AREA
001C3C  6802 1B62          387       B     TTY20
001C40                     388 DELAY EQU   *
001C40  4724 1EC4          389       MVA   DLMSG,R7             ASK FOR THE AMOUNT OF DELAY
001C44  6001               390       SVC   OUTIN
001C46  6D0D 1A56          391       MVW   R5,R5SAV             SAVE R5
001C4A  6D08 1946          392       MVW   WORK1,R5             GET THE DATA
001C4E  6F03 1E54          393       BAL   DTOH,R7              GO CONVERT
001C52  75E4               394       MVW   R5,R7               MOVE TO CONVERT
001C54  802B 1AAA 0232     395       CB    ALBRT,CPUTP          IS THIS A 4953 PROCESSOR
001C5A  1803               396       JNE   DLAY1                J-NO
001C5C  370A               397       SRL   ONE,R7               DIVIDE BY 2
001C5E  75E8               398       AW    R5,R7                THIS WILL MULTIPLY BY 1 1/2
001C60  5002               399       J     DLAY2
001C62                     400 DLAY1 EQU   *
001C62  EF21 1A6B          401       MB    DELCT,R7             MULTIPLY BY THE DELAY FACTOR
001C66                     402 DLAY2 EQU   *
001C66  6D08 1A56          403       MVW   R5SAV,R5             RESTORE R5
001C6A  6F0D 1A3E          404       MVW   R7,DLCNT             PUT THE DELAY INTO THE INSTRUCTION
001C6E  6808 1814          405       MVW   STRTB,R0             ADR TO PUT THE DELAY
001C72  D228 1A52          406       MVD   R2,R2SAV             SAVE THESE REGISTERS
001C76  4224 1A34          407       MVA   DLNST,R2             GET THE START OF THE INSTR'S
001C7A  4324 1A3E          408       MVA   DLCNT,R3             DELAY COUNT
001C7E  726A               409       SW    R2,R3                COMPUTE THE DIFFERENCE
001C80  7068               410       AW    R0,R3
001C82  6B0D 1A36          411       MVW   R3,DLADR             MOVE THE ADDRESS INTO THE INSTR
001C86  0F0C               412       MVBI  TWELV,R7             NUMBER OF BYTES IN THE STREAM
001C88  2A04               413       MVFN  (R2),(R0)            MOVE THE INSTRUCTIONS
001C8A  D220 1A52          414       MVD   R2SAV,R2             RESTORE THE REGS
001C8E  680D 1814          415       MVW   R0,STRTB             BUMP ADR FOR THE NEXT INSTR
001C92  6802 1B9A          416       B     TTY23
001C96                     417 LOPND EQU   *
001C96  C020 181F          418       MVB   LPIND,R0             WAS A LOOP STARTED
001C9A  1805               419       JNZ   LOOP1                J-YES
001C9C  4724 1EB6          420       MVA   NOLOP,R7             MSG-NO LOOP STARTED
001CA0  6000               421       SVC   OUT
001CA2  6802 1B9A          422       B     TTY23
001CA6                     423 LOOP1 EQU   *
001CA6  4724 1ED8          424       MVA   LOPMG,R7             MESSAGE ADDRESS
001CAA  6001               425       SVC   OUTIN
001CAC  6D0D 1A56          426       MVW   R5,R5SAV             SAVE THE REG
001CB0  6D08 1A2A          427       MVW   CNTWD,R5             GET THE DATA
001CB4  6F03 1E54          428       BAL   DTOH,R7              GO CONVERT
001CB8  6D0D 1A2C          429       MVW   R5,LPCNT
001CBC  6D08 1A56          430       MVW   R5SAV,R5             RESTORE R5
001CC0  8828 1826 1A28     431       MVW   LOOPS,LPADR          MOVE THE START ADR OF THE LOOP
001CC6  680D 1814          432       MVW   STRTB,R0             ADR TO PUT THE BRANCH INSTR
001CCA  D228 1A52          433       MVD   R2,R2SAV             SAVE THE REGISTERS
001CCE  4224 1A1E          434       MVA   CNTST,R2             INSTR START ADDRESS
001CD2  4324 1A2A          435       MVA   CNTWD,R3             LOOP COUNT ADDRESS
001CD6  726A               436       SW    R2,R3                COMPUTE THE DIFFERENCE
001CD8  7068               437       AW    R0,R3                ADD TO THE STARTING ADDRESS
001CDA  6B0D 1A20          438       MVW   R3,CNTAD             PUT THE ADDRESS INTO THE INSTR
001CDE  6B0D 1A32          439       MVW   R3,RESTR+FOUR        ADR INTO THE INSTR
001CE2  7B61 0002          440       AWI   TWO,R3               BUMP THE ADR
001CE6  6B0D 1A30          441       MVW   R3,RESTR+TWO         NEXT ADR INTO INSTR
001CEA  0F16               442       MVBI  TWEN2,R7             NUMBER OF BYTES TO MOVE
001CEC  2A04               443       MVFN  (R2),(R0)            MOVE THE INSTRUCTIONS
001CEE  680D 1A5C          444       MVW   R0,LPEND             SET UP
001CF2  4029 1A5C FFFA     445       AWI   M6,LPEND                 LOOP END
001CF8  4724 1A96          446       MVA   CLPEN,R7                 ADDRESS
001CFC  601A               447       SVC   HTOE
001CFE  D228 1A52          448       MVD   R2SAV,R2             RESTORE THE REGISTERS
001D02  680D 1814          449       MVW   R0,STRTB             UPDATE THE INSTR STREAM ADR
001D06  6802 1B9A          450       B     TTY23
001D0A                     451 LOPST EQU   *
001D0A  8828 1814 1826     452       MVW   STRTB,LOOPS          SAVE THE LOOP START ADR
001D10  4724 1A90          453       MVA   CLPST,R7             CONTROL BLOCK
001D14  601A               454       SVC   HTOE
001D16  8028 1828 181F     455       MVB   HEXFF,LPIND          SET THE LOOP IND
001D1C  6802 1B9A          456       B     TTY23
001D20                     457 READ  EQU   *
001D20  6908 1824          458       MVW   KYMOD,R1             ADR OF DEVICES TO KEY IN DATA
001D24  8544               459       MVB   (R5),(R1)+           SAVE THE ADDRESS
001D26  690D 1824          460       MVW   R1,KYMOD             SAVE THE NEW ADDRESS
001D2A  4029 1818 0001     461       AWI   ONE,DVCNT            BUMP THE NUMBER OF DEVICES
001D30  8028 1828 181E     462       MVB   HEXFE,KMODE          IND DEVICE IS KEYING IN
001D36  6802 1B9A          463       B     TTY23
001D3A                     464 WRITE EQU   *
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LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT
001D3A 8024 1A6A          465        MVB   W7OFC,(R0)+       IDCB COMMAND
001D3E 8504               466        MVB   (R5),(R0)+        ADR OF DEVICE UNDER TEST
001D40 7801 0001          467        AWI   ONE,R0            BUMP THE POINTER
001D44 8020 19CD          468        MVB   CR,(R0)           INSERT A CARRIAGE RETURN
001D48 8828 1812 19EC     469        MVW   IDCPT,IOADR       ADR OF THE IDCB
001D4E 8828 1812 19E8     470        MVW   IDCPT,INCO1+SIX   ADR OF THE IDCB
001D54 4029 1812 0004     471        AWI   FOUR,IDCPT        BUMP THE POINTER
001D5A D228 1A52          472        MVD   R2,R2SAV          SAVE R2
001D5E 8828 1816 1A14     473        MVW   DTENT,DATF1       START OF DATA
001D64 8828 1816 1A16     474        MVW   DTENT,DATF2       START OF DATA
001D6A C720 1A6C          475        MVB   DFALT,R7          IS THE DFALT TO BE USED
001D6E 1807               476        JNZ   WR7               J-YES
001D70 4724 1EEC          477        MVA   DATRQ,R7          IS NEW DATA REQUESTED
001D74 6001               478        SVC   OUTIN
001D76 802B 194A 1AA8     479        CB    DATIN,NO          WAS IT A NO ANSWER
001D7C 100A               480        JE    WR710             J-YES
001D7E                    481 WR7    EQU   *
001D7E 4724 0041          482        MVWI  SIXT5,R7          NUMBER OF BYTES TO MOVE
001D82 4324 198A          483        MVA   TTYDT,R3          DATA ADDRESS
001D86 6A08 1816          484        MVW   DTENT,R2          DATA FIELD ADDRESS
001D8A 2B44               485        MVFN  (R3),(R2)         MOVE THE DATA
001D8C 6A0D 1816          486        MVW   R2,DTENT          UPDATE DATA FIELD ADDRESS
001D90 501E               487        J     WR715
001D92                    488 WR710  EQU   *
001D92 4724 1EE2          489        MVA   DATER,R7          ADR OF MSG TO REQUEST DATA
001D96 6001               490        SVC   OUTIN
001D98 0F40               491        MVBI  SIXT4,R7          MAX NUMBER OF BYTES
001D9A 77C4               492        MVW   R7,R6             SAVE THE NUMBER
001D9C 4324 194A          493        MVA   DATIN,R3          ADDRESS OF THE DATA
001DA0 0800               494        MVBI  ZERO,R0           END OF MESSAGE CHARACTER
001DA2 286F               495        SFEN  R0,(R3)           COMPUTE THE LENGTH OF THE MESSAGE
001DA4 77CA               496        SW    R7,R6             LENGTH OF MESSAGE
001DA6 6E0D 1A84          497        MVW   R6,AECVT          NUMBER OF BYTES TO CONVERT
001DAA 4020 1A86 194A     498        MVA   DATIN,AETCV       INPUTTED DATA
001DB0 8828 1816 1A88     499        MVW   DTENT,AECTV       WHERE TO PUT THE DATA
001DB6 4724 1A84          500        MVA   AECVT,R7          CONVERT CONTROL BLOCK
001DBA 601D               501        SVC   ETOA             GO CONVERT
001DBC 6A08 1A84          502        MVW   AECVT,R2          NUMBER OF BYTES CONVERTED
001DC0 6A0E 1816          503        AW    DTENT,R2          ADD THE START OF DATA
001DC4 80A4 19CC          504        MVB   LF,(R2)+          PUT IN CARRIAGE RETURN LINE FEED
001DC8 80A4 19CD          505        MVB   CR,(R2)+
001DCC C795               506        MVBZ  (R2)+,R7          PUT AN ENDING INDICATOR
001DCE                    507 WR715  EQU   *
001DCE 6808 1814          508        MVW   STRTB,R0          GET THE INSTR STREAM
001DD2 0F14               509        MVBI  TWENY,R7          NUM OF BYTES IN THE INSTR STREAM
001DD4 4424 19CE          510        MVA   INCOM,R4          START ADR OF INSTR STREAM
001DD8 2C04               511        MVFN  (R4),(R0)         MOVE THE INSTRUCTIONS
001DDA 0F0C               512        MVBI  TWELV,R7          NUM OF BYTES IN THE INSTR STREAM
001DDC 4424 1A44          513        MVA   ERTST,R4          START ADR OF INSTR STREAM
001DE0 2C04               514        MVFN  (R4),(R0)         MOVE THE INSTRUCTIONS
001DE2 6A0D 1816          515        MVW   R2,DTENT          NEW DATA FIELD
001DE6 4224 000A          516        MVWI  TEN,R2            DISPLACEMENT
001DEA 7048               517        AW    R0,R2             INTO IO INSTRUCTION
001DEC 6A0D 19F8          518        MVW   R2,IODC0+TWO      MOVE IN NEW ADR
001DF0 4224 0032          519        MVWI  DAT1,R2           DISPL FOR DATA
001DF4 7048               520        AW    R0,R2             BASE ADR + DISPL
001DF6 6A0D 1A00          521        MVW   R2,IODC1+TWO      NEW COMPUTED ADR
001DFA 6A0D 1A08          522        MVW   R2,IODC2+FOUR     MOVE INTO INSTR
001DFE 6A0D 1A1A          523        MVW   R2,IODC4+TWO      NEW COMPUTED ADR
001E02 4224 0034          524        MVWI  DAT2,R2           DISPL FOR 2ND DATA ADR
001E06 7048               525        AW    R0,R2             BASE + DISPL
001E08 6A0D 1A06          526        MVW   R2,IODC2+TWO      NEW ADR FOR INSTR
001E0C 0F0C               527        MVBI  TWELV,R7          NUM OF BYTES IN THE INSTR STREAM
001E0E 4424 19E2          528        MVA   INC01,R4          START ADR OF INSTR STREAM
001E12 2C04               529        MVFN  (R4),(R0)         MOVE THE INSTRUCTIONS
001E14 70E4               530        MVW   R0,R7             SAVE R0
001E16 7FE1 0008          531        AWI   CCDCP,R7          COMPUTE A NEW ADDRESS
001E1A 6F0D 19F0          532        MVW   R7,CCHK+TWO       INSERT NEW ADDRESS
001E1E 4724 19EE          533        MVA   CCCHK,R7          ADDRESS OF DATA TO MOVE
001E22 9714               534        MVD   (R7)+,(R0)+       MOVE THE INSTR'S
001E24 9714               535        MVD   (R7)+,(R0)+
001E26 7744               536        MVW   R7,R2             ADR OF BYTES TO MOVE
001E28 0F28               537        MVBI  FOFTY,R7          NUMBER OF BYTES TO MOVE
001E2A 2A04               538        MVFN  (R2),(R0)         MOVE INTO THE INSTR STREAM
001E2C 680D 1814          539        MVW   R0,STRTB          BUMP THE POINTER FOR THE NEXT INSTR
001E30 D220 1A52          540        MVD   R2SAV,R2          RESTORE R2
001E34 6802 1B9A          541        B     TTY23
001E38                    542 DFLT1  EQU   *
001E38 8028 1828 1A6C     543        MVB   HEXFF,DFALT       IND DEFAULT IS TO BE USED
001E3E 8028 1A6E 1906     544        MVB   DVALU,UBUFR       PUT THE VALUE IN THE BUFFER
001E44 0F11               545        MVBI  ONE,R7            IND TWO COMMANDS
001E46 5[02 1B34          546        B     TTY12
001E4A                    547 NGOOD  EQU   *
001E4A 4724 1F08          548        MVA   INCMD,R7          ADR OF INVALID COMMAND MSG
001E4E 6000               549        SVC   OUT               OUTPUT THE MESSAGE
001E50 6802 1B62          550        B     TTY20
001E54                    551 DTOH   EQU   *
001E54 6F0D 1E88          552        MVW   R7,RTRTN
001E58 6C0D 1E8A          553        MVW   R4,DHSAV          SAVE R4
001E5C 7484               554        SW    R4,R4             CLEAR THE REG
001E5E 3425               555        SLLD  FOUR,R4           MOVE THOUSAND INTO R4
001E60 E[25 1E84          556        MW    THOUS,R4          MULTIPLY THOUSANDS
001E64 3522               557        SRL   FOUR,R5           POSITION THE HUNS,TENS
001E66 3546               558        SRLD  EIGHT,R5          MOVE TENS AND UNITS INTO R6
001E68 ED21 1E86          559        MB    HUN,R5            MULTIPLY HUNDREDS
001E6C 74A8               560        AW    R4,R5             ADD THOUS AND HUNS
001E6E 3642               561        SRL   EIGHT,R6
001E70 3626               562        SRLD  FOUR,R6           MOVE UNITS INTO R7
001E72 5[32               563        SRL   TWELV,R7          POSITION THE UNITS
001E74 77A8               564        AW    R7,R5             ADD UNITS TO THOUS AND HUNS
001E76 EE21 1E87          565        MB    TENS,R6           MULTIPLY TENS
001E7A 76A8               566        AW    R6,R5             GET THE GRAND TOTAL
001E7C 6C08 1E8A          567        MVW   DHSAV,R4          RESTORE R4
001E80 6812 1E88          568        B     RTRTN*
001E84 03E8               569 THOUS  DC    A(1000)
001E86 64                 570 HUN    DC    H'100'
001E87 0A                 571 TENS   DC    H'10'
001E88 0000               572 RTRTN  DC    A(*-*)
001E8A 0000               573 DHSAV  DC    A(*-*)
001E8C 0080               574        DC    X'0080'
001E8E 1F0C               575 MG8    DC    A(M8)
001E90 0080               576        DC    X'0080'
001E92 1FB4               577        DC    A(M11)
001E94 0080               578        DC    X'0080'
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LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT
001E96 1F2C               579        DC    A(M9)
001E98 0080               580        DC    X'0080'
001E9A 1F42               581        DC    A(M9A)
001E9C 0080               582        DC    X'0080'
001E9E 1F5A               583        DC    A(M9B)
001EA0 0080               584        DC    X'0080'
001EA2 1F68               585        DC    A(M9C)
001EA4 0080               586        DC    X'0080'
001EA6 1F74               587        DC    A(M9D)
001EA8 0080               588        DC    X'0080'
001EAA 1F80               589        DC    A(M9E)
001EAC 0090               590        DC    X'0080'
001EAE 1F90               591        DC    A(M9F)
001EB0 0080               592        DC    X'0080'
001EB2 1F9E               593        DC    A(M10)
001EB4 0080               594        DC    X'0080'
001EB6 202E               595 NOLOP  DC    A(NLOOP)
001EB8 00C0               596        DC    X'00C0'
001EBA 1FA8               597 TMG2   DC    A(M10A)
001EBC 1906               598        DC    A(UBUFR)
001EBE 0040               599        DC    A(64)
001EC0 0001               600        DC    A(1)
001EC2 00C0               601        DC    X'00C0'
001EC4 200A               602 DLMSG  DC    A(DMSGL)
001EC6 1946               603        DC    A(WORK1)
001EC8 0002               604        DC    A(2)
001ECA 0001               605        DC    A(1)
001ECC 00C0               606        DC    X'00C0'
001ECE 1FF4               607 PRMSG  DC    A(PMSGR)
001ED0 1946               608        DC    A(WORK1)
001ED2 0002               609        DC    A(2)
001ED4 0001               610        DC    A(1)
001ED6 00C0               611        DC    X'00C0'
001ED8 2086               612 LOPMG  DC    A(LPMSG)
001EDA 1A2A               613        DC    A(CNTWD)
001EDC 0002               614        DC    A(2)
001EDE 0001               615        DC    A(1)
001EE0 00C0               616        DC    X'00C0'
001EE2 204C               617 DATER  DC    A(DTINN)
001EE4 194A               618        DC    A(DATIN)
001EE6 0040               619        DC    A(64)
001EE8 0000               620        DC    A(0)
001EEA 00C0               621        DC    X'00C0'
001EEC 2056               622 DATRQ  DC    A(DINNT)
001EEE 194A               623        DC    A(DATIN)
001EF0 0001               624        DC    A(1)
001EF2 0000               625        DC    A(0)
001EF4 00C0               626        DC    X'00C0'
001EF6 20D6               627 IDMSG  DC    A(IDMG1)
001EF8 1A50               628        DC    A(WORKA)
001EFA 0001               629        DC    A(1)
001EFC 0000               630        DC    A(0)
001EFE 0080               631        DC    X'0080'
001F00 20A8               632 LPSTM  DC    A(LPST)
001F02 0080               633        DC    X'0080'
001F04 20C0               634 LPENM  DC    A(LPEN)
001F06 00C0               635        DC    X'00C0'
001F08 1FD4               636 INCMD  DC    A(INCMG)
001F0A 0000               637        DC    A(0)
001F0C E2C5D3C5C3E340C3D  638 M8     DC    C'SELECT COMMAND(S) FOR DA '
001F25 404040             639 M8A    DC    C'   '
001F28 00                 640        DC    X'00'
001F2A 0000               641        DC    A(0)
001F2C F0F240D7D9C5D7C1D  642 M9     DC    C'02 PREPARE I BIT ON'
001F3F 00                 643        DC    X'00'
001F40 0000               644        DC    A(0)
001F42 F0F340D7D9C5D7C1D  645 M9A    DC    C'03 PREPARE I BIT OFF'
001F56 00                 646        DC    X'00'
001F58 0000               647        DC    A(0)
001F5A F0F440D9C5C1C440C  648 M9B    DC    C'04 READ ID'
001F64 00                 649        DC    X'00'
001F66 0000               650        DC    A(0)
001F68 F0F540D9C5E2C5E3   651 M9C    DC    C'05 RESET'
001F70 00                 652        DC    X'00'
001F72 0000               653        DC    A(0)
001F74 F0F640C4C5D3C1E8   654 M9D    DC    C'06 DELAY'
001F7C 00                 655        DC    X'00'
001F7E 0000               656        DC    A(0)
001F80 F0F740D3D6D6D740E  657 M9E    DC    C'07 LOOP START'
001F8D 00                 658        DC    X'00'
001F8E 0000               659        DC    A(0)
001F90 F0F840D3D6D6D740C  660 M9F    DC    C'08 LOOP END'
001F9B 00                 661        DC    X'00'
001F9C 0000               662        DC    A(0)
001F9E F0F940D9C5C1C4     663 M10    DC    C'09 READ'
001FA5 00                 664        DC    X'00'
001FA6 3481               665        DC    A(CD1)
001FA8 F0C140E6D9C9E3C5   666 M10A   DC    C'0A WRITE'
001FB0 00                 667        DC    X'00'
001FB2 0000               668        DC    A(0)
001FB4 F0F140C4C5C6C1E4D  669 M11    DC    C'01 DEFAULT=WRITE CANNED DATA'
001FD0 00                 670        DC    X'00'
001FD2 349B               671        DC    A(CD1B)
001FD4 E6D9D6D5C740C9C4C  672 INCMG  DC    C'WRONG IDCB COMMAND,START OVER'
001FF1 00                 673        DC    X'00'
001FF2 34A2               674        DC    A(CD22)
001FF4 D3C5E5C5D340E3D64  675 PMSGR  DC    C'LEVEL TO INTERRUPT'
002006 00                 676        DC    X'00'
002008 34A3               677        DC    A(CD23)
00200A D3C5D5C7E3C840D6C  678 DMSGL  DC    C'LENGTH OF DELAY(IN MILLISECONDS)'
00202A 00                 679        DC    X'00'
00202C 34A6               680        DC    A(CD26)
00202E D3D6D6D740D5D6E34  681 NLOOP  DC    C'LOOP NOT STARTED,START OVER'
002049 00                 682        DC    X'00'
00204A 34A4               683        DC    A(CD24)
00204C C4C1E3C140C9E2     684 DTINN  DC    C'DATA IS'
002053 00                 685        DC    X'00'
002054 34A1               686        DC    A(CD21)
002056 C4D640E8D6E440E6C  687 DINNT  DC    C'DO YOU WANT TO USE THE STANDARD DATA PATTERN?'
002083 00                 688        DC    X'00'
002084 34A7               689        DC    A(CD27)
002086 C8D6E640D4C1D5E84  690 LPMSG  DC    C'HOW MANY TIMES THROUGH THE LOOP'
0020A5 00                 691        DC    X'00'
0020A6 0000               692        DC    A(0)
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 LOCTR   OBJECT TEXT          STMT SOURCE STATEMENT
0020A8   D3D6D6D740E2E3C1D    693 LPST  DC    C'LOOP STARTED AT '
0020B8   F0F0F0F0             694 LPST1 DC    C'0000'
0020BC   00                   695       DC    X'00'
0020BE   0000                 696       DC    A(0)
0020C0   D3D6D6D740C5D5C4C    697 LPEN  DC    C'LOOP ENDED AT '
0020CE   F0F0F0F0             698 LPEN1 DC    C'0000'
0020D2   00                   699       DC    X'00'
0020D4   34A0                 700       DC    A(CD20)
0020D6   D9C5C1C440C9C440C    701 IDMG1 DC    C'READ ID EXPECTED '
0020E7   E7E7E7E740C9C440E    702 IDMG2 DC    C'XXXX ID WAS '
0020F3   E7E7E7E740C9E240E    703 IDMG3 DC    C'XXXX IS THIS O.K.?'
002105   00                   704       DC    X'00'
000000                        705       END
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R0.     ABSOLUTE. HEX VALUE(00000000)
                   148  149  154  155  156  265  266  267  308
                   312  317  318  319  323  324  325  336  345
                   346  347  350  360  362  364  365  369  370
                   371  375  376  377  377  380  383  385  386
                   386  405  410  413  415  418  432  437  443
                   444  449  465  466  467  468  494  495  508
                   511  514  517  520  525  529  530  534  535
                   538  539
       0  .R1.     ABSOLUTE. HEX VALUE(00000001)
                   258  259  260  261  262  262  263  264  264
                   333  334  335  335  458  459  460
       0  .R2.     ABSOLUTE. HEX VALUE(00000002)
                   163  164  165  297  302  307  328  406  407
                   409  413  414  433  434  436  443  448  472
                   484  485  486  502  503  504  505  506  515
                   516  517  518  519  520  521  522  523  524
                   525  526  536  538  540
       0  .R3.     ABSOLUTE. HEX VALUE(00000003)
                   147  152  168  170  296  299  330  408  409
                   410  411  435  436  437  438  439  440  441
                   483  485  493  495
       0  .R4.     ABSOLUTE. HEX VALUE(00000004)
                   271  276  299  301  304  306  307  309  309
                   309  309  310  316  317  510  511  513  514
                   528  529  553  554  554  555  556  560  567
       0  .R5.     ABSOLUTE. HEX VALUE(00000005)
                   268  279  346  376  385  391  392  394  398
                   403  426  427  429  430  459  466  557  558
                   559  560  564  566
       0  .R6.     ABSOLUTE. HEX VALUE(00000006)
                   492  496  497  561  562  565  566
       0  .R7.     ABSOLUTE. HEX VALUE(00000007)
                   153  160  187  189  195  196  198  257  269
                   272  275  277  283  284  286  288  290  303
                   315  319  320  321  322  323  324  329  331
                   338  340  347  348  353  355  356  357  358
                   359  365  366  367  368  369  370  389  393
                   394  397  398  401  404  412  420  424  428
                   442  446  453  475  477  482  489  491  492
                   496  500  506  509  512  527  530  531  532
                   533  534  535  536  537  545  548  552  563
                   564
     236  AECTV    ADDRESS. HEX LOCATION(00001A88) IN CSECT(040E8   ) LENGTH(2)
                   499
     234  AECVT    ADDRESS. HEX LOCATION(00001A84) IN CSECT(040E8   ) LENGTH(2)
                   497  500  502
     235  AETCV    ADDRESS. HEX LOCATION(00001A86) IN CSECT(040E8   ) LENGTH(2)
                   498
     254  ALBRT    ADDRESS. HEX LOCATION(00001AAA) IN CSECT(040E8   ) LENGTH(1)
                   395
      76  BADCC    ABSOLUTE. HEX VALUE(0000181C)
                   160
     159  CCCHK    ADDRESS. HEX LOCATION(000019EE) IN CSECT(040E8   ) LENGTH(4)
                   162  321  322  367  368  532  533
     162  CCDCP    ABSOLUTE. HEX VALUE(00000008)
                   320  366  531
      54  CD1      ABSOLUTE. HEX VALUE(00003481)
                   665
      55  CD1B     ABSOLUTE. HEX VALUE(0000349B)
                   671
      56  CD20     ABSOLUTE. HEX VALUE(000034A0)
                   700
      57  CD21     ABSOLUTE. HEX VALUE(000034A1)
                   686
      58  CD22     ABSOLUTE. HEX VALUE(000034A2)
                   674
      59  CD23     ABSOLUTE. HEX VALUE(000034A3)
                   677
      60  CD24     ABSOLUTE. HEX VALUE(000034A4)
                   683
      61  CD26     ABSOLUTE. HEX VALUE(000034A6)
                   680
      62  CD27     ABSOLUTE. HEX VALUE(000034A7)
                   689
     243  CLPEN    ADDRESS. HEX LOCATION(00001A96) IN CSECT(040E8   ) LENGTH(2)
                   446
     240  CLPST    ADDRESS. HEX LOCATION(00001A90) IN CSECT(040E8   ) LENGTH(2)
                   453
     183  CNTAD    ADDRESS. HEX LOCATION(00001A20) IN CSECT(040E8   ) LENGTH(1)
                   438
     178  CNTST    ADDRESS. HEX LOCATION(00001A1E) IN CSECT(040E8   ) LENGTH(6)
                   183  184  434
     181  CNTWD    ADDRESS. HEX LOCATION(00001A2A) IN CSECT(040E8   ) LENGTH(2)
                   178  186  427  435  613
     384  COMCD    ADDRESS. HEX LOCATION(00001C38) IN CSECT(040E8   ) LENGTH(1)
                   391
      69  CPUTP    ABSOLUTE. HEX VALUE(00000232)
                   395
     138  CR       ADDRESS. HEX LOCATION(000019CD) IN CSECT(040E8   ) LENGTH(1)
                   468  505
     237  CVADR    ADDRESS. HEX LOCATION(00001A8A) IN CSECT(040E8   ) LENGTH(2)
                   269
     238  CVAD1    ADDRESS. HEX LOCATION(00001A8C) IN CSECT(040E8   ) LENGTH(2)
                   268
     249  CVEXP    ADDRESS. HEX LOCATION(00001AA2) IN CSECT(040E8   ) LENGTH(2)
                   286
     246  CVRID    ADDRESS. HEX LOCATION(00001A9C) IN CSECT(040E8   ) LENGTH(2)
                   284
     617  DATER    ADDRESS. HEX LOCATION(00001EE2) IN CSECT(040E8   ) LENGTH(2)
                   489
     172  DATF1    ADDRESS. HEX LOCATION(00001A14) IN CSECT(040E8   ) LENGTH(2)
                   165  167  174  176  473
     173  DATF2    ADDRESS. HEX LOCATION(00001A16) IN CSECT(040E8   ) LENGTH(2)
                   167  175  474
     132  DATIN    ADDRESS. HEX LOCATION(0000194A) IN CSECT(040E8   ) LENGTH(2)
                   479  493  498  618  623
     622  DATRQ    ADDRESS. HEX LOCATION(00001EEC) IN CSECT(040E8   ) LENGTH(2)
                   477
     174  DAT1     ABSOLUTE. HEX VALUE(00000032)
                   519
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
     175  DAT2       ABSOLUTE. HEX VALUE(00000034)
                     524
     388  DELAY      ADDRESS. HEX LOCATION(00001C40) IN CSECT(040E8   ) LENGTH(1)
                     229
     218  DELCT      ADDRESS. HEX LOCATION(00001A6B) IN CSECT(040E8   ) LENGTH(1)
                     401
      86  DEVC1      ABSOLUTE. HEX VALUE(0000182E)
                     148
     219  DFALT      ADDRESS. HEX LOCATION(00001A6C) IN CSECT(040E8   ) LENGTH(1)
                     348   475   543
     542  DFLT1      ADDRESS. HEX LOCATION(00001E38) IN CSECT(040E8   ) LENGTH(1)
                     224
     573  DHSAV      ADDRESS. HEX LOCATION(00001E8A) IN CSECT(040E8   ) LENGTH(2)
                     553   567
     687  DINNT      ADDRESS. HEX LOCATION(00002056) IN CSECT(040E8   ) LENGTH(45)
                     622
     191  DLADR      ADDRESS. HEX LOCATION(00001A36) IN CSECT(040E8   ) LENGTH(1)
                     411
     400  DLAY1      ADDRESS. HEX LOCATION(00001C62) IN CSECT(040E8   ) LENGTH(1)
                     396
     402  DLAY2      ADDRESS. HEX LOCATION(00001C66) IN CSECT(040E8   ) LENGTH(1)
                     399
     192  DLCNT      ADDRESS. HEX LOCATION(00001A3E) IN CSECT(040E8   ) LENGTH(2)
                     187   404   408
     188  DLIST      ADDRESS. HEX LOCATION(00001A38) IN CSECT(040E8   ) LENGTH(2)
                     189
     602  DLMSG      ADDRESS. HEX LOCATION(00001EC4) IN CSECT(040E8   ) LENGTH(2)
                     389
     187  DLNST      ADDRESS. HEX LOCATION(00001A34) IN CSECT(040E8   ) LENGTH(4)
                     191   407
     678  DMSGL      ADDRESS. HEX LOCATION(0000200A) IN CSECT(040E8   ) LENGTH(32)
                     602
     208  DTCSS      ADDRESS. HEX LOCATION(00001A5E) IN CSECT(040E8   ) LENGTH(2)
                     262
      73  DTENT      ABSOLUTE. HEX VALUE(00001816)
                     473   474   484   486   499   503   515
     684  DTINN      ADDRESS. HEX LOCATION(0000204C) IN CSECT(040E8   ) LENGTH(7)
                     617
     551  DTOH       ADDRESS. HEX LOCATION(00001E54) IN CSECT(040E8   ) LENGTH(1)
                     393   428
     221  DVALU      ADDRESS. HEX LOCATION(00001A6E) IN CSECT(040E8   ) LENGTH(1)
                     544
      74  DVCNT      ABSOLUTE. HEX VALUE(00001818)
                     461
      85  DVPNT      ABSOLUTE. HEX VALUE(0000182C)
                     258   333
      97  EIGHT      ABSOLUTE. HEX VALUE(00000008)
                     558   561
      87  EPRNT      ABSOLUTE. HEX VALUE(00001830)
                     198
     195  ERTST      ADDRESS. HEX LOCATION(00001A44) IN CSECT(040E8   ) LENGTH(4)
                     513
     199  ERTS1      ADDRESS. HEX LOCATION(00001A50) IN CSECT(040E8   ) LENGTH(1)
                     197
      46  ETOA       ABSOLUTE. HEX VALUE(0000001D)
                     501
     220  FIVDF      ADDRESS. HEX LOCATION(00001A6D) IN CSECT(040E8   ) LENGTH(1)
                     350
      94  FIVE       ABSOLUTE. HEX VALUE(00000005)
                     155
     113  FORTY      ABSOLUTE. HEX VALUE(00000028)
                     537
      93  FOUR       ABSOLUTE. HEX VALUE(00000004)
                     184   190   275   326   372   439   471   522   555
                     557   562
     161  GODCC      ADDRESS. HEX LOCATION(000019F6) IN CSECT(040E8   ) LENGTH(1)
                     159   162
      82  HEXFF      ABSOLUTE. HEX VALUE(00001828)
                     455   462   543
      45  HTOE       ABSOLUTE. HEX VALUE(0000001A)
                     270   285   287   447   454
     570  HUN        ADDRESS. HEX LOCATION(00001E86) IN CSECT(040E8   ) LENGTH(1)
                     559
      71  IDCPT      ABSOLUTE. HEX VALUE(00001812)
                     308   313   314   326   363   372   469   470   471
      44  IDLE       ABSOLUTE. HEX VALUE(00000002)
                     151   169   188
     701  IDMG1      ADDRESS. HEX LOCATION(000020D6) IN CSECT(040E8   ) LENGTH(17)
                     627
     702  IDMG2      ADDRESS. HEX LOCATION(000020E7) IN CSECT(040E8   ) LENGTH(12)
                     251
     703  IDMG3      ADDRESS. HEX LOCATION(000020F3) IN CSECT(040E8   ) LENGTH(18)
                     248
     627  IDMSG      ADDRESS. HEX LOCATION(00001EF6) IN CSECT(040E8   ) LENGTH(2)
                     288
     636  INCMD      ADDRESS. HEX LOCATION(00001F08) IN CSECT(040E8   ) LENGTH(2)
                     548
     672  INCMG      ADDRESS. HEX LOCATION(00001FD4) IN CSECT(040E8   ) LENGTH(29)
                     636
     148  INCOA      ADDRESS. HEX LOCATION(000019D2) IN CSECT(040E8   ) LENGTH(4)
                     152   260
     147  INCOM      ADDRESS. HEX LOCATION(000019CE) IN CSECT(040E8   ) LENGTH(4)
                     316   510
     154  INCO1      ADDRESS. HEX LOCATION(000019E2) IN CSECT(040E8   ) LENGTH(2)
                     150   174   175   314   470   528
     126  INERR      ABSOLUTE. HEX VALUE(00000002)
                     196
     158  IOADR      ADDRESS. HEX LOCATION(000019EC) IN CSECT(040E8   ) LENGTH(1)
                     156   163   313   363   469
     163  IODC0      ADDRESS. HEX LOCATION(000019F6) IN CSECT(040E8   ) LENGTH(4)
                     518
     165  IODC1      ADDRESS. HEX LOCATION(000019FE) IN CSECT(040E8   ) LENGTH(4)
                     171   521
     167  IODC2      ADDRESS. HEX LOCATION(00001A04) IN CSECT(040E8   ) LENGTH(6)
                     522   526
     169  IODC3      ADDRESS. HEX LOCATION(00001A0E) IN CSECT(040E8   ) LENGTH(2)
                     170
     176  IODC4      ADDRESS. HEX LOCATION(00001A18) IN CSECT(040E8   ) LENGTH(6)
                     166   523
     157  IONST      ADDRESS. HEX LOCATION(000019EA) IN CSECT(040E8   ) LENGTH(4)
                     158   318   364
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
     193  JINST      ADDRESS. HEX LOCATION(00001A40) IN CSECT(040E8   ) LENGTH(2)
                     266
      77  KMODE      ABSOLUTE. HEX VALUE(0000181E)
                     462
      80  KYMOD      ABSOLUTE. HEX VALUE(00001824)
                     458   460
     137  LF         ADDRESS. HEX LOCATION(000019CC) IN CSECT(040E8   ) LENGTH(1)
                     504
      81  LOOPS      ABSOLUTE. HEX VALUE(00001826)
                     241   431   452
     423  LOOP1      ADDRESS. HEX LOCATION(00001CA6) IN CSECT(040E8   ) LENGTH(1)
                     419
     612  LOPMG      ADDRESS. HEX LOCATION(00001ED8) IN CSECT(040E8   ) LENGTH(2)
                     424
     417  LOPND      ADDRESS. HEX LOCATION(00001C96) IN CSECT(040E8   ) LENGTH(1)
                     231
     451  LOPST      ADDRESS. HEX LOCATION(00001D0A) IN CSECT(040E8   ) LENGTH(1)
                     230
      88  LOST       ABSOLUTE. HEX VALUE(00001832)
                     153
     185  LPADR      ADDRESS. HEX LOCATION(00001A28) IN CSECT(040E8   ) LENGTH(1)
                     431
     182  LPCNT      ADDRESS. HEX LOCATION(00001A2C) IN CSECT(040E8   ) LENGTH(2)
                     186   429
     697  LPEN       ADDRESS. HEX LOCATION(000020C0) IN CSECT(040E8   ) LENGTH(14)
                     634
     207  LPEND      ADDRESS. HEX LOCATION(00001A5C) IN CSECT(040E8   ) LENGTH(2)
                     244   444   445
     634  LPENM      ADDRESS. HEX LOCATION(00001F04) IN CSECT(040E8   ) LENGTH(2)
                     340
     698  LPEN1      ADDRESS. HEX LOCATION(000020CE) IN CSECT(040E8   ) LENGTH(4)
                     245
      78  LPIND      ABSOLUTE. HEX VALUE(0000181F)
                     336   418   455
     690  LPMSG      ADDRESS. HEX LOCATION(00002086) IN CSECT(040E8   ) LENGTH(31)
                     612
     180  LPNST      ADDRESS. HEX LOCATION(00001A26) IN CSECT(040E8   ) LENGTH(4)
                     185
     693  LPST       ADDRESS. HEX LOCATION(000020A8) IN CSECT(040E8   ) LENGTH(16)
                     632
     632  LPSTM      ADDRESS. HEX LOCATION(00001F00) IN CSECT(040E8   ) LENGTH(2)
                     338
     694  LPST1      ADDRESS. HEX LOCATION(000020B8) IN CSECT(040E8   ) LENGTH(4)
                     242
     575  MG8        ADDRESS. HEX LOCATION(00001E8E) IN CSECT(040E8   ) LENGTH(2)
                     272
     123  M1         ABSOLUTE. HEX VALUE(FFFFFFFF)
                     178
     663  M10        ADDRESS. HEX LOCATION(00001F9E) IN CSECT(040E8   ) LENGTH(7)
                     593
     666  M10A       ADDRESS. HEX LOCATION(00001FA8) IN CSECT(040E8   ) LENGTH(8)
                     597
     669  M11        ADDRESS. HEX LOCATION(00001FB4) IN CSECT(040E8   ) LENGTH(28)
                     577
     124  M4         ABSOLUTE. HEX VALUE(FFFFFFFC)
                     293
     125  M6         ABSOLUTE. HEX VALUE(FFFFFFFA)
                     445
     638  M8         ADDRESS. HEX LOCATION(00001F0C) IN CSECT(040E8   ) LENGTH(25)
                     575
     639  M8A        ADDRESS. HEX LOCATION(00001F25) IN CSECT(040E8   ) LENGTH(3)
                     239
     642  M9         ADDRESS. HEX LOCATION(00001F2C) IN CSECT(040E8   ) LENGTH(19)
                     579
     645  M9A        ADDRESS. HEX LOCATION(00001F42) IN CSECT(040E8   ) LENGTH(20)
                     581
     648  M9B        ADDRESS. HEX LOCATION(00001F5A) IN CSECT(040E8   ) LENGTH(10)
                     583
     651  M9C        ADDRESS. HEX LOCATION(00001F68) IN CSECT(040E8   ) LENGTH(8)
                     585
     654  M9D        ADDRESS. HEX LOCATION(00001F74) IN CSECT(040E8   ) LENGTH(8)
                     587
     657  M9E        ADDRESS. HEX LOCATION(00001F80) IN CSECT(040E8   ) LENGTH(13)
                     589
     660  M9F        ADDRESS. HEX LOCATION(00001F90) IN CSECT(040E8   ) LENGTH(11)
                     591
     547  NGOOD      ADDRESS. HEX LOCATION(00001E4A) IN CSECT(040E8   ) LENGTH(1)
                     305
      98  NINE       ABSOLUTE. HEX VALUE(00000009)
                     304   356
     681  NLOOP      ADDRESS. HEX LOCATION(0000202E) IN CSECT(040E8   ) LENGTH(27)
                     595
     252  NO         ADDRESS. HEX LOCATION(00001AA8) IN CSECT(040E8   ) LENGTH(1)
                     291   479
     595  NOLOP      ADDRESS. HEX LOCATION(00001EB6) IN CSECT(040E8   ) LENGTH(2)
                     420
      90  ONE        ABSOLUTE. HEX VALUE(00000001)
                     176   259   261   301   306   330   397   461   467
                     545
      70  OPTN2      ABSOLUTE. HEX VALUE(00001810)
                     195
     121  OTH24      ABSOLUTE. HEX VALUE(00000400)
                     168
      42  OUT        ABSOLUTE. HEX VALUE(00000000)
                     274   339   341   421   549
      43  OUTIN      ABSOLUTE. HEX VALUE(00000001)
                     278   289   354   390   425   478   490
       3  040E8      CSECT. START(00001900) LENGTH(2054) ESDID(0)
                       3
     675  PMSGR      ADDRESS. HEX LOCATION(00001FF4) IN CSECT(040E8   ) LENGTH(18)
                     607
     352  PREPA      ADDRESS. HEX LOCATION(00001BDE) IN CSECT(040E8   ) LENGTH(1)
                     349
     361  PREPB      ADDRESS. HEX LOCATION(00001BF8) IN CSECT(040E8   ) LENGTH(1)
                     351   378
     344  PREPR      ADDRESS. HEX LOCATION(00001BCA) IN CSECT(040E8   ) LENGTH(1)
                     225
     607  PRMSG      ADDRESS. HEX LOCATION(00001ECE) IN CSECT(040E8   ) LENGTH(2)
                     353
     213  PRPCD      ADDRESS. HEX LOCATION(00001A66) IN CSECT(040E8   ) LENGTH(1)
                     345   375
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DECLARED  NAME     ATTRIBUTES AND REFERENCES
   210    RDADR      ADDRESS. HEX LOCATION(00001A61) IN CSECT(040E8   ) LENGTH(1)
                     279
   211    RDCOD      ADDRESS. HEX LOCATION(00001A62) IN CSECT(040E8   ) LENGTH(2)
                     247   281
   209    RDID       ADDRESS. HEX LOCATION(00001A60) IN CSECT(040E8   ) LENGTH(1)
                     280
   457    READ       ADDRESS. HEX LOCATION(00001D20) IN CSECT(040E8   ) LENGTH(1)
                     232
   379    REDID      ADDRESS. HEX LOCATION(00001C2E) IN CSECT(040E8   ) LENGTH(1)
                     227
   382    RESET      ADDRESS. HEX LOCATION(00001C34) IN CSECT(040E8   ) LENGTH(1)
                     228
   186    RESTR      ADDRESS. HEX LOCATION(00001A2E) IN CSECT(040E8   ) LENGTH(6)
                     439   441
   206    RETSV      ADDRESS. HEX LOCATION(00001A5A) IN CSECT(040E8   ) LENGTH(2)
                     257   294   343
   214    RIDCD      ADDRESS. HEX LOCATION(00001A67) IN CSECT(040E8   ) LENGTH(1)
                     380
   215    RSTCD      ADDRESS. HEX LOCATION(00001A68) IN CSECT(040E8   ) LENGTH(1)
                     383
   572    RTRTN      ADDRESS. HEX LOCATION(00001E88) IN CSECT(040E8   ) LENGTH(2)
                     552   568
   202    R2SAV      ADDRESS. HEX LOCATION(00001A52) IN CSECT(040E8   ) LENGTH(2)
                     302   328   406   414   433   448   472   540
   204    R5SAV      ADDRESS. HEX LOCATION(00001A56) IN CSECT(040E8   ) LENGTH(2)
                     391   403   426   430
   205    R7SAV      ADDRESS. HEX LOCATION(00001A58) IN CSECT(040E8   ) LENGTH(2)
                     283   290   303   329
    96    SEVEN      ABSOLUTE. HEX VALUE(00000007)
                     159   359
    95    SIX        ABSOLUTE. HEX VALUE(00000006)
                     314   470
   116    SIXT4      ABSOLUTE. HEX VALUE(00000040)
                     491
   117    SIXT5      ABSOLUTE. HEX VALUE(00000041)
                     482
   122    STH68      ABSOLUTE. HEX VALUE(00001C00)
                     147
    72    STRTB      ABSOLUTE. HEX VALUE(00001814)
                     264   265   267   293   312   325   335   362   371
                     405   415   432   449   452   508   539
    99    TEN        ABSOLUTE. HEX VALUE(0000000A)
                     179   271   516
   571    TENS       ADDRESS. HEX LOCATION(00001E87) IN CSECT(040E8   ) LENGTH(1)
                     565
   569    THOUS      ADDRESS. HEX LOCATION(00001E84) IN CSECT(040E8   ) LENGTH(2)
                     556
    92    THREE      ABSOLUTE. HEX VALUE(00000003)
                     164
   597    TMG2       ADDRESS. HEX LOCATION(00001EBA) IN CSECT(040E8   ) LENGTH(2)
                     277
   223    TTTBL      ADDRESS. HEX LOCATION(00001A70) IN CSECT(040E8   ) LENGTH(1)
                     297
   133    TTYDT      ADDRESS. HEX LOCATION(0000198A) IN CSECT(040E8   ) LENGTH(54)
                     483
   212    TTYID      ADDRESS. HEX LOCATION(00001A64) IN CSECT(040E8   ) LENGTH(2)
                     250   281
   256    TTY00      ADDRESS. HEX LOCATION(00001AAC) IN CSECT(040E8   ) LENGTH(1)
                     129
   273    TTY10      ADDRESS. HEX LOCATION(00001AEA) IN CSECT(040E8   ) LENGTH(1)
                     276
   295    TTY12      ADDRESS. HEX LOCATION(00001B34) IN CSECT(040E8   ) LENGTH(1)
                     282   292   546
   298    TTY15      ADDRESS. HEX LOCATION(00001B3C) IN CSECT(040E8   ) LENGTH(1)
                     331
   311    TTY20      ADDRESS. HEX LOCATION(00001B62) IN CSECT(040E8   ) LENGTH(1)
                     387   550
   327    TTY23      ADDRESS. HEX LOCATION(00001B9A) IN CSECT(040E8   ) LENGTH(1)
                     373   416   422   450   456   463   541
   332    TTY25      ADDRESS. HEX LOCATION(00001BA8) IN CSECT(040E8   ) LENGTH(1)
                     300
   342    TTY26      ADDRESS. HEX LOCATION(00001BC6) IN CSECT(040E8   ) LENGTH(1)
                     337
   101    TWELV      ABSOLUTE. HEX VALUE(0000000C)
                     334   412   512   527   563
   107    TWENY      ABSOLUTE. HEX VALUE(00000014)
                     315   509
   108    TWEN2      ABSOLUTE. HEX VALUE(00000016)
                     442
    91    TWO        ABSOLUTE. HEX VALUE(00000002)
                     158   183   185   191   193   194   260   263   321
                     367   440   441   518   521   523   526   532
   130    UBUFR      ADDRESS. HEX LOCATION(00001906) IN CSECT(040E8   ) LENGTH(2)
                     296   544   598
   374    UNPRP      ADDRESS. HEX LOCATION(00001C24) IN CSECT(040E8   ) LENGTH(1)
                     226
   201    WORKA      ADDRESS. HEX LOCATION(00001A50) IN CSECT(040E8   ) LENGTH(2)
                     291   628
   131    WORK1      ADDRESS. HEX LOCATION(00001946) IN CSECT(040E8   ) LENGTH(2)
                     355   357   358   360   392   603   608
   464    WRITE      ADDRESS. HEX LOCATION(00001D3A) IN CSECT(040E8   ) LENGTH(1)
                     233
   481    WR7        ADDRESS. HEX LOCATION(00001D7E) IN CSECT(040E8   ) LENGTH(1)
                     476
   488    WR710      ADDRESS. HEX LOCATION(00001D92) IN CSECT(040E8   ) LENGTH(1)
                     480
   507    WR715      ADDRESS. HEX LOCATION(00001DCE) IN CSECT(040E8   ) LENGTH(1)
                     487
   217    W7OFC      ADDRESS. HEX LOCATION(00001A6A) IN CSECT(040E8   ) LENGTH(1)
                     465
    89    ZERO       ABSOLUTE. HEX VALUE(00000000)
                     149   154   494
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
001900                        3 044E8 START X'1900'
                              4 ********************************************************************
                              5 *                                                                  *
                              6 *                    ***       PREREQUISITES        ***           *
                              7 *                                                                  *
                              8 *                                NONE                              *
                              9 *                                                                  *
                             10 ********************************************************************
                             11 *                                                                  *
                             12 *                    ***       MODIFICATIONS        ***           *
                             13 *                                                                  *
                             14 *                     CORRECT THE CHAIN BIT OPERATION.             *
                             15 *                                                                  *
                             16 ********************************************************************
                             17 *                                                                  *
                             18 *                    ***     REA'S INCORPORATED     ***           *
                             19 *                                                                  *
                             20 *                                NONE                              *
                             21 *                                                                  *
                             22 ********************************************************************
                             23 *                                                                  *
                             24 *                    ***    SPECIAL INSTRUCTIONS    ***           *
                             25 *                                                                  *
                             26 *                                NONE                              *
                             27 *                                                                  *
                             28 ********************************************************************
                             29 *                                                                  *
                             30 *                    ***       E. C. HISTORY        ***           *
                             31 *                                                                  *
                             32 *         DATE 06MAY77  DATE 15SEP77  DATE 09DEC77  DATE           *
                             33 *         E.C. 578756   E.C. 754882   E.C. 755104   E.C.           *
                             34 *                                                                  *
                             35 ********************************************************************
                             36 ********************************************************************
                             37 *                                                                  *
                             38 *      EQUATED NAMES FOR SUPPORTED SVC'S                           *
                             39 *                                                                  *
                             40 ********************************************************************
000000                       41 OUT    EQU   0                    OUT SVC
000001                       42 OUTIN  EQU   1                    OUTIN SVC
000002                       43 IDLE   EQU   2                    IDLE SVC
00001A                       44 HTOE   EQU   26                   HEX TO EBCIDIC
                             45 ********************************************************************
                             46 *                                                                  *
                             47 *      EQUATES FOR CODED STOPS USED BY THIS ROUTINE                *
                             48 *            (NORMAL AND ERROR)                                    *
                             49 *                                                                  *
                             50 ********************************************************************
003483                       51 CD3    EQU   X'3483'              COMMANDS FOR 4979
00349B                       52 CD1B   EQU   X'349B'              INVALID COMMAND
0034A0                       53 CD20   EQU   X'34A0'              READ I.D. MISMATCH
0034A1                       54 CD21   EQU   X'34A1'              STANDARD DATA PATTERN
0034A2                       55 CD22   EQU   X'34A2'              LEVEL TO INTERRUPT
0034A3                       56 CD23   EQU   X'34A3'              LENGTH OF DELAY
0034A4                       57 CD24   EQU   X'34A4'              DATA TO BE USED FOR THIS TEST
0034A5                       58 CD25   EQU   X'34A5'              BYTE COUNT
0034A6                       59 CD26   EQU   X'34A6'              LOOP NOT STARTED
0034A7                       60 CD27   EQU   X'34A7'              NUMBER OF TIMES THRU LOOP
0034AF                       61 CD2F   EQU   X'34AF'              IS THIS DCB TO BE CHAINED
0034BC                       62 CD3C   EQU   X'34BC'              DCB CHAINING
0034CD                       63 CD3D   EQU   X'34CD'              ERASE AFTER BIT
0034CE                       64 CD3E   EQU   X'34CE'              END OF FIELD BIT
0034CF                       65 CD3F   EQU   X'34CF'              END OF LINE BIT
0034D0                       66 CD40   EQU   X'34D0'              ERASE BIT
0034D1                       67 CD41   EQU   X'34D1'              POST CURSOR BIT
0034D2                       68 CD42   EQU   X'34D2'              PRE-CURSOR BIT
0034D3                       69 CD43   EQU   X'34D3'              UP/DN BIT
0034D4                       70 CD44   EQU   X'34D4'              SHIFT BIT
0034D5                       71 CD45   EQU   X'34D5'              POST CURSOR ADDRESS
0034D6                       72 CD46   EQU   X'34D6'              PRE-CURSOR ADDRESS
0034D7                       73 CD47   EQU   X'34D7'              HI SHIFT BOUNDARY
0034D8                       74 CD48   EQU   X'34D8'              LOW SHIFT BOUNDARY
0034D9                       75 CD49   EQU   X'34D9'              PROTECT/UNPROTECT BIT
0034DA                       76 CD4A   EQU   X'34DA'              KEYBOARD LOCKOUT BIT
0034DB                       77 CD4B   EQU   X'34DB'              BLANK BIT
0034DC                       78 CD4C   EQU   X'34DC'              SHIFT COUNT
                             79 ********************************************************************
                             80 *                                                                  *
                             81 *      EQUATE TABLE                                                *
                             82 *                                                                  *
                             83 ********************************************************************
000232                       84 CPUTP  EQU   X'0232'              CPU TYPE
001810                       85 OPTN2  EQU   X'1810'              POINTER TO OPTION WORD 2
001812                       86 IDCPT  EQU   X'1812'              POINTER TO IDCB BUILD AREA
001814                       87 STRTB  EQU   X'1814'              POINTER TO I STREAM BUILD AREA
001816                       88 DTENT  EQU   X'1816'              POINTER TO DATA BUILD AREA
001818                       89 DVCNT  EQU   X'1818'              POINTER TO DEVICE UNDER TEST
00181A                       90 DCBPT  EQU   X'181A'              POINTER TO DCB BUILD AREA
00181C                       91 BADCC  EQU   X'181C'              POINTER TO BAD CODE ROUTINE
00181E                       92 KMODE  EQU   X'181E'              POINTER TO DEVICE KEYING IN
00181F                       93 LPIND  EQU   X'181F'              LOOP INDICATOR
001820                       94 KEYMD  EQU   X'1820'              ADDRESS OF DEVICES KEYING
001824                       95 KYMOD  EQU   X'1824'              INDICATOR A DEVICE IS KEYING IN
001826                       96 LOOPS  EQU   X'1826'              ADDRESS OF LOOP START
001828                       97 HEXFF  EQU   X'1828'
001829                       98 ZEROS  EQU   X'1829'
00182A                       99 NUMDV  EQU   X'182A'
00182C                      100 DVPNT  EQU   X'182C'
00182E                      101 DEVC1  EQU   X'182E'
001830                      102 EPRNT  EQU   X'1830'
001832                      103 LOST   EQU   X'1832'
000000                      104 ZERO   EQU   0                    VALUE OF 0
000001                      105 ONE    EQU   1                             1
000002                      106 TWO    EQU   2                             2
000003                      107 THREE  EQU   3                             3
000004                      108 FOUR   EQU   4                             4
000005                      109 FIVE   EQU   5                             5
000006                      110 SIX    EQU   6                             6
000007                      111 SEVEN  EQU   7                             7
000008                      112 EIGHT  EQU   8                             8
000009                      113 NINE   EQU   9                             9
00000A                      114 TEN    EQU   10                            10
00000B                      115 ELEVN  EQU   11                            11
00000C                      116 TWELV  EQU   12                            12
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
00000D                      117 THRTN  EQU   13                            13
00000E                      118 FORTN  EQU   14                            14
00000F                      119 FIFTN  EQU   15                            15
000010                      120 SIXTN  EQU   16                            16
000012                      121 EIGTN  EQU   18                            18
000014                      122 TWENY  EQU   20                            20
000016                      123 TWEN2  EQU   22                            22
000018                      124 TWEN4  EQU   24                            24
00001A                      125 TWEN6  EQU   26                            26
00001B                      126 TWEN7  EQU   27                            27
00001C                      127 TWEN8  EQU   28                            28
000020                      128 THIR6  EQU   32                            32
000028                      129 FORTY  EQU   40                            40
00003C                      130 SIXTY  EQU   60                            60
00003F                      131 SIXT3  EQU   63                            63
000040                      132 SIXT4  EQU   64                            64
000041                      133 SIXT5  EQU   65                            65
000050                      134 EIGTY  EQU   80                            80
00007F                      135 ONE27  EQU   127                           127
000080                      136 ONE28  EQU   128                           128
000100                      137 TWO56  EQU   256                           256
001C00                      138 STH68  EQU   7168                          7168
FFFFFF                      139 M1     EQU   -1                            -1
FFFFFC                      140 M4     EQU   -4                            -4
FFFFFA                      141 M6     EQU   -6                            -6
000002                      142 INERR  EQU   2
008080                      143 MASK1  EQU   X'8080'
008FE8                      144 MASK2  EQU   X'8FE8'
001900 44E8                 145 PID    DC    X'44E8'              PROGRAM IDENTIFIER
001902 6802 1ACE            146 OVLST  B     VIR00                BRANCH TO START OF OVERLAY
001906 00000000000000000    147 UBUFR  DC    32A(*-*)
001946 00000000             148 WORK1  DC    2A(*-*)
00194A 00000000000000000    149 DATIN  DC    32A(*-*)
00198A C1C2C3C4C5C6C7C8C    150 VIRDT  DC    C'ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890-=¬;'',./|@#$%¢&&*()'
0019C0 C1C2C3C4C5C6C7C8C    151        DC    C'ABCDEFGHIJKLMNOPQRSTUVWXY'
0019D9 00                   152        DC    X'00'
                            153 ********************************************************************
                            154 *                                                                  *
                            155 *      THE FOLLOWING INSTRUCTIONS WILL BE MODIFIED FOR TESTING.    *
                            156 *      CARE SHOULD BE TAKEN TO ENSURE THE INSTRUCTIONS MAINTAIN    *
                            157 *      THE SAME RELATIVE POSITION IN THE INSTRUCTION STREAM.       *
                            158 *                                                                  *
                            159 ********************************************************************
0019DA 4324 1C00            160 INCOM  MVWI  STH68,R3
0019DE 4024 182E            161 INCOA  MVWI  DEVC1,R0
0019E2 4800                 162        TBT   (R0,ZERO)
0019E4 1004                 163        JZ    INC01
0019E6 6002                 164        SVC   IDLE
0019E8 BBFA                 165        JCT   INCOA,R3
0019EA 6F13 1832            166        BAL   LOST*,R7
0019EE 4840                 167 INCO1  TBTS  (R0,ZERO)
0019F0 0005                 168        ABI   FIVE,R0
0019F2 4000 19F8            169        MVA   IOADR,(R0)
0019F6 680C 19F6            170 IONST  IO    *
                            171 IOADR  EQU   IONST+TWO
0019FA 6F04 1A02            172 CCCHK  BCC   SEVEN,GODCC
0019FE 6F13 181C            173        BAL   BADCC*,R7
001A02                      174 GODCC  EQU   *
000008                      175 CCDCP  EQU   GODCC-CCCHK
001A02 4029 1A0E FFFF       176 CNTST  AWI   M1,CNTWD
001A08 1004                 177        JZ    **TEN
001A0A 6802 1A0A            178 LPNST  B     *
001A0E 0000                 179 CNTWD  DC    A(*-*)
001A10                      180 LPCNT  DC    A(*-*)
001A04                      181 CNTAD  EQU   CNTST+TWO
001A06                      182 JENST  EQU   CNTST+FOUR
001A12 8828 1A10 1A0E       183 RESTR  MVW   LPCNT,CNTWD
001A0C                      184 LPADR  EQU   LPNST+TWO
001A18 6F08 1A22            185 DLNST  MVW   DLCNT,R7
001A1C 6002                 186 DLIST  SVC   IDLE
001A1E BFFE                 187        JCT   DLIST,R7
001A20 5001                 188        J     **FOUR
001A1A                      189 DLADR  EQU   DLNST+TWO
001A22 0000                 190 DLCNT  DC    A(*-*)
001A24 5000                 191 JINST  J     **TWO
001A26 5000                 192        J     **TWO
001A28 4724 1810            193 ERTST  MVWI  OPTN2,R7
001A2C 4F02                 194        TBT   (R7,INERR)
001A2E 1002                 195        JZ    ERTS1
001A30 6F13 1830            196        BAL   EPRNT*,R7
001A34                      197 ERTS1  EQU   *
001A34 4881                 198 INCO2  TBTR  (R0,ONE)
001A36 10FE                 199        JZ    INC02
001A38 0000                 200 WORKA  DC    A(*-*)
001A3A 0000                 201 R2SAV  DC    A(*-*)
001A3C 0000                 202 R3SAV  DC    A(*-*)
001A3E 0000                 203 R4SAV  DC    A(*-*)
001A40 0000                 204 R5SAV  DC    A(*-*)
001A42 0000                 205 R6SAV  DC    A(*-*)
001A44 0000                 206 R7SAV  DC    A(*-*)
001A46 0000                 207 RETSV  DC    A(*-*)
001A48 0000                 208 LPEND  DC    A(*-*)
001A4A 0A0B                 209 DVAL1  DC    X'0B0A'
001A4C 0A0B                 210 DVAL2  DC    X'0A0B'
001A4E 4406                 211 DTCSS  DC    X'4406'
001A50 2000                 212 RDIPT  DC    X'2000'
001A52 0000                 213 UPPER  DC    A(*-*)
001A54 0000                 214 LOWER  DC    A(*-*)
001A56 20                   215 RDID   DC    X'20'
001A57 00                   216 RDADR  DC    X'00'
001A58 0000                 217 RDCOD  DC    X'0000'
001A5A 0406                 218 VIRID  DC    X'0406'
001A5C 60                   219 PRPCD  DC    X'60'
001A5D 20                   220 RIDCD  DC    X'20'
001A5E 6F                   221 RSTCD  DC    X'6F'
001A5F 70                   222 SIOCD  DC    X'70'
001A60 05                   223 DELCT  DC    X'05'
001A61 00                   224 DFALT  DC    X'00'
001A62 05                   225 FIVDF  DC    X'05'
001A63 00                   226        ALIGN WORD
001A64 0000                 227 DCBLD  DC    A(*-*)
001A66 0000                 228 POSTC  DC    A(*-*)
001A68 0000                 229 PRECR  DC    A(*-*)
001A6A 0000                 230 BOUND  DC    A(*-*)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
001A6C  0000               238 SHIFT  DC    A(*-*)
001A6E  0000               239 CHNAD  DC    A(*-*)
001A70  0000               240 BYCNT  DC    A(*-*)
001A72  0000               241 SDADR  DC    A(*-*)
001A74  208C               242 RDBLD  DC    X'208C'
001A76  0730               243        DC    X'0730'
001A78  0000               244        DC    X'0000'
001A7A  0073               245        DC    X'0073'
001A7C  0001               246        DC    X'0001'
001A7E  0000               247        DC    A(*-*)
001A80  0050               248        DC    X'0050'
001A82  0000               249        DC    A(*-*)
001A84  000F               250 WRBLD  DC    X'000F'
001A86  0000               251        DC    X'0000'
001A88  0730               252        DC    X'0730'
001A8A  0073               253        DC    X'0073'
001A8C  0001               254        DC    X'0001'
001A8E  0000               255        DC    A(*-*)
001A90  0050               256        DC    X'0050'
001A92  0000               257        DC    A(*-*)
001A94                     258 VIRBL  EQU   *
001A94  2004               259        DC    A(DFLT1)
001A96  2016               260        DC    A(DFLT2)
001A98  1BF6               261        DC    A(PREPR)
001A9A  1C50               262        DC    A(UNPRP)
001A9C  1C5A               263        DC    A(REDID)
001A9E  1C60               264        DC    A(RESET)
001AA0  1C90               265        DC    A(DELAY)
001AA2  1D46               266        DC    A(LOPST)
001AA4  1CD6               267        DC    A(LOPND)
001AA6  1F96               268        DC    A(READ)
001AA8  1FD0               269        DC    A(WRITE)
001AAA  0000               270 AECVT  DC    A(*-*)
001AAC  0000               271 AETCV  DC    A(*-*)
001AAE  0000               272 AECTV  DC    A(*-*)
001AB0  0001               273 CVADR  DC    A(1)
001AB2  0000               274 CVAD1  DC    A(*-*)
001AB4  21F1               275 CVAD2  DC    A(M8A)
001AB6  0002               276 CLPST  DC    A(2)
001AB8  1826               277        DC    A(LOOPS)
001ABA  23E4               278        DC    A(LPST1)
001ABC  0002               279 CLPEN  DC    A(2)
001ABE  1A48               280        DC    A(LPEND)
001AC0  23FA               281        DC    A(LPEN1)
001AC2  0002               282 CVRID  DC    A(2)
001AC4  1A58               283        DC    A(RDCOD)
001AC6  255F               284        DC    A(IDMG3)
001AC8  D5                 285 NO     DC    C'N'
001AC9  00                 286 NOCHN  DC    X'00'
001ACA  00                 287 ASKIT  DC    X'00'
001ACB  00                 288 CHIND  DC    X'00'
001ACC  40                 289 EBCBK  DC    C' '
001ACD  23                 290 ALBRT  DC    X'23'
                           291        ALIGN WORD
001ACE                     292 VIR00  EQU   *
001ACE  6F0D 1A46          293        MVW   R7,RETSV                 SAVE THE RETURN ADDRESS
001AD2  4624 1A64          294        MVA   DCBLD,R6                 DCB TABLE ADR
001AD6  6908 182C          295        MVW   DVPNT,R1                 DEVICE PARAMETERS UNDER TEST
001ADA  7921 0001          296        AWI   ONE,R1                   BUMP THE POINTER
001ADE  690D 19E0          297        MVW   R1,INCOA+TWO             INTERRUPTING ADR
001AE2  7921 0001          298        AWI   ONE,R1                   BUMP THE POINTER
001AE6  8860 1A4E          299        MVW   DTCSS,(R1)               SAVE THE CSS DATA
001AEA  7921 0002          300        AWI   TWO,R1                   BUMP POINTER
001AEE  8860 1814          301        MVW   STRTB,(R1)               START ADR FOR THIS TEST
001AF2  6808 1814          302        MVW   STRTB,R0                 SET R0
001AF6  9024 1A24          303        MVD   JINST,(R0)+              MOVE IN DUMMY INSTR'S
001AFA  680D 1814          304        MVW   R0,STRTB                 SAVE THE INSTR STREAM POINTER
001AFE  6D0D 1AB2          305        MVW   R5,CVAD1                 PREPARE TO CONVERT
001B02  4724 1AB0          306        MVA   CVADR,R7                 CONTROL BLOCK ADDRESS
001B06  601A               307        SVC   HTOE                     GO CONVERT
001B08  4424 000B          308        MVWI  ELEVN,R4                 NUM OF POSSIBLE MESSAGES
001B0C  4724 2096          309        MVA   MG8,R7                   START ADR OF MESSAGES
001B10                     310 VIR10  EQU   *
001B10  6000               311        SVC   OUT                      OUTPUT THE MESSAGE
001B12  7FE1 0004          312        AWI   FOUR,R7                  POSITION FOR NEXT MESSAGE
001B16  BCFC               313        JCT   VIR10,R4                 TEST THE NEXT BIT
001B18  4724 20C6          314        MVA   VMG2,R7                  DUMMY SVC TO GET DATA
001B1C  6001               315        SVC   OUTIN                    ISSUE THE OUTIN
001B1E  8508 1A57          316        MVB   (R5),RDADR               PUT THE DEVICE ADR IN READ ID
001B22  680C 1A56          317        IO    RDID                     DO A READ ID
001B26  882B 1A58 1A5A     318        CW    RDCOD,VIRID              IS IT O.K.
001B2C  1013               319        JE    VIR12                    J-YES
001B2E  6F0D 1A44          320        MVW   R7,R7SAV                 SAVE R7
001B32  4724 1AC2          321        MVA   CVRID,R7                 CONVERT CONTROL BLOCK
001B36  601A               322        SVC   HTOE
001B38  4724 2120          323        MVA   IDMSG,R7                 ADR OF MSG
001B3C  6001               324        SVC   OUTIN
001B3E  6F08 1A44          325        MVW   R7SAV,R7                 RESTORE R7
001B42  802B 1A38 1AC8     326        CB    WORK2,NO                 WAS THE ANSWER NO
001B48  1805               327        JNE   VIR12                    J-NO
001B4A  4029 1814 FFFC     328        AWI   M4,STRTB                 RESTORE POINTER
001B50  6812 1A46          329        B     RETSV*                   RETURN TO SENDER
001B54                     330 VIR12  EQU   *
001B54  4324 1906          331        MVA   UBUFR,R3                 INPUT DATA
001B58  4224 1A94          332        MVA   VIRBL,R2                 ADR OF BR TABLE
001B5C                     333 VIR15  EQU   *
001B5C  C4C0               334        MVB   (R3),R4                  GET THE COMMAND
001B5E  103A               335        JZ    VIR25                    J-IF THE END
001B60  7C82 0001          336        SWI   ONE,R4                   REDUCE NUMBER
001B64  D228 1A3A          337        MVD   R2,R2SAV                 SAVE REGS
001B68  6F0D 1A44          338        MVW   R7,R7SAV                 SAVE THE REGISTER
001B6C  7C06 000B          339        CWI   ELEVN,R4                 IS IT A VALID COMMAND
001B70  6D01 202A          340        BGT   NGOOD                    J-NO--TOO HIGH
001B74  3409               341        SLL   R4,R4                    DOUBLE FOR DISPL INTO COMMAND TABLE
001B76  7288               342        AW    R2,R4                    GET THE COMMAND PROCESSOR ADDRESS
001B78  6808 1812          343        MVW   IDCPT,R0                 ADR TO PUT THE IDCB
001B7C  6C88 0000          344        MVW   (R4),R4                  GET THE ADDRESS IN THE TABLE
001B80  5400               345        BXS   (R4)                     GO COMPLETE THE IDCB
001B82                     346 VIR20  EQU   *
001B82  6808 1814          347        MVW   STRTB,R0                 ADR TO PUT OIO INSTR
001B86  8828 1812 19F8     348        MVW   IDCPT,IOADR              ADR OF THE IDCB
001B8C  8828 1812 19F4     349        MVW   IDCPT,INCO1+SIX          ADR OF THE IDCB
001B92  0F14               350        MVBI  TWENY,R7                 NUM OF BYTES IN THE INSTR STREAM
001B94  4424 19DA          351        MVA   INCOM,R4                 START ADR OF INSTR STREAM
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                   COPYRIGHT IBM CORP 1976
001B98  2C04               352        MVFN  (R4),(R0)                MOVE THE INSTRUCTIONS
001B9A  9024 19F6          353        MVD   IONST,(R0)+              MOVE THE I/O INSTR
001B9E  70E4               354        MVW   R0,R7                    SAVE R0
001BA0  7FE1 0008          355        AWI   CCDCP,R7                 COMPUTE A NEW ADDRESS
001BA4  6F0D 19FC          356        MVW   R7,CCCHK+TWO             INSERT NEW ADDRESS
001BA8  4724 19FA          357        MVA   CCCHK,R7                 ADDRESS OF DATA TO MOVE
001BAC  9714               358        MVD   (R7)+,(R0)+              MOVE THE INSTR'S
001BAE  9714               359        MVD   (R7)+,(R0)+
001BB0  680D 1814          360        MVW   R0,STRTB                 BUMP THE INSTR ADR
001BB4  4029 1812 0004     361        AWI   FOUR,IDCPT               BUMP THE IDCB ADR POINTER
001BBA                     362 VIR23  EQU   *
001BBA  0F10               363        MVBI  SIXTN,R7                 NUMBER OF BYTES TO CLEAR
001BBC  4324 1A64          364        MVA   DCBLD,R3                 ADR OF DATA TO CLEAR
001BC0  C220 1829          365        MVB   ZEROS,R2                 CLEAR CHARACTER
001BC4  2A6C               366        PFN   R2,(R3)                  CLEAR THE AREA
001BC6  D220 1A3A          367        MVD   R2SAV,R2                 RESTORE REGS
001BCA  6F08 1A44          368        MVW   R7SAV,R7                 RESTORE R7
001BCE  7B61 0001          369        AWI   ONE,R3                   BUMP INPUT POINTER
001BD2  BFC4               370        JCT   VIR15,R7                 GO SET UP FOR NEXT COMMAND
001BD4                     371 VIR25  EQU   *
001BD4  6908 182C          372        MVW   DVPNT,R1                 DEVICE PARAMETERS UNDER TEST
001BD8  7921 000C          373        AWI   TWELV,R1                 BUMP THE POINTER
001BDC  8860 1814          374        MVW   STRTB,(R1)               SAVE THE END ADR
001BE0  C025 181F          375        MVBZ  LPIND,R0                 WAS A LOOP STARTED
001BE4  1006               376        JZ    VIR26                    J-NO
001BE6  4724 21CA          377        MVA   LPSTM,R7                 MSG ADR
001BEA  6000               378        SVC   OUT
001BEC  4724 21CE          379        MVA   LPENM,R7                 MSG ADR
001BF0  6000               380        SVC   OUT
001BF2                     381 VIR26  EQU   *
001BF2  6812 1A46          382        B     RETSV*                   RETURN TO FRIEND
001BF6                     383 PREPR  EQU   *
001BF6  8024 1A5C          384        MVB   PRPCD,(R0)+              MOVE THE COMMAND TO THE IDCB ADR
001BFA  8504               385        MVB   (R5),(R0)+               MOVE THE DEVICE ADR TO THE IDCB
001BFC  C715               386        MVBZ  (R0)+,R7                 CLEAR THE BYTE
001BFE  C720 1A61          387        MVB   DFALT,R7                 IS THE DEFAULT TO BE USED
001C02  1003               388        JZ    PREPA                    J-NO
001C04  8020 1A62          389        MVB   FIVDF,(R0)               MOVE IN THE DEFAULT VALUE
001C08  500D               390        J     PREPB
001C0A                     391 PREPA  EQU   *
001C0A  4724 20E4          392        MVA   PRMSG,R7                 MSG ASKING FOR PREP LEVEL
001C0E  6001               393        SVC   OUTIN
001C10  6F08 1946          394        MVW   WORK1,R7                 GET THE DATA INPUT
001C14  3749               395        SLL   NINE,R7                  POSITION THE LEVEL
001C16  6F0D 1946          396        MVW   R7,WORK1                 PUT IT BACK IN THE WORK AREA
001C1A  4724 1946          397        MVA   WORK1,R7                 ADR OF DATA
001C1E  4F47               398        TBTS  (R7,SEVEN)               SET THE I BIT
001C20  8020 1946          399        MVB   WORK1,(R0)               MOVE LEVEL & I BIT INTO IDCB
001C24                     400 PREPB  EQU   *
001C24  6808 1814          401        MVW   STRTB,R0                 ADR TO PUT OIO INSTR
001C28  8828 1812 19F8     402        MVW   IDCPT,IOADR              ADR OF THE IDCB
001C2E  9024 19F6          403        MVD   IONST,(R0)+              MOVE THE I/O INSTR
001C32  70E4               404        MVW   R0,R7                    SAVE R0
001C34  7FE1 0008          405        AWI   CCDCP,R7                 COMPUTE A NEW ADDRESS
001C38  6F0D 19FC          406        MVW   R7,CCCHK+TWO             INSERT NEW ADDRESS
001C3C  4724 19FA          407        MVA   CCCHK,R7                 ADDRESS OF DATA TO MOVE
001C40  9714               408        MVD   (R7)+,(R0)+              MOVE THE INSTR'S
001C42  9714               409        MVD   (R7)+,(R0)+
001C44  680D 1814          410        MVW   R0,STRTB                 BUMP THE INSTR ADR
001C48  4029 1812 0004     411        AWI   FOUR,IDCPT               BUMP THE IDCB ADR POINTER
001C4E  50B5               412        J     VIR23
001C50                     413 UNPRP  EQU   *
001C50  8024 1A5C          414        MVB   PRPCD,(R0)+              IDCB COMMAND
001C54  8504               415        MVB   (R5),(R0)+               ENTER THE DEVICE ADDRESS
001C56  C805               416        MVWZ  (R0),R0                  CLEAR THE DATA AREA
001C58  50E5               417        J     PREPB                    GO FINISH THE IDCB
001C5A                     418 REDID  EQU   *
001C5A  8024 1A5D          419        MVB   RIDCD,(R0)+              READ ID IDCB COMMAND
001C5E  5014               420        J     COMCD                    GO FINISH THE IDCB
001C60                     421 RESET  EQU   *
001C60  8024 1A5E          422        MVB   RSTCD,(R0)+              RESET IDCB COMMAND
001C64  8504               423        MVB   (R5),(R0)+               ENTER THE DEVICE ADDRESS
001C66  C805               424        MVWZ  (R0),R0                  CLEAR THE DATA AREA
001C68  6808 1814          425        MVW   STRTB,R0                 ADR TO PUT OIO INSTR
001C6C  8828 1812 19F8     426        MVW   IDCPT,IOADR              ADR OF THE IDCB
001C72  0F0C               427        MVBI  TWELV,R7                 NUM OF BYTES IN THE INSTR STREAM
001C74  4424 19F6          428        MVA   IONST,R4                 START ADR OF INSTR STREAM
001C78  2C04               429        MVFN  (R4),(R0)                MOVE THE INSTRUCTIONS
001C7A  680D 1814          430        MVW   R0,STRTB                 BUMP THE INSTR ADR
001C7E  4029 1812 0004     431        AWI   FOUR,IDCPT               BUMP THE IDCB ADR POINTER
001C84  6802 1BBA          432        B     VIR23
001C88                     433 COMCD  EQU   *
001C88  8504               434        MVB   (R5),(R0)+               ENTER THE DEVICE ADDRESS
001C8A  C805               435        MVWZ  (R0),R0                  CLEAR THE DATA AREA
001C8C  6802 1B82          436        B     VIR20
001C90                     437 DELAY  EQU   *
001C90  4724 20D0          438        MVA   DLMSG,R7                 ASK FOR THE AMOUNT OF DELAY
001C94  6001               439        SVC   OUTIN
001C96  6D08 1946          440        MVW   WORK1,R5                 GET THE DELAY IN MILLESEC
001C9A  6F03 2034          441        BAL   DTOH,R7                  GO CONVERT
001C9E  75E4               442        MVW   R5,R7
001CA0  802B 1ACD 0232     443        CB    ALBRT,CPUTP              IS THIS A 4953 PROCESSOR
001CA6  1803               444        JNE   DLAY1                    J-NO
001CA8  370A               445        SRL   ONE,R7                   DIVIDE BY 2
001CAA  75E8               446        AW    R5,R7                    THIS WILL MULTIPLY BY 1 1/2
001CAC  5002               447        J     DLAY2
001CAE                     448 DLAY1  EQU   *
001CAE  EF21 1A60          449        MB    DELCT,R7                 MULTIPLY BY THE DELAY FACTOR
001CB2                     450 DLAY2  EQU   *
001CB2  6F0D 1A22          451        MVW   R7,DLCNT                 PUT THE DELAY INTO THE INSTRUCTION
001CB6  6808 1814          452        MVW   STRTB,R0                 ADR TO PUT THE DELAY
001CBA  4224 1A18          453        MVA   DLNST,R2                 GEWT THE START OF THE INSTRUCTIONS
001CBE  4324 1A22          454        MVA   DLCNT,R3                 DELAY COUNT
001CC2  726A               455        SW    R2,R3                    COMPUTE THE DIFFERENCE
001CC4  7068               456        AW    R0,R3
001CC6  6B0D 1A1A          457        MVW   R3,DLADR                 MOVE THE ADDRESS INTO THE INSTR
001CCA  0F0C               458        MVBI  TWELV,R7                 NUMBER OF BYTES IN THE STREAM
001CCC  2A04               459        MVFN  (R2),(R0)                MOVE THE INSTRUCTIONS
001CCE  680D 1814          460        MVW   R0,STRTB                 BUMP ADR FOR THE NEXT INSTR
001CD2  6802 1BBA          461        B     VIR23
001CD6                     462 LOPND  EQU   *
001CD6  C020 181F          463        MVB   LPIND,R0                 WAS A LOOP STARTED
001CDA  1805               464        JNZ   LOOP1                    J-YES
001CDC  4724 20C2          465        MVA   NOLOP,R7                 MSG-NO LOOP STARTED
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

001CE0  6000                466        SVC   OUT
001CE2  6802 1BBA           467        B     VIR23
001CE6                      468 LOOP1  EQU   *
001CE6  4724 20EE           469        MVA   LOPMG,R7              MESSAGE ADDRESS
001CEA  6001                470        SVC   OUTIN
001CEC  6D0D 1A40           471        MVW   R5,R5SAV             SAVE THE REG
001CF0  6D08 1A0E           472        MVW   CNTWD,R5             GET THE DATA
001CF4  6F03 2034           473        BAL   DTOH,R7              GO CONVERT
001CF8  6D0D 1A10           474        MVW   R5,LPCNT
001CFC  6D08 1A40           475        MVW   R5SAV,R5             RESTORE R5
001D00  8828 1826 1A0C      476        MVW   LOOPS,LPADR          MOVE THE START ADR OF THE LOOP
001D06  6808 1814           477        MVW   STRTB,R0             ADR TO PUT THE BRANCH INSTR
001D0A  4224 1A02           478        MVA   CNTST,R2             INSTR START ADDRESS
001D0E  4324 1A0E           479        MVA   CNTWD,R3             LOOP COUNT ADDRESS
001D12  726A                480        SW    R2,R3                COMPUTE THE DIFFERENCE
001D14  7068                481        AW    R0,R3                ADD TO THE STARTING ADDRESS
001D16  6B0D 1A04           482        MVW   R3,CNTAD             PUT THE ADDRESS INTO THE INSTR
001D1A  6B0D 1A16           483        MVW   R3,RESTR+FOUR        ADR INTO THE INSTR
001D1E  7B61 0002           484        AWI   TWO,R3               BUMP THE ADR
001D22  6B0D 1A14           485        MVW   R3,RESTR+TWO         NEXT ADR INTO INSTR
001D26  0F16                486        MVBI  TWEN2,R7             NUMBER OF BYTES TO MOVE
001D28  2A04                487        MVFN  (R2),(R0)            MOVE THE INSTRUCTIONS
001D2A  680D 1A48           488        MVW   R0,LPEND             SET UP
001D2E  4029 1A48 FFFA      489        AWI   M6,LPEND                 LOOP END
001D34  4724 1ABC           490        MVA   CLPEN,R7                     ADDRESS
001D38  601A                491        SVC   HTOE
001D3A  D220 1A3A           492        MVD   R2SAV,R2             RESTORE THE REGISTERS
001D3E  680D 1814           493        MVW   R0,STRTB             UPDATE THE INSTR STREAM ADR
001D42  6802 1BBA           494        B     VIR23
001D46                      495 LOPST  EQU   *
001D46  8828 1814 1826      496        MVW   STRTB,LOOPS          SAVE THE LOOP START ADR
001D4C  4724 1AB6           497        MVA   CLPST,R7             CONTROL BLOCK
001D50  601A                498        SVC   HTOE
001D52  8028 1828 181F      499        MVB   HEXFF,LPIND          SET THE LOOP IND
001D58  6802 1BBA           500        B     VIR23
001D5C                      501 SIORT  EQU   *
001D5C  4624 1A64           502        MVA   DCBLD,R6              ADR OF THE BUILD AREA
001D60  6F08 1A44           503        MVW   R7SAV,R7              RESTORE R7
001D64  7F06 0001           504        CWI   ONE,R7                IS THIS THE LAST COMMAND
001D68  1023                505        JE    SIOR1                 J-YES
001D6A  C720 1ACA           506        MVB   ASKIT,R7              HAS THE QUESTION BEEN ASKED
001D6E  180D                507        JNZ   S1                    J-YES
001D70  8028 1828 1ACA      508        MVB   HEXFF,ASKIT           T/ON THE IND
001D76  4724 20F8           509        MVA   DCBCH,R7             CONTROL BLOCK
001D7A  6001                510        SVC   OUTIN
001D7C  802B 194A 1AC8      511        CB    DATIN,NO             WAS IT A NEGATIVE RESPONSE
001D82  1803                512        JNE   S1                   J-NO
001D84  8028 1828 1AC9      513        MVB   HEXFF,NOCHN          T/ON THE IND
001D8A                      514 S1     EQU   *
001D8A  C720 1AC9           515        MVB   NOCHN,R7              IS THE IND ON
001D8E  1810                516        JNZ   SIOR1                 J-YES
001D90  4724 2102           517        MVA   CHBIT,R7             MSG CONTROL BLOCK
001D94  6001                518        SVC   OUTIN
001D96  802B 194A 1AC8      519        CB    DATIN,NO             WAS THE ANSWER NEGATIVE
001D9C  1009                520        JE    SIOR1                J-YES
001D9E  4E40                521        TBTS  (R6,ZERO)            T/ON THE CHAIN BIT
001DA0  6E08 181A           522        MVW   DCBPT,R6             ADR OF DCB
001DA4  7EC1 0010           523        AWI   SIXTN,R6              BUMP TO NEXT DCB
001DA8  6E0D 1A6E           524        MVW   R6,CHNAD             MOVE IN THE CHAIN ADR
001DAC  4624 1A64           525        MVA   DCBLD,R6             ADR OF THE BUILD AREA
001DB0                      526 SIOR1  EQU   *
001DB0  4724 212A           527        MVA   CW080,R7             CONTROL BLOCK
001DB4  6001                528        SVC   OUTIN
001DB6  802B 194A 1AC8      529        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001DBC  1001                530        JE    SIO1                 J-NO
001DBE  4E48                531        TBTS  (R6,EIGHT)           T/ON THE BIT
001DC0                      532 SIO1   EQU   *
001DC0  4724 2134           533        MVA   CW090,R7             CONTROL BLOCK
001DC4  6001                534        SVC   OUTIN
001DC6  802B 194A 1AC8      535        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001DCC  1001                536        JE    SIO2                 J-NO
001DCE  4E49                537        TBTS  (R6,NINE)            T/ON THE BIT
001DD0                      538 SIO2   EQU   *
001DD0  4724 213E           539        MVA   CW010,R7             CONTROL BLOCK
001DD4  6001                540        SVC   OUTIN
001DD6  802B 194A 1AC8      541        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001DDC  1001                542        JE    SIO3                 J-NO
001DDE  4E4A                543        TBTS  (R6,TEN)             T/ON THE BIT
001DE0                      544 SIO3   EQU   *
001DE0  4724 2152           545        MVA   CW012,R7             CONTROL BLOCK
001DE4  6001                546        SVC   OUTIN
001DE6  802B 194A 1AC8      547        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001DEC  1001                548        JE    SIO4                 J-NO
001DEE  4E4C                549        TBTS  (R6,TWELV)           T/ON THE BIT
001DF0                      550 SIO4   EQU   *
001DF0  4724 215C           551        MVA   CW013,R7             CONTROL BLOCK
001DF4  6001                552        SVC   OUTIN
001DF6  802B 194A 1AC8      553        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001DFC  1001                554        JE    SIO5                 J-NO
001DFE  4E4D                555        TBTS  (R6,THRTN)           T/ON THE BIT
001E00                      556 SIO5   EQU   *
001E00  4724 2170           557        MVA   CW015,R7             CONTROL BLOCK
001E04  6001                558        SVC   OUTIN
001E06  802B 194A 1AC8      559        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001E0C  1009                560        JE    SIO6                 J-NO
001E0E  4E4F                561        TBTS  (R6,FIFTN)           T/ON THE BIT
001E10  4724 2166           562        MVA   CW014,R7             CONTROL BLOCK
001E14  6001                563        SVC   OUTIN
001E16  802B 194A 1AC8      564        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001E1C  1001                565        JE    SIO6                 J-NO
001E1E  4E4E                566        TBTS  (R6,FORTN)           T/ON THE BIT
001E20                      567 SIO6   EQU   *
001E20  4724 217A           568        MVA   DCB1,R7
001E24  6001                569        SVC   OUTIN
001E26  6D08 1A70           570        MVW   BYCNT,R5             GET THE BYTE COUNT
001E2A  6F03 2034           571        BAL   DTOH,R7              GO CONVERT
001E2E  6D0D 1A66           572        MVW   R5,POSTC             PUT THE VALUE IN THE DCB
001E32  4724 2184           573        MVA   DCB2,R7              CONTROL BLOCK
001E36  6001                574        SVC   OUTIN
001E38  6D08 1A70           575        MVW   BYCNT,R5             GET THE BYTE COUNT
001E3C  6F03 2034           576        BAL   DTOH,R7              GO CONVERT
001E40  6D0D 1A68           577        MVW   R5,PRECR             PUT THE DATA IN THE DCB
001E44  4724 218E           578        MVA   DCB3A,R7             CONTROL BLOCK
001E48  6001                579        SVC   OUTIN
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

001E4A  6D08 194A           580        MVW   DATIN,R5             GET THE BYTE COUNT
001E4E  6F03 2034           581        BAL   DTOH,R7              GO CONVERT
001E52  6D0D 1A52           582        MVW   R5,UPPER             SAVE THE VALUE
001E56  4724 2198           583        MVA   DCB3B,R7             CONTROL BLOCK
001E5A  6001                584        SVC   OUTIN
001E5C  6D08 194A           585        MVW   DATIN,R5             GET THE BYTE COUNT
001E60  6F03 2034           586        BAL   DTOH,R7              GO CONVERT
001E64  6D0D 1A54           587        MVW   R5,LOWER             SAVE THE VALUE
001E68  6F03 206C           588        BAL   RCOMP,R7             GENERATE THE BYTE COUNT
001E6C  402D 1A6A 8080      589        RBTWI MASK1,BOUND          RESET SPECIFIC BITS
001E72  4224 1A6C           590        MVA   SHIFT,R2             GET THE SHIFT PARAMETER ADDRESS
001E76  4724 21A2           591        MVA   DCB41,R7             CONTROL BLOCK
001E7A  6001                592        SVC   OUTIN
001E7C  802B 194A 1AC8      593        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001E82  1001                594        JE    SIO7                 J-NO
001E84  4A41                595        TBTS  (R2,ONE)             T/ON THE BIT
001E86                      596 SIO7   EQU   *
001E86  4724 21AC           597        MVA   DCB42,R7             CONTROL BLOCK
001E8A  6001                598        SVC   OUTIN
001E8C  802B 194A 1AC8      599        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001E92  1001                600        JE    SIO8                 J-NO
001E94  4A42                601        TBTS  (R2,TWO)             T/ON THE BIT
001E96                      602 SIO8   EQU   *
001E96  4724 21B6           603        MVA   DCB43,R7             CONTROL BLOCK
001E9A  6001                604        SVC   OUTIN
001E9C  802B 194A 1AC8      605        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001EA2  1001                606        JE    SIO9                 J-NO
001EA4  4A43                607        TBTS  (R2,THREE)           T/ON THE BIT
001EA6                      608 SIO9   EQU   *
001EA6  4E0F                609        TBT   (R6,FIFTN)           IS THE SHIFT BIT ON
001EA8  100C                610        JOFF  SIO10                J-NO
001EAA  4724 21C0           611        MVA   DCB4A,R7             CONTROL BLOCK
001EAE  6001                612        SVC   OUTIN
001EB0  6D08 1A70           613        MVW   BYCNT,R5             GET THE SHIFT COUNT
001EB4  6F03 2034           614        BAL   DTOH,R7              CONVERT
001EB8  C528 1A6D           615        MVB   R5,SHIFT+ONE         PUT THE VALUE IN THE DCB
001EBC  402D 1A6C 8FE8      616        RBTWI MASK2,SHIFT          RESET SPECIFIC BITS
001EC2                      617 SIO10  EQU   *
001EC2  4724 20DA           618        MVA   BYCTM,R7             CONTROL BLOCK
001EC6  6001                619        SVC   OUTIN
001EC8  6D08 1A70           620        MVW   BYCNT,R5             GET THE BYTE COUNT
001ECC  6F03 2034           621        BAL   DTOH,R7              GO CONVERT
001ED0  6D0D 1A70           622        MVW   R5,BYCNT             PUT THE VALUE IN THE DCB
001ED4  4724 2116           623        MVA   DATRQ,R7             CONTROL BLOCK
001ED8  6001                624        SVC   OUTIN
001EDA  802B 194A 1AC8      625        CB    DATIN,NO             WAS THE ANSWER NO
001EE0  1010                626        JE    SIOR7                J-YES
001EE2                      627 SI7    EQU   *
001EE2  4724 0050           628        MVWI  EIGTY,R7             NUMBER OF BYTES TO MOVE
001EE6  4324 198A           629        MVA   VIRDT,R3             ADR OF DATA
001EEA  6A08 1816           630        MVW   DTENT,R2             DATA FIELD ADR
001EEE  6A0D 1A72           631        MVW   R2,SDADR             PUT DATA ADR IN DCB
001EF2  4624 1A61           632        MVA   DFALT,R6             GET THE DEFAULT INDICATOR
001EF6  4E80                633        TBTR  (R6,ZERO)            IS THE READ DEFAULT ON
001EF8  1810                634        JNZ   SIOR8                J-YES
001EFA  2B44                635        MVFN  (R3),(R2)            MOVE THE DATA
001EFC  6A0D 1816           636        MVW   R2,DTENT             BUMP THE DATA FIELD ADR
001F00  500C                637        J     SIOR8
001F02                      638 SIOR7  EQU   *
001F02  4724 210C           639        MVA   DATER,R7             CONTROL BLOCK
001F06  6001                640        SVC   OUTIN
001F08  0F50                641        MVBI  EIGTY,R7             MAX NUM OF BYTES
001F0A  7744                642        MVW   R7,R2                SAVE THE NUMBER
001F0C  4324 194A           643        MVA   DATIN,R3             ADR OF DATA
001F10  0C00                644        MVBI  ZERO,R4              END CHARACTER
001F12  286F                645        SFEN  R0,(R3)              LOOK FOR THE END CHAR
001F14  774A                646        SW    R7,R2                COMPUTE THE MESSAGE LENGTH
001F16  CA2E 1816           647        AW    R2,DTENT             NEW DATA POINTER
001F1A                      648 SIOR8  EQU   *
001F1A  C720 1ACB           649        MVB   CHIND,R7             IS THE IND ON
001F1E  180F                650        JNZ   S8                   J-YES
001F20  6808 1812           651        MVW   IDCPT,R0             GET THE POINTER
001F24  680D 19F8           652        MVW   R0,IOADR             MOVE IN THE IDCB POINTER
001F28  6F04 19F4           653        MVW   R0,INCO1+SIX         MOVE IN THE IDCB POINTER
001F2C  8024 1A5F           654        MVB   SIOCD,(R0)+          IDCB COMMAND
001F30  8024 1A57           655        MVB   RDADR,(R0)+          DEVICE ADDRESS
001F34  8820 181A           656        MVW   DCBPT,(R0)           ADDRESS OF DCB BUILD AREA
001F38  4029 1812 0004      657        AWI   FOUR,IDCPT           BUMP THE POINTER
001F3E                      658 S8     EQU   *
001F3E  0F10                659        MVBI  SIXTN,R7             LENGTH OF THE DCB
001F40  6A08 181A           660        MVW   DCBPT,R2             WHERE TO PUT THE DCB
001F44  7264                661        MVW   R2,R6                SAVE THE POINTER
001F46  4324 1A64           662        MVA   DCBLD,R3             ADR OF DCB JUST BUILT
001F4A  2B44                663        MVFN  (R3),(R2)            MOVE IN THE DCB
001F4C  6A0D 181A           664        MVW   R2,DCBPT             NEW POINTER
001F50  8028 1828 1ACB      665        MVB   HEXFF,CHIND          T/ON THE IND
001F56  4E00                666        TBT   (R6,ZERO)            IS THE CHAIN BIT ON
001F58  6A00 1BBA           667        BON   VIR23                B-YES GO AGAIN
001F5C                      668 SIOR9  EQU   *
001F5C  C725 1ACB           669        MVBZ  CHIND,R7             CLEAR THE IND
001F60  6808 1814           670        MVW   STRTB,R0             GET THE INSTR STREAM
001F64  0F14                671        MVBI  TWENY,R7             NUM OF BYTES IN THE INSTR STREAM
001F66  4424 19DA           672        MVA   INCOM,R4             START ADR OF INSTR STREAM
001F6A  2C04                673        MVFN  (R4),(R0)            MOVE THE INSTRUCTIONS
001F6C  0F0C                674        MVBI  TWELV,R7             NUM OF BYTES IN THE INSTR STREAM
001F6E  4424 1A28           675        MVA   EFTST,R4             START ADR OF INSTR STREAM
001F72  2C04                676        MVFN  (R4),(R0)            MOVE THE INSTRUCTIONS
001F74  0F0C                677        MVBI  TWELV,R7             NUM OF BYTES IN THE INSTR STREAM
001F76  4424 19EE           678        MVA   INCO1,R4             START ADR OF INSTR STREAM
001F7A  2C04                679        MVFN  (R4),(R0)            MOVE THE INSTRUCTIONS
001F7C  70E4                680        MVW   R0,R7                SAVE R0
001F7E  7FE1 0008           681        AWI   CCDCP,R7             COMPUTE A NEW ADDRESS
001F82  6B0D 19FC           682        MVW   R7,CCCHK+TWO         INSERT NEW ADDRESS
001F86  4724 19FA           683        MVA   CCCHK,R7             ADDRESS OF DATA TO MOVE
001F8A  9714                684        MVD   (R7)+,(R0)+          MOVE THE INSTR'S
001F8C  9714                685        MVD   (R7)+,(R0)+
001F8E  680D 1814           686        MVW   R0,STRTB             BUMP THE POINTER FOR THE NEXT INSTR
001F92  6802 1BBA           687        B     VIR23
001F96                      688 READ   EQU   *
001F96  6808 1814           689        MVW   STRTB,R0             GET THE INSTR STREAM
001F9A  9024 19DE           690        MVD   INCOA,(R0)+          MOVE IN
001F9E  9024 1A34           691        MVD   INCO2,(R0)+             THE
001FA2  680D 1814           692        MVW   R0,STRTB                   INSTRUCTIONS
001FA6  6808 1812           693        MVW   IDCPT,R0             GET THE IDCB POINTER
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LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT
001FAA 4724 1A61         694        MVA   DFALT,R7          GET THE DEFAULT IND
001FAE 4F00              695        TBT   (R7,ZERO)        IS THE READ DEFAULT ON
001FB0 100A              696        JZ    READA             J-YES
001FB2 0F10              697        MVBI  SIXTN,R7          NUM OF BYTES IN THE IDCB
001FB4 4324 1A64         698        MVA   DCBLD,R3          AREA TO MOVE INTO
001FB8 4224 1A74         699        MVA   RDBLD,R2          DATA TO MOVE
001FBC 2A64              700        MVFN  (R2),(R3)         MOVE THE DCB
001FBE 6808 1812         701        MVW   IDCPT,R0          RESTORE THE POINTER
001FC2 6802 1EE2         702        B     SI7
001FC6                   703 READA  EQU   *
001FC6 8828 1A50 1A64    704        MVW   RDIPT,DCBLD       SET THE READ COMMAND
001FCC 6802 1D5C         705        B     SIORT
001FD0                   706 WRITE  EQU   *
001FD0 4724 1A61         707        MVA   DFALT,R7          GET THE DEFAULT IND
001FD4 4F01              708        TBT   (R7,ONE)          IS THE WRITE DEFAULT ON
001FD6 100A              709        JZ    WRITA             J-YES
001FD8 0F10              710        MVBI  SIXTN,R7          NUM OF BYTES IN THE IDCB
001FDA 4324 1A64         711        MVA   DCBLD,R3          AREA TO MOVE INTO
001FDE 4224 1A84         712        MVA   WRBLD,R2          DATA TO MOVE
001FE2 2A64              713        MVFN  (R2),(R3)         MOVE THE DCB
001FE4 6808 1812         714        MVW   IDCPT,R0          RESTORE THE POINTER
001FE8 6802 1EE2         715        B     SI7
001FEC                   716 WRITA  EQU   *
001FEC 4724 2148         717        MVA   CW011,R7          CONTROL BLOCK
001FF0 6001              718        SVC   OUTIN
001FF2 802B 194A 1AC8    719        CB    DATIN,NO          WAS IT A NEGATIVE RESPONSE
001FF8 1003              720        JE    WRITB             J-YES
001FFA 4624 1A64         721        MVA   DCBLD,R6          ADR OF THE BUILD AREA
001FFE 4E4B              722        TBTS  (R6,ELEVN)        SET THE BIT
002000                   723 WRITB  EQU   *
002000 6802 1D5C         724        B     SIORT
002004                   725 DFLT1  EQU   *
002004 4724 1A61         726        MVA   DFALT,R7          GET THE ADR OF THE DEFAULT
002008 4F41              727        TBTS  (R7,ONE)          IND A WRITE DEFAULT
00200A 8828 1A4A 1906    728        MVW   DVAL1,UBUFR       PUT THE VALUE IN THE BUFFER
002010 0F01              729        MVBI  ONE,R7            IND TWO COMMANDS
002012 6802 1B54         730        B     VIR12
002016                   731 DFLT2  EQU   *
002016 4724 1A61         732        MVA   DFALT,R7          GET THE ADR OF THE DEFAULT
00201A 4F40              733        TBTS  (R7,ZERO)         IND A READ DEFAULT
00201C 4F41              734        TBTS  (R7,ONE)          IND A WRITE DEFAULT
00201E 8828 1A4C 1906    735        MVW   DVAL2,UBUFR       PUT THE VALUE IN THE BUFFER
002024 0F02              736        MVBI  TWO,R7            IND TWO COMMANDS
002026 6802 1B54         737        B     VIR12
00202A                   738 NGOOD  EQU   *
00202A 4724 21D2         739        MVA   INCMD,R7          ADR OF INVALID COMMAND MSG
00202E 6000              740        SVC   OUT               OUTPUT THE MESSAGE
002030 6802 1B82         741        B     VIR20
002034                   742 DTOH   EQU   *
002034 6F0D 2090         743        MVW   R7,RTRTN
002038 6C0D 2092         744        MVW   R4,DHSAV          SAVE R4
00203C 6E0D 1A42         745        MVW   R6,R6SAV          SAVE R6
002040 748A              746        SW    R4,R4             CLEAR THE REG
002042 3425              747        SLLD  FOUR,R4           MOVE THOUSAND INTO R4
002044 EC25 208A         748        MW    THOUS,R4          MULTIPLY THOUSANDS
002048 3522              749        SRL   FOUR,R5           POSITION THE HUNS,TENS
00204A 3546              750        SRLD  EIGHT,R5          MOVE TENS AND UNITS INTO R6
00204C ED21 208C         751        MB    HUN,R5            MULTIPLY HUNDREDS
002050 74A8              752        AW    R4,R5             ADD THOUS AND HUNS
002052 3642              753        SRL   EIGHT,R6
002054 3626              754        SRLD  FOUR,R6           MOVE UNITS INTO R7
002056 3762              755        SRL   TWELV,R7          POSITION THE UNITS
002058 77A8              756        AW    R7,R5             ADD UNITS TO THOUS AND HUNS
00205A EE21 208E         757        MB    TENS,R6           MULTIPLY TENS
00205E 76A8              758        AW    R6,R5             GET THE GRAND TOTAL
002060 6C08 2092         759        MVW   DHSAV,R4          RESTORE R4
002064 6E08 1A42         760        MVW   R6SAV,R6          RESTORE R6
002068 6812 2090         761        B     RTRTN*
00206C                   762 RCOMP  EQU   *
00206C 6D08 1A54         763        MVW   LOWER,R5          GET THE LOWER VALUF
002070 ED21 208D         764        MB    HWD80,R5          MULTIPLY BY 80
002074 3522              765        SRL   FOUR,R5           POSITION THE BITS
002076 6D0D 1A6A         766        MVW   R5,BOUND          PUT THE VALUE IN THE DCB
00207A 6D08 1A52         767        MVW   UPPER,R5          GET THE UPPER VALUE
00207E ED21 208D         768        MB    HWD80,R5          MULTIPLY BY 80
002082 3522              769        SRL   FOUR,R5           POSITION THE BITS
002084 C528 1A6A         770        MVB   R5,BOUND          PUT THE VALUE IN THE DCB
002088 5700              771        BXS   (R7)              RETURN TO SENDER
00208A 03E8              772 THOUS  DC    A(1000)
00208C 64                773 HUN    DC    H'100'
00208D 50                774 HWD80  DC    H'80'
00208E 0A                775 TENS   DC    H'10'
002090 0000              776 RTRTN  DC    A(*-*)
002092 0000              777 DHSAV  DC    A(*-*)
002094 0080              778        DC    X'0080'
002096 21D8              779 MG8    DC    A(M8)
002098 0080              780        DC    X'0080'
00209A 2280              781        DC    A(M11)
00209C 0080              782        DC    X'0080'
00209E 229E              783        DC    A(M12)
0020A0 0080              784        DC    X'0080'
0020A2 21F8              785        DC    A(M9)
0020A4 0080              786        DC    X'0080'
0020A6 220E              787        DC    A(M9A)
0020A8 0080              788        DC    X'0080'
0020AA 2226              789        DC    A(M9B)
0020AC 0080              790        DC    X'0080'
0020AE 2234              791        DC    A(M9C)
0020B0 0080              792        DC    X'0080'
0020B2 2240              793        DC    A(M9D)
0020B4 0080              794        DC    X'0080'
0020B6 224C              795        DC    A(M9E)
0020B8 0080              796        DC    X'0080'
0020BA 225C              797        DC    A(M9F)
0020BC 0080              798        DC    X'0080'
0020BE 226A              799        DC    A(M10)
0020C0 0080              800        DC    X'0080'
0020C2 2310              801 NOLOP  DC    A(NLOOP)
0020C4 00C0              802        DC    X'00C0'
0020C6 2274              803 VMG2   DC    A(M10A)
0020C8 1906              804        DC    A(UBUFR)
0020CA 0040              805        DC    A(64)
0020CC 0001              806        DC    A(1)
0020CE 00C0              807        DC    X'00C0'
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LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT
0020D0 22EC              808 DLMSG  DC    A(DMSGL)
0020D2 1946              809        DC    A(WORK1)
0020D4 0002              810        DC    A(2)
0020D6 0001              811        DC    A(1)
0020D8 00C0              812        DC    X'00C0'
0020DA 2388              813 BYCTM  DC    A(BYTEC)
0020DC 1A70              814        DC    A(BYCNT)
0020DE 0002              815        DC    A(2)
0020E0 0001              816        DC    A(1)
0020E2 00C0              817        DC    X'00C0'
0020E4 22D6              818 PRMSG  DC    A(PMSGR)
0020E6 1946              819        DC    A(WORK1)
0020E8 0002              820        DC    A(2)
0020EA 0001              821        DC    A(1)
0020EC 00C0              822        DC    X'00C0'
0020EE 2368              823 LOPMG  DC    A(LPMSG)
0020F0 1A0E              824        DC    A(CNTWD)
0020F2 0002              825        DC    A(2)
0020F4 0001              826        DC    A(1)
0020F6 00C0              827        DC    X'00C0'
0020F8 23B6              828 DCBCH  DC    A(DCBC1)
0020FA 194A              829        DC    A(DATIN)
0020FC 0001              830        DC    A(1)
0020FE 0000              831        DC    A(0)
002100 00C0              832        DC    X'00C0'
002102 2396              833 CHBIT  DC    A(CHBT)
002104 194A              834        DC    A(DATIN)
002106 0001              835        DC    A(1)
002108 0000              836        DC    A(0)
00210A 00C0              837        DC    X'00C0'
00210C 232E              838 DATER  DC    A(DTINN)
00210E 194A              839        DC    A(DATIN)
002110 0040              840        DC    A(64)
002112 0001              841        DC    A(1)
002114 00C0              842        DC    X'00C0'
002116 2338              843 DATRQ  DC    A(DINNT)
002118 194A              844        DC    A(DATIN)
00211A 0001              845        DC    A(1)
00211C 0000              846        DC    A(*-*)
00211E 00C0              847        DC    X'00C0'
002120 2542              848 IDMSG  DC    A(IDMG1)
002122 1A38              849        DC    A(WORKA)
002124 0001              850        DC    A(1)
002126 0000              851        DC    A(0)
002128 00C0              852        DC    X'00C0'
00212A 2402              853 CW080  DC    A(DBM1)
00212C 194A              854        DC    A(DATIN)
00212E 0001              855        DC    A(1)
002130 0000              856        DC    A(0)
002132 00C0              857        DC    X'00C0'
002134 2416              858 CW090  DC    A(DBM2)
002136 194A              859        DC    A(DATIN)
002138 0001              860        DC    A(1)
00213A 0000              861        DC    A(0)
00213C 00C0              862        DC    X'00C0'
00213E 242A              863 CW010  DC    A(DBM3)
002140 194A              864        DC    A(DATIN)
002142 0001              865        DC    A(1)
002144 0000              866        DC    A(0)
002146 00C0              867        DC    X'00C0'
002148 243E              868 CW011  DC    A(DBM4)
00214A 194A              869        DC    A(DATIN)
00214C 0001              870        DC    A(1)
00214E 0000              871        DC    A(0)
002150 00C0              872        DC    X'00C0'
002152 244C              873 CW012  DC    A(DBM5)
002154 194A              874        DC    A(DATIN)
002156 0001              875        DC    A(1)
002158 0000              876        DC    A(0)
00215A 00C0              877        DC    X'00C0'
00215C 2460              878 CW013  DC    A(DBM6)
00215E 194A              879        DC    A(DATIN)
002160 0001              880        DC    A(1)
002162 0000              881        DC    A(0)
002164 00C0              882        DC    X'00C0'
002166 2472              883 CW014  DC    A(DBM7)
002168 194A              884        DC    A(DATIN)
00216A 0001              885        DC    A(1)
00216C 0000              886        DC    A(0)
00216E 00C0              887        DC    X'00C0'
002170 247E              888 CW015  DC    A(DBM8)
002172 194A              889        DC    A(DATIN)
002174 0001              890        DC    A(1)
002176 0000              891        DC    A(0)
002178 00C0              892        DC    X'00C0'
00217A 248C              893 DCB1   DC    A(DBM9)
00217C 1A70              894        DC    A(BYCNT)
00217E 0002              895        DC    A(2)
002180 0001              896        DC    A(1)
002182 00C0              897        DC    X'00C0'
002184 249E              898 DCB2   DC    A(DBM10)
002186 1A70              899        DC    A(BYCNT)
002188 0002              900        DC    A(2)
00218A 0001              901        DC    A(1)
00218C 00C0              902        DC    X'00C0'
00218E 24B0              903 DCB3A  DC    A(DBM11)
002190 194A              904        DC    A(DATIN)
002192 0002              905        DC    A(2)
002194 0001              906        DC    A(1)
002196 00C0              907        DC    X'00C0'
002198 24D2              908 DCB3B  DC    A(DBM12)
00219A 194A              909        DC    A(DATIN)
00219C 0002              910        DC    A(2)
00219E 0001              911        DC    A(1)
0021A0 00C0              912        DC    X'00C0'
0021A2 24F4              913 DCB41  DC    A(DBM13)
0021A4 194A              914        DC    A(DATIN)
0021A6 0001              915        DC    A(1)
0021A8 0000              916        DC    A(0)
0021AA 00C0              917        DC    X'00C0'
0021AC 250E              918 DCB42  DC    A(DBM14)
0021AE 194A              919        DC    A(DATIN)
0021B0 0001              920        DC    A(1)
0021B2 0000              921        DC    A(0)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
0021B4  00C0                922          DC    X'00C0'
0021B6  2526                923 DCB43    DC    A(DBM15)
0021B8  194A                924          DC    A(DATIN)
0021BA  0001                925          DC    A(1)
0021BC  0000                926          DC    A(0)
0021BE  00C0                927          DC    X'00DC0'
0021C0  2534                928 DCB4A    DC    A(DBM16)
0021C2  1A70                929          DC    A(BYCNT)
0021C4  0002                930          DC    A(2)
0021C6  0001                931          DC    A(1)
0021C8  0080                932          DC    X'0080'
0021CA  23D4                933 LPSTM    DC    A(LPST)
0021CC  0080                934          DC    X'0080'
0021CE  23EC                935 LPENM    DC    A(LPEN)
0021D0  00C0                936          DC    X'00C0'
0021D2  22B6                937 INCMD    DC    A(INCMG)
0021D4  00                  938          DC    X'00'
0021D6  0000                939          DC    A(0)
0021D8  E2C5D3C5C3E340C3D   940 M8       DC    C'SELECT COMMAND(S) FOR DA '
0021F1  404040              941 M8A      DC    C' '
0021F4  00                  942          DC    X'00'
0021F6  0000                943          DC    A(0)
0021F8  F0F340D7D9C5D7C1D   944 M9       DC    C'03 PREPARE I BIT ON'
00220B  00                  945          DC    X'00'
00220C  0000                946          DC    A(0)
00220E  F0F440D7D9C5D7C1D   947 M9A      DC    C'04 PREPARE I BIT OFF'
002222  00                  948          DC    X'00'
002224  0000                949          DC    A(0)
002226  F0F540D9C5C1C440C   950 M9B      DC    C'05 READ ID'
002230  00                  951          DC    X'00'
002232  0000                952          DC    A(0)
002234  F0F640D9C5E2C5E3    953 M9C      DC    C'06 RESET'
00223C  00                  954          DC    X'00'
00223E  0000                955          DC    A(0)
002240  F0F740C4C5D3C1E8    956 M9D      DC    C'07 DELAY'
002248  00                  957          DC    X'00'
00224A  0000                958          DC    A(0)
00224C  F0F840D3D6D6D740E   959 M9E      DC    C'08 LOOP START'
002259  00                  960          DC    X'00'
00225A  0000                961          DC    A(0)
00225C  F0F940D3D6D6D740C   962 M9F      DC    C'09 LOOP END'
002267  00                  963          DC    X'00'
002268  0000                964          DC    A(0)
00226A  F0C140D9C5C1C4      965 M10      DC    C'0A READ'
002271  00                  966          DC    X'00'
002272  3483                967          DC    A(CD3)
002274  F0C240E6D9C9E3C5    968 M10A     DC    C'0B WRITE'
00227C  00                  969          DC    X'00'
00227E  0000                970          DC    A(0)
002280  F0F140C4C5C6C1E4D   971 M11      DC    C'01 DEFAULT=WRITE,SHIFT UP 1'
00229B  00                  972          DC    X'00'
00229C  0000                973          DC    A(0)
00229E  F0F240C4C5C6C1E4D   974 M12      DC    C'02 DEFAULT=READ,WRITE'
0022B3  00                  975          DC    X'00'
0022B4  349B                976          DC    A(CD1B)
0022B6  E6D9D6D5C740C9C4C   977 INCMG    DC    C'WRONG IDCB COMMAND,START OVER'
0022D3  00                  978          DC    X'00'
0022D4  34A2                979          DC    A(CD22)
0022D6  D3C5E5C5D340E3D64   980 PMSGR    DC    C'LEVEL TO INTERRUPT'
0022E8  00                  981          DC    X'00'
0022EA  34A3                982          DC    A(CD23)
0022EC  D3C5D5C7E3C840D6C   983 DMSGL    DC    C'LENGTH OF DELAY(IN MILLISECONDS)'
00230C  00                  984          DC    X'00'
00230E  34A6                985          DC    A(CD26)
002310  D3D6D6D740D5D6E34   986 NLOOP    DC    C'LOOP NOT STARTED,START OVER'
00232B  00                  987          DC    X'00'
00232C  34A4                988          DC    A(CD24)
00232E  C4C1E3C140C9E2      989 DTINN    DC    C'DATA IS'
002335  00                  990          DC    X'00'
002336  34A1                991          DC    A(CD21)
002338  C4D640E8D6E440E6C   992 DINNT    DC    C'DO YOU WANT TO USE THE STANDARD DATA PATTERN?'
002365  00                  993          DC    X'00'
002366  34A7                994          DC    A(CD27)
002368  C8D6E640D4C1D5E84   995 LPMSG    DC    C'HOW MANY TIMES THRU THE LOOP'
002384  00                  996          DC    X'00'
002386  34A5                997          DC    A(CD25)
002388  C2E8E3C540C3D6E4D   998 BYTEC    DC    C'BYTE COUNT'
002392  00                  999          DC    X'00'
002394  34AF               1000          DC    A(CD2F)
002396  C4D640E8D6E440E6C  1001 CHBT     DC    C'DO YOU WANT THE CHAIN BIT ON?'
0023B3  00                 1002          DC    X'00'
0023B4  34BC               1003          DC    A(CD3C)
0023B6  E6C9D3D340C1D5E84  1004 DCBC1    DC    C'WILL ANY DCB''S BE CHAINED?'
0023D0  00                 1005          DC    X'00'
0023D2  0000               1006          DC    A(0)
0023D4  D3D6D6D740E2E3C1D  1007 LPST     DC    C'LOOP STARTED AT '
0023E4  F0F0F0F0           1008 LPST1    DC    C'0000'
0023E8  00                 1009          DC    X'00'
0023EA  0000               1010          DC    A(0)
0023EC  D3D6D6D740C5D5C4C  1011 LPEN     DC    C'LOOP ENDED AT '
0023FA  F0F0F0F0           1012 LPEN1    DC    C'0000'
0023FE  00                 1013          DC    X'00'
002400  34CD               1014          DC    A(CD3D)
002402  C5D9C1E2C540C1C6E  1015 DBM1     DC    C'ERASE AFTER BIT?'
002412  00                 1016          DC    X'00'
002414  34CE               1017          DC    A(CD3E)
002416  C5D5C440D6C640C6C  1018 DBM2     DC    C'END OF FIELD BIT?'
002427  00                 1019          DC    X'00'
002428  34CF               1020          DC    A(CD3F)
00242A  C5D5C440D6C640D3C  1021 DBM3     DC    C'END OF LINE BIT?'
00243A  00                 1022          DC    X'00'
00243C  34D0               1023          DC    A(CD40)
00243E  C5D9C1E2C540C2C9E  1024 DBM4     DC    C'ERASE BIT?'
002448  00                 1025          DC    X'00'
00244A  34D1               1026          DC    A(CD41)
00244C  D7D6E2E340C3E4D9E  1027 DBM5     DC    C'POST CURSOR BIT?'
00245C  00                 1028          DC    X'00'
00245E  34D2               1029          DC    A(CD42)
002460  D7D9C560C3E4D9E2D  1030 DBM6     DC    C'PRE-CURSOR BIT?'
00246F  00                 1031          DC    X'00'
002470  34D3               1032          DC    A(CD43)
002472  E2C8C9C6E340E4D76  1033 DBM7     DC    C'SHIFT UP?'
00247B  00                 1034          DC    X'00'
00247C  34D4               1035          DC    A(CD44)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00247E  E2C8C9C6E340C2C9E  1036 DBM8     DC    C'SHIFT BIT?'
002488  00                 1037          DC    X'00'
00248A  34D5               1038          DC    A(CD45)
00248C  D7D6E2E340C3E4D9E  1039 DBM9     DC    C'POST CURSOR ADR'
00249B  00                 1040          DC    X'00'
00249C  34D6               1041          DC    A(CD46)
00249E  D7D9C560C3E4D9E2D  1042 DBM10    DC    C'PRE-CURSOR ADR'
0024AC  00                 1043          DC    X'00'
0024AE  34D7               1044          DC    A(CD47)
0024B0  E4D7D7C5D9404DC8C  1045 DBM11    DC    C'UPPER (HI) LINE ADR(0000-0023)'
0024CE  00                 1046          DC    X'00'
0024D0  34D8               1047          DC    A(CD48)
0024D2  D3D6E6C5D9404DD3D  1048 DBM12    DC    C'LOWER (LO) LINE ADR(0000-0023)'
0024F0  00                 1049          DC    X'00'
0024F2  34D9               1050          DC    A(CD49)
0024F4  D7D9D6E3C5C3E361E  1051 DBM13    DC    C'PROTECT/UNPROTECT BIT?'
00250A  00                 1052          DC    X'00'
00250C  34DA               1053          DC    A(CD4A)
00250E  D2C5E8C2D6C1D9C44  1054 DBM14    DC    C'KEYBOARD LOCKOUT BIT?'
002523  00                 1055          DC    X'00'
002524  34DB               1056          DC    A(CD4B)
002526  C2D3C1D5D240C2C9E  1057 DBM15    DC    C'BLANK BIT?'
002530  00                 1058          DC    X'00'
002532  34DC               1059          DC    A(CD4C)
002534  E2C8C9C6E340C3D6E  1060 DBM16    DC    C'SHIFT COUNT'
00253F  00                 1061          DC    X'00'
002540  34A0               1062          DC    A(CD20)
002542  D9C5C1C440C9C440C  1063 IDMG1    DC    C'READ ID EXPECTED '
002553  F0F4F0F640C9C440E  1064 IDMG2    DC    C'0406 ID WAS '
00255F  E7E7E7E740C9E240E  1065 IDMG3    DC    C'XXXX IS THIS O.K.?'
002571  00                 1066          DC    X'00'
000000                     1067          END
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
0	.R0.	ABSOLUTE. HEX VALUE(00000000) 167 168 173 174 175 205 302 303 304 343 347 352 353 354 358 359 360 375 384 385 386 389 399 401 403 404 408 409 410 414 415 416 416 419 422 423 424 424 425 429 430 434 435 435 452 456 459 460 463 477 481 487 488 493 645 651 652 653 654 655 656 656 670 673 676 679 680 684 685 686 689 690 691 692 693 701 714
0	.R1.	ABSOLUTE. HEX VALUE(00000001) 295 296 297 298 299 299 300 301 301 372 373 374 374
0	.R2.	ABSOLUTE. HEX VALUE(00000002) 332 337 342 365 366 367 453 455 459 478 480 487 492 590 595 601 607 630 631 635 636 642 646 647 660 661 663 664 699 700 712 713
0	.R3.	ABSOLUTE. HEX VALUE(00000003) 166 171 331 334 364 366 369 454 455 456 457 479 480 481 482 483 484 495 629 635 643 645 662 663 698 700 711 713
0	.R4.	ABSOLUTE. HEX VALUE(00000004) 308 313 334 336 339 341 342 344 344 344 344 345 351 352 428 429 644 672 673 675 676 678 679 744 746 746 747 748 752 759
0	.R5.	ABSOLUTE. HEX VALUE(00000005) 305 316 385 415 423 434 440 442 446 471 472 474 475 570 572 575 577 580 582 585 587 613 615 620 622 749 750 751 752 756 758 763 764 765 766 767 768 769 770
0	.R6.	ABSOLUTE. HEX VALUE(00000006) 294 502 521 522 523 524 525 531 537 543 549 555 561 566 609 632 633 661 666 721 722 745 753 754 757 758 760
0	.R7.	ABSOLUTE. HEX VALUE(00000007) 172 179 191 193 199 200 202 293 306 309 312 314 320 321 323 325 338 350 354 355 356 357 358 359 363 368 370 377 379 386 387 392 394 395 396 397 398 404 405 406 407 408 409 427 438 441 442 445 446 449 451 458 465 469 473 486 490 497 503 504 506 509 515 517 527 533 539 545 551 557 562 568 571 573 576 578 581 583 586 588 591 597 603 611 614 618 621 623 628 639 641 642 646 649 659 669 671 674 677 680 681 682 683 684 685 694 695 697 707 708 710 717 726 727 729 732 733 734 736 739 743 755 756 771
290	ALBRT	ADDRESS. HEX LOCATION(00001ACD) IN CSECT(044E8) LENGTH(1) 443
287	ASKIT	ADDRESS. HEX LOCATION(00001ACA) IN CSECT(044E8) LENGTH(1) 506 508
94	BADCC	ABSOLUTE. HEX VALUE(0000181C) 179
237	BOUND	ADDRESS. HEX LOCATION(00001A6A) IN CSECT(044E8) LENGTH(2) 589 766 770
240	BYCNT	ADDRESS. HEX LOCATION(00001A70) IN CSECT(044E8) LENGTH(2) 570 575 613 620 622 814 894 899 929
813	BYCTM	ADDRESS. HEX LOCATION(000020DA) IN CSECT(044E8) LENGTH(2) 618
998	BYTEC	ADDRESS. HEX LOCATION(00002388) IN CSECT(044E8) LENGTH(10) 813
178	CCCHK	ADDRESS. HEX LOCATION(000019FA) IN CSECT(044E8) LENGTH(4) 181 356 357 406 407 682 683
181	CCDCP	ABSOLUTE. HEX VALUE(00000008) 355 405 681
54	CD1B	ABSOLUTE. HEX VALUE(0000349B) 976
63	CD2F	ABSOLUTE. HEX VALUE(000034AF) 1000
55	CD20	ABSOLUTE. HEX VALUE(000034A0) 1062
56	CD21	ABSOLUTE. HEX VALUE(000034A1) 991
57	CD22	ABSOLUTE. HEX VALUE(000034A2) 979
58	CD23	ABSOLUTE. HEX VALUE(000034A3) 982
59	CD24	ABSOLUTE. HEX VALUE(000034A4) 988
60	CD25	ABSOLUTE. HEX VALUE(000034A5) 997
61	CD26	ABSOLUTE. HEX VALUE(000034A6) 985
62	CD27	ABSOLUTE. HEX VALUE(000034A7) 994
53	CD3	ABSOLUTE. HEX VALUE(00003483) 967
64	CD3C	ABSOLUTE. HEX VALUE(000034BC) 1003
65	CD3D	ABSOLUTE. HEX VALUE(000034CD) 1014
66	CD3E	ABSOLUTE. HEX VALUE(000034CE) 1017
67	CD3F	ABSOLUTE. HEX VALUE(000034CF) 1020
78	CD4A	ABSOLUTE. HEX VALUE(000034DA) 1053
79	CD4B	ABSOLUTE. HEX VALUE(000034DB) 1056
80	CD4C	ABSOLUTE. HEX VALUE(000034DC) 1059
68	CD40	ABSOLUTE. HEX VALUE(000034D0) 1023
69	CD41	ABSOLUTE. HEX VALUE(000034D1) 1026

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
70	CD42	ABSOLUTE. HEX VALUE(000034D2) 1029
71	CD43	ABSOLUTE. HEX VALUE(000034D3) 1032
72	CD44	ABSOLUTE. HEX VALUE(000034D4) 1035
73	CD45	ABSOLUTE. HEX VALUE(000034D5) 1038
74	CD46	ABSOLUTE. HEX VALUE(000034D6) 1041
75	CD47	ABSOLUTE. HEX VALUE(000034D7) 1044
76	CD48	ABSOLUTE. HEX VALUE(000034D8) 1047
77	CD49	ABSOLUTE. HEX VALUE(000034D9) 1050
833	CHBIT	ADDRESS. HEX LOCATION(00002102) IN CSECT(044E8) LENGTH(2) 517
1001	CHBT	ADDRESS. HEX LOCATION(00002396) IN CSECT(044E8) LENGTH(29) 833
288	CHIND	ADDRESS. HEX LOCATION(00001ACB) IN CSECT(044E8) LENGTH(1) 649 665 669
239	CHNAD	ADDRESS. HEX LOCATION(00001A6E) IN CSECT(044E8) LENGTH(2) 524
279	CLPEN	ADDRESS. HEX LOCATION(00001ABC) IN CSECT(044E8) LENGTH(2) 490
276	CLPST	ADDRESS. HEX LOCATION(00001AB6) IN CSECT(044E8) LENGTH(2) 497
187	CNTAD	ADDRESS. HEX LOCATION(00001A04) IN CSECT(044E8) LENGTH(1) 482
182	CNTST	ADDRESS. HEX LOCATION(00001A02) IN CSECT(044E8) LENGTH(6) 187 188 478
185	CNTWD	ADDRESS. HEX LOCATION(00001A0E) IN CSECT(044E8) LENGTH(2) 182 189 472 479 824
433	COMCD	ADDRESS. HEX LOCATION(00001C88) IN CSECT(044E8) LENGTH(1) 420
87	CPUTP	ABSOLUTE. HEX VALUE(00000232) 443
273	CVADR	ADDRESS. HEX LOCATION(00001AB0) IN CSECT(044E8) LENGTH(2) 306
274	CVAD1	ADDRESS. HEX LOCATION(00001AB2) IN CSECT(044E8) LENGTH(2) 305
282	CVRID	ADDRESS. HEX LOCATION(00001AC2) IN CSECT(044E8) LENGTH(2) 321
863	CW010	ADDRESS. HEX LOCATION(0000213E) IN CSECT(044E8) LENGTH(2) 539
868	CW011	ADDRESS. HEX LOCATION(00002148) IN CSECT(044E8) LENGTH(2) 717
873	CW012	ADDRESS. HEX LOCATION(00002152) IN CSECT(044E8) LENGTH(2) 545
878	CW013	ADDRESS. HEX LOCATION(0000215C) IN CSECT(044E8) LENGTH(2) 551
883	CW014	ADDRESS. HEX LOCATION(00002166) IN CSECT(044E8) LENGTH(2) 562
888	CW015	ADDRESS. HEX LOCATION(00002170) IN CSECT(044E8) LENGTH(2) 557
853	CW080	ADDRESS. HEX LOCATION(0000212A) IN CSECT(044E8) LENGTH(2) 527
858	CW090	ADDRESS. HEX LOCATION(00002134) IN CSECT(044E8) LENGTH(2) 533
838	DATER	ADDRESS. HEX LOCATION(0000210C) IN CSECT(044E8) LENGTH(2) 639
154	DATIN	ADDRESS. HEX LOCATION(0000194A) IN CSECT(044E8) LENGTH(2) 511 519 529 535 541 547 553 559 564 580 585 593 599 605 625 643 719 829 834 839 844 854 859 864 869 874 879 884 889 904 909 914 919 924
843	DATRQ	ADDRESS. HEX LOCATION(00002116) IN CSECT(044E8) LENGTH(2) 623
1015	DBM1	ADDRESS. HEX LOCATION(00002402) IN CSECT(044E8) LENGTH(16) 853
1042	DBM10	ADDRESS. HEX LOCATION(0000249E) IN CSECT(044E8) LENGTH(14) 898
1045	DBM11	ADDRESS. HEX LOCATION(000024B0) IN CSECT(044E8) LENGTH(30) 903
1048	DBM12	ADDRESS. HEX LOCATION(000024D2) IN CSECT(044E8) LENGTH(30) 908
1051	DBM13	ADDRESS. HEX LOCATION(000024F4) IN CSECT(044E8) LENGTH(22) 913
1054	DBM14	ADDRESS. HEX LOCATION(0000250E) IN CSECT(044E8) LENGTH(21) 918
1057	DBM15	ADDRESS. HEX LOCATION(00002526) IN CSECT(044E8) LENGTH(10) 923
1060	DBM16	ADDRESS. HEX LOCATION(00002534) IN CSECT(044E8) LENGTH(11) 928
1018	DBM2	ADDRESS. HEX LOCATION(00002416) IN CSECT(044E8) LENGTH(17) 858
1021	DBM3	ADDRESS. HEX LOCATION(0000242A) IN CSECT(044E8) LENGTH(16) 863
1024	DBM4	ADDRESS. HEX LOCATION(0000243E) IN CSECT(044E8) LENGTH(10) 868
1027	DBM5	ADDRESS. HEX LOCATION(0000244C) IN CSECT(044E8) LENGTH(16) 873
1030	DBM6	ADDRESS. HEX LOCATION(00002460) IN CSECT(044E8) LENGTH(15) 878
1033	DBM7	ADDRESS. HEX LOCATION(00002472) IN CSECT(044E8) LENGTH(9) 883
1036	DBM8	ADDRESS. HEX LOCATION(0000247E) IN CSECT(044E8) LENGTH(10) 888
1039	DBM9	ADDRESS. HEX LOCATION(0000248C) IN CSECT(044E8) LENGTH(15) 893
828	DCBCH	ADDRESS. HEX LOCATION(000020F8) IN CSECT(044E8) LENGTH(2) 509
1004	DCBC1	ADDRESS. HEX LOCATION(000023B6) IN CSECT(044E8) LENGTH(26) 828
234	DCBLD	ADDRESS. HEX LOCATION(00001A64) IN CSECT(044E8) LENGTH(2) 294 364 502 525 662 698 704 711 721
93	DCBPT	ABSOLUTE. HEX VALUE(0000181A) 522 656 660 664
893	DCB1	ADDRESS. HEX LOCATION(0000217A) IN CSECT(044E8) LENGTH(2) 568

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DECLARED  NAME    ATTRIBUTES AND REFERENCES
     898  DCB2      ADDRESS. HEX LOCATION(00002184) IN CSECT(044E8   ) LENGTH(2)
                    573
     903  DCB3A     ADDRESS. HEX LOCATION(0000218E) IN CSECT(044E8   ) LENGTH(2)
                    578
     908  DCB3B     ADDRESS. HEX LOCATION(00002198) IN CSECT(044E8   ) LENGTH(2)
                    583
     928  DCB4A     ADDRESS. HEX LOCATION(000021C0) IN CSECT(044E8   ) LENGTH(2)
                    611
     913  DCB41     ADDRESS. HEX LOCATION(000021A2) IN CSECT(044E8   ) LENGTH(2)
                    591
     918  DCB42     ADDRESS. HEX LOCATION(000021AC) IN CSECT(044E8   ) LENGTH(2)
                    597
     923  DCB43     ADDRESS. HEX LOCATION(000021B6) IN CSECT(044E8   ) LENGTH(2)
                    603
     437  DELAY     ADDRESS. HEX LOCATION(00001C90) IN CSECT(044E8   ) LENGTH(1)
                    265
     230  DELCT     ADDRESS. HEX LOCATION(00001A60) IN CSECT(044E8   ) LENGTH(1)
                    449
     104  DEVC1     ABSOLUTE. HEX VALUE(0000182E)
                    167
     231  DFALT     ADDRESS. HEX LOCATION(00001A61) IN CSECT(044E8   ) LENGTH(1)
                    387   632   694   707   726   732
     725  DFLT1     ADDRESS. HEX LOCATION(00002004) IN CSECT(044E8   ) LENGTH(1)
                    259
     731  DFLT2     ADDRESS. HEX LOCATION(00002016) IN CSECT(044E8   ) LENGTH(1)
                    260
     777  DHSAV     ADDRESS. HEX LOCATION(00002092) IN CSECT(044E8   ) LENGTH(2)
                    744   759
     992  DINNT     ADDRESS. HEX LOCATION(00002338) IN CSECT(044E8   ) LENGTH(45)
                    843
     195  DLADR     ADDRESS. HEX LOCATION(00001A1A) IN CSECT(044E8   ) LENGTH(1)
                    457
     448  DLAY1     ADDRESS. HEX LOCATION(00001CAE) IN CSECT(044E8   ) LENGTH(1)
                    444
     450  DLAY2     ADDRESS. HEX LOCATION(00001CB2) IN CSECT(044E8   ) LENGTH(1)
                    447
     196  DLCNT     ADDRESS. HEX LOCATION(00001A22) IN CSECT(044E8   ) LENGTH(2)
                    191   451   454
     192  DLIST     ADDRESS. HEX LOCATION(00001A1C) IN CSECT(044E8   ) LENGTH(2)
                    193
     808  DLMSG     ADDRESS. HEX LOCATION(000020D0) IN CSECT(044E8   ) LENGTH(2)
                    438
     191  DLNST     ADDRESS. HEX LOCATION(00001A18) IN CSECT(044E8   ) LENGTH(4)
                    195   453
     983  DMSGL     ADDRESS. HEX LOCATION(000022EC) IN CSECT(044E8   ) LENGTH(32)
                    808
     218  DTCSS     ADDRESS. HEX LOCATION(00001A4E) IN CSECT(044E8   ) LENGTH(2)
                    299
      91  DTENT     ABSOLUTE. HEX VALUE(00001816)
                    630   636   647
     989  DTINN     ADDRESS. HEX LOCATION(0000232E) IN CSECT(044E8   ) LENGTH(7)
                    838
     742  DTOH      ADDRESS. HEX LOCATION(00002034) IN CSECT(044E8   ) LENGTH(1)
                    441   473   571   576   581   586   614   621
     216  DVAL1     ADDRESS. HEX LOCATION(00001A4A) IN CSECT(044E8   ) LENGTH(2)
                    728
     217  DVAL2     ADDRESS. HEX LOCATION(00001A4C) IN CSECT(044E8   ) LENGTH(2)
                    735
     103  DVPNT     ABSOLUTE. HEX VALUE(0000182C)
                    295   372
     116  EIGHT     ABSOLUTE. HEX VALUE(00000008)
                    531   750   753
     138  EIGTY     ABSOLUTE. HEX VALUE(00000050)
                    628   641
     119  ELEVN     ABSOLUTE. HEX VALUE(0000000B)
                    308   339   722
     105  EPRNT     ABSOLUTE. HEX VALUE(00001830)
                    202
     199  ERTST     ADDRESS. HEX LOCATION(00001A28) IN CSECT(044E8   ) LENGTH(4)
                    675
     203  ERTS1     ADDRESS. HEX LOCATION(00001A34) IN CSECT(044E8   ) LENGTH(1)
                    201
     123  FIFTN     ABSOLUTE. HEX VALUE(0000000F)
                    561   609
     232  FIVDF     ADDRESS. HEX LOCATION(00001A62) IN CSECT(044E8   ) LENGTH(1)
                    389
     113  FIVE      ABSOLUTE. HEX VALUE(00000005)
                    174
     122  FORTN     ABSOLUTE. HEX VALUE(0000000E)
                    566
     112  FOUR      ABSOLUTE. HEX VALUE(00000004)
                    188   194   312   361   411   431   483   657   747
                    749   754   765   769
     180  GODCC     ADDRESS. HEX LOCATION(00001A02) IN CSECT(044E8   ) LENGTH(1)
                    178   181
     100  HEXFF     ABSOLUTE. HEX VALUE(00001828)
                    499   508   513   665
      45  HTOE      ABSOLUTE. HEX VALUE(0000001A)
                    307   322   491   498
     773  HUN       ADDRESS. HEX LOCATION(0000208C) IN CSECT(044E8   ) LENGTH(1)
                    751
     774  HWD80     ADDRESS. HEX LOCATION(0000208D) IN CSECT(044E8   ) LENGTH(1)
                    764   768
      89  IDCPT     ABSOLUTE. HEX VALUE(00001812)
                    343   348   349   361   402   411   426   431   651
                    657   693   701   714
      44  IDLE      ABSOLUTE. HEX VALUE(00000002)
                    170   192
    1063  IDMG1     ADDRESS. HEX LOCATION(00002542) IN CSECT(044E8   ) LENGTH(17)
                    848
    1065  IDMG3     ADDRESS. HEX LOCATION(0000255F) IN CSECT(044E8   ) LENGTH(18)
                    284
     848  IDMSG     ADDRESS. HEX LOCATION(00002120) IN CSECT(044E8   ) LENGTH(2)
                    323
     937  INCMD     ADDRESS. HEX LOCATION(000021D2) IN CSECT(044E8   ) LENGTH(2)
                    739
     977  INCMG     ADDRESS. HEX LOCATION(000022B6) IN CSECT(044E8   ) LENGTH(29)
                    937
     167  INCOA     ADDRESS. HEX LOCATION(000019DE) IN CSECT(044E8   ) LENGTH(4)
                    171   297   690
     166  INCOM     ADDRESS. HEX LOCATION(000019DA) IN CSECT(044E8   ) LENGTH(4)
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DECLARED  NAME    ATTRIBUTES AND REFERENCES
                    351   672
     173  INCO1     ADDRESS. HEX LOCATION(000019EE) IN CSECT(044E8   ) LENGTH(2)
                    169   349   653   678
     205  INCO2     ADDRESS. HEX LOCATION(00001A34) IN CSECT(044E8   ) LENGTH(2)
                    206   691
     146  INERR     ABSOLUTE. HEX VALUE(00000002)
                    200
     177  IOADR     ADDRESS. HEX LOCATION(000019F8) IN CSECT(044E8   ) LENGTH(1)
                    175   348   402   426   652
     176  IONST     ADDRESS. HEX LOCATION(000019F6) IN CSECT(044E8   ) LENGTH(4)
                    177   353   403   428
     197  JINST     ADDRESS. HEX LOCATION(00001A24) IN CSECT(044E8   ) LENGTH(2)
                    303
      99  LOOPS     ABSOLUTE. HEX VALUE(00001826)
                    277   476   496
     468  LOOP1     ADDRESS. HEX LOCATION(00001CE6) IN CSECT(044E8   ) LENGTH(1)
                    464
     823  LOPMG     ADDRESS. HEX LOCATION(000020EE) IN CSECT(044E8   ) LENGTH(2)
                    469
     462  LOPND     ADDRESS. HEX LOCATION(00001CD6) IN CSECT(044E8   ) LENGTH(1)
                    267
     495  LOPST     ADDRESS. HEX LOCATION(00001D46) IN CSECT(044E8   ) LENGTH(1)
                    266
     106  LOST      ABSOLUTE. HEX VALUE(00001832)
                    172
     221  LOWER     ADDRESS. HEX LOCATION(00001A54) IN CSECT(044E8   ) LENGTH(2)
                    587   763
     190  LPADR     ADDRESS. HEX LOCATION(00001A0C) IN CSECT(044E8   ) LENGTH(1)
                    476
     186  LPCNT     ADDRESS. HEX LOCATION(00001A10) IN CSECT(044E8   ) LENGTH(2)
                    189   474
    1011  LPEN      ADDRESS. HEX LOCATION(000023EC) IN CSECT(044E8   ) LENGTH(14)
                    935
     215  LPEND     ADDRESS. HEX LOCATION(00001A48) IN CSECT(044E8   ) LENGTH(2)
                    280   488   489
     935  LPENM     ADDRESS. HEX LOCATION(000021CE) IN CSECT(044E8   ) LENGTH(2)
                    379
    1012  LPEN1     ADDRESS. HEX LOCATION(000023FA) IN CSECT(044E8   ) LENGTH(4)
                    281
      96  LPIND     ABSOLUTE. HEX VALUE(0000181F)
                    375   463   499
     995  LPMSG     ADDRESS. HEX LOCATION(00002368) IN CSECT(044E8   ) LENGTH(28)
                    823
     184  LPNST     ADDRESS. HEX LOCATION(00001A0A) IN CSECT(044E8   ) LENGTH(4)
                    190
    1007  LPST      ADDRESS. HEX LOCATION(000023D4) IN CSECT(044E8   ) LENGTH(16)
                    933
     933  LPSTM     ADDRESS. HEX LOCATION(000021CA) IN CSECT(044E8   ) LENGTH(2)
                    377
    1008  LPST1     ADDRESS. HEX LOCATION(000023E4) IN CSECT(044E8   ) LENGTH(4)
                    278
     147  MASK1     ABSOLUTE. HEX VALUE(00008080)
                    589
     148  MASK2     ABSOLUTE. HEX VALUE(00008FE8)
                    616
     779  MG8       ADDRESS. HEX LOCATION(00002096) IN CSECT(044E8   ) LENGTH(2)
                    309
     143  M1        ABSOLUTE. HEX VALUE(FFFFFFFF)
                    182
     965  M10       ADDRESS. HEX LOCATION(0000226A) IN CSECT(044E8   ) LENGTH(7)
                    799
     968  M10A      ADDRESS. HEX LOCATION(00002274) IN CSECT(044E8   ) LENGTH(8)
                    803
     971  M11       ADDRESS. HEX LOCATION(00002280) IN CSECT(044E8   ) LENGTH(27)
                    781
     974  M12       ADDRESS. HEX LOCATION(0000229E) IN CSECT(044E8   ) LENGTH(21)
                    783
     144  M4        ABSOLUTE. HEX VALUE(FFFFFFFC)
                    328
     145  M6        ABSOLUTE. HEX VALUE(FFFFFFFA)
                    489
     940  M8        ADDRESS. HEX LOCATION(000021D8) IN CSECT(044E8   ) LENGTH(25)
                    779
     941  M8A       ADDRESS. HEX LOCATION(000021F1) IN CSECT(044E8   ) LENGTH(3)
                    275
     944  M9        ADDRESS. HEX LOCATION(000021F8) IN CSECT(044E8   ) LENGTH(19)
                    785
     947  M9A       ADDRESS. HEX LOCATION(0000220E) IN CSECT(044E8   ) LENGTH(20)
                    787
     950  M9B       ADDRESS. HEX LOCATION(00002226) IN CSECT(044E8   ) LENGTH(10)
                    789
     953  M9C       ADDRESS. HEX LOCATION(00002234) IN CSECT(044E8   ) LENGTH(8)
                    791
     956  M9D       ADDRESS. HEX LOCATION(00002240) IN CSECT(044E8   ) LENGTH(8)
                    793
     959  M9E       ADDRESS. HEX LOCATION(0000224C) IN CSECT(044E8   ) LENGTH(13)
                    795
     962  M9F       ADDRESS. HEX LOCATION(0000225C) IN CSECT(044E8   ) LENGTH(11)
                    797
     738  NGOOD     ADDRESS. HEX LOCATION(0000202A) IN CSECT(044E8   ) LENGTH(1)
                    340
     117  NINE      ABSOLUTE. HEX VALUE(00000009)
                    395   537
     986  NLOOP     ADDRESS. HEX LOCATION(00002310) IN CSECT(044E8   ) LENGTH(27)
                    801
     285  NO        ADDRESS. HEX LOCATION(00001AC8) IN CSECT(044E8   ) LENGTH(1)
                    326   511   519   529   535   541   547   553   559
                    564   593   599   605   625   719
     286  NOCHN     ADDRESS. HEX LOCATION(00001AC9) IN CSECT(044E8   ) LENGTH(1)
                    513   515
     801  NOLOP     ADDRESS. HEX LOCATION(000020C2) IN CSECT(044E8   ) LENGTH(2)
                    465
     109  ONE       ABSOLUTE. HEX VALUE(00000001)
                    205   296   298   336   341   369   445   504   595
                    615   708   727   729   734
      88  OPTN2     ABSOLUTE. HEX VALUE(00001810)
                    199
      42  OUT       ABSOLUTE. HEX VALUE(00000000)
                    311   378   380   466   740
      43  OUTIN     ABSOLUTE. HEX VALUE(00000001)
                    315   324   393   439   470   510   518   528   534
                    540   546   552   558   563   569   574   579   584
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CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		592 598 604 612 619 624 640 718
3	O44E8	CSECT. START(00001900) LENGTH(3186) ESDID(0)
		3
980	PMSGR	ADDRESS. HEX LOCATION(000022D6) IN CSECT(O44E8) LENGTH(18)
		818
235	POSTC	ADDRESS. HEX LOCATION(00001A66) IN CSECT(O44E8) LENGTH(2)
		572
236	PRECR	ADDRESS. HEX LOCATION(00001A68) IN CSECT(O44E8) LENGTH(2)
		577
391	PREPA	ADDRESS. HEX LOCATION(00001C0A) IN CSECT(O44E8) LENGTH(1)
		388
400	PREPB	ADDRESS. HEX LOCATION(00001C24) IN CSECT(O44E8) LENGTH(1)
		390 417
383	PREPR	ADDRESS. HEX LOCATION(00001BF6) IN CSECT(O44E8) LENGTH(1)
		261
818	PRMSG	ADDRESS. HEX LOCATION(000020E4) IN CSECT(O44E8) LENGTH(2)
		392
226	PRPCD	ADDRESS. HEX LOCATION(00001A5C) IN CSECT(O44E8) LENGTH(1)
		384 414
762	RCOMP	ADDRESS. HEX LOCATION(0000206C) IN CSECT(O44E8) LENGTH(1)
		588
223	RDADR	ADDRESS. HEX LOCATION(00001A57) IN CSECT(O44E8) LENGTH(1)
		316 655
242	RDBLD	ADDRESS. HEX LOCATION(00001A74) IN CSECT(O44E8) LENGTH(2)
		699
224	RDCOD	ADDRESS. HEX LOCATION(00001A58) IN CSECT(O44E8) LENGTH(2)
		283 318
222	RDID	ADDRESS. HEX LOCATION(00001A56) IN CSECT(O44E8) LENGTH(1)
		317
219	RDIPT	ADDRESS. HEX LOCATION(00001A50) IN CSECT(O44E8) LENGTH(2)
		704
688	READ	ADDRESS. HEX LOCATION(00001F96) IN CSECT(O44E8) LENGTH(1)
		268
703	READA	ADDRESS. HEX LOCATION(00001FC6) IN CSECT(O44E8) LENGTH(1)
		696
418	REDID	ADDRESS. HEX LOCATION(00001C5A) IN CSECT(O44E8) LENGTH(1)
		263
421	RESET	ADDRESS. HEX LOCATION(00001C60) IN CSECT(O44E8) LENGTH(1)
		264
189	RESTR	ADDRESS. HEX LOCATION(00001A12) IN CSECT(O44E8) LENGTH(6)
		483 485
214	RETSV	ADDRESS. HEX LOCATION(00001A46) IN CSECT(O44E8) LENGTH(2)
		293 329 382
227	RIDCD	ADDRESS. HEX LOCATION(00001A5D) IN CSECT(O44E8) LENGTH(1)
		419
228	RSTCD	ADDRESS. HEX LOCATION(00001A5E) IN CSECT(O44E8) LENGTH(1)
		422
776	RTRTN	ADDRESS. HEX LOCATION(00002090) IN CSECT(O44E8) LENGTH(2)
		743 761
208	R2SAV	ADDRESS. HEX LOCATION(00001A3A) IN CSECT(O44E8) LENGTH(2)
		337 367 492
211	R5SAV	ADDRESS. HEX LOCATION(00001A40) IN CSECT(O44E8) LENGTH(2)
		471 475
212	R6SAV	ADDRESS. HEX LOCATION(00001A42) IN CSECT(O44E8) LENGTH(2)
		745 760
213	R7SAV	ADDRESS. HEX LOCATION(00001A44) IN CSECT(O44E8) LENGTH(2)
		320 325 338 368 503
241	SDADR	ADDRESS. HEX LOCATION(00001A72) IN CSECT(O44E8) LENGTH(2)
		631
115	SEVEN	ABSOLUTE. HEX VALUE(00000007)
		178 398
238	SHIFT	ADDRESS. HEX LOCATION(00001A6C) IN CSECT(O44E8) LENGTH(2)
		590 615 616
229	SIOCD	ADDRESS. HEX LOCATION(00001A5F) IN CSECT(O44E8) LENGTH(1)
		654
501	SIORT	ADDRESS. HEX LOCATION(00001D5C) IN CSECT(O44E8) LENGTH(1)
		705 724
526	SIOR1	ADDRESS. HEX LOCATION(00001DB0) IN CSECT(O44E8) LENGTH(1)
		505 516 520
638	SIOR7	ADDRESS. HEX LOCATION(00001F02) IN CSECT(O44E8) LENGTH(1)
		626
648	SIOR8	ADDRESS. HEX LOCATION(00001F1A) IN CSECT(O44E8) LENGTH(1)
		634 637
532	SIO1	ADDRESS. HEX LOCATION(00001DC0) IN CSECT(O44E8) LENGTH(1)
		530
617	SIO10	ADDFESS. HEX LOCATION(00001EC2) IN CSECT(O44E8) LENGTH(1)
		610
538	SIO2	ADDRESS. HEX LOCATION(00001DD0) IN CSECT(O44E8) LENGTH(1)
		536
544	SIO3	ADDRESS. HEX LOCATION(00001DE0) IN CSECT(O44E8) LENGTH(1)
		542
550	SIO4	ADDRESS. HEX LOCATION(00001DF0) IN CSECT(O44E8) LENGTH(1)
		548
556	SIO5	ADDRESS. HEX LOCATION(00001E00) IN CSECT(O44E8) LENGTH(1)
		554
567	SIO6	ADDRESS. HEX LOCATION(00001E20) IN CSECT(O44E8) LENGTH(1)
		560 565
596	SIO7	ADDRESS. HEX LOCATION(00001E86) IN CSECT(O44E8) LENGTH(1)
		594
602	SIO8	ADDRESS. HEX LOCATION(00001E96) IN CSECT(O44E8) LENGTH(1)
		600
608	SIO9	ADDRESS. HEX LOCATION(00001EA6) IN CSECT(O44E8) LENGTH(1)
		606
114	SIX	ABSOLUTE. HEX VALUE(00000006)
		349 653
124	SIXTN	ABSOLUTE. HEX VALUE(00000010)
		363 523 659 697 710
627	SI7	ADDRESS. HEX LOCATION(00001EE2) IN CSECT(O44E8) LENGTH(1)
		702 715
142	STH68	ABSOLUTE. HEX VALUE(00001C00)
		166
90	STRTB	ABSOLUTE. HEX VALUE(00001814)
		301 302 304 328 347 360 374 401 410
		425 430 452 460 477 493 496 670 686
		689 692
514	S1	ADDRESS. HEX LOCATION(00001D8A) IN CSECT(O44E8) LENGTH(1)
		507 512
658	S8	ADDRESS. HEX LOCATION(00001F3E) IN CSECT(O44E8) LENGTH(1)
		650
118	TEN	ABSOLUTE. HEX VALUE(0000000A)
		183 543

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
775	TENS	ADDRESS. HEX LOCATION(0000208E) IN CSECT(O44E8) LENGTH(1)
		757
772	THOUS	ADDRESS. HEX LOCATION(0000208A) IN CSECT(O44E8) LENGTH(2)
		748
111	THREE	ABSOLUTE. HEX VALUE(00000003)
		607
121	THRTN	ABSOLUTE. HEX VALUE(0000000D)
		555
120	TWELV	ABSOLUTE. HEX VALUE(0000000C)
		373 427 458 549 674 677 755
126	TWENY	ABSOLUTE. HEX VALUE(00000014)
		350 671
127	TWEN2	ABSOLUTE. HEX VALUE(00000016)
		486
110	TWO	ABSOLUTE. HEX VALUE(00000002)
		177 187 190 195 197 198 297 300 356
		406 484 485 601 682 736
152	UBUFR	ADDRESS. HEX LOCATION(00001906) IN CSECT(O44E8) LENGTH(2)
		331 728 735 804
413	UNPRP	ADDRESS. HEX LOCATION(00001C50) IN CSECT(O44E8) LENGTH(1)
		262
220	UPPER	ADDRESS. HEX LOCATION(00001A52) IN CSECT(O44E8) LENGTH(2)
		582 767
258	VIRBL	ADDRESS. HEX LOCATION(00001A94) IN CSECT(O44E8) LENGTH(1)
		332
155	VIRDT	ADDRESS. HEX LOCATION(0000198A) IN CSECT(O44E8) LENGTH(54)
		629
225	VIRID	ADDRESS. HEX LOCATION(00001A5A) IN CSECT(O44E8) LENGTH(2)
		318
292	VIR00	ADDRESS. HEX LOCATION(00001ACE) IN CSECT(O44E8) LENGTH(1)
		151
310	VIR10	ADDRESS. HEX LOCATION(00001B10) IN CSECT(O44E8) LENGTH(1)
		313
330	VIR12	ADDRESS. HEX LOCATION(00001B54) IN CSECT(O44E8) LENGTH(1)
		319 327 730 737
333	VIR15	ADDRESS. HEX LOCATION(00001B5C) IN CSECT(O44E8) LENGTH(1)
		370
346	VIR20	ADDRESS. HEX LOCATION(00001B82) IN CSECT(O44E8) LENGTH(1)
		436 741
362	VIR23	ADDRESS. HEX LOCATION(00001BBA) IN CSECT(O44E8) LENGTH(1)
		412 432 461 467 494 500 667 687
371	VIR25	ADDRESS. HEX LOCATION(00001BD4) IN CSECT(O44E8) LENGTH(1)
		335
381	VIR26	ADDRESS. HEX LOCATION(00001BF2) IN CSECT(O44E8) LENGTH(1)
		376
803	VMG2	ADDRESS. HEX LOCATION(000020C6) IN CSECT(O44E8) LENGTH(2)
		314
207	WORKA	ADDRESS. HEX LOCATION(00001A38) IN CSECT(O44E8) LENGTH(2)
		326 849
153	WORK1	ADDRESS. HEX LOCATION(00001946) IN CSECT(O44E8) LENGTH(2)
		394 396 397 399 440 809 819
250	WRBLD	ADDRESS. HEX LOCATION(00001A84) IN CSECT(O44E8) LENGTH(2)
		712
716	WRITA	ADDRESS. HEX LOCATION(00001FEC) IN CSECT(O44E8) LENGTH(1)
		709
723	WRITB	ADDRESS. HEX LOCATION(00002000) IN CSECT(O44E8) LENGTH(1)
		720
706	WRITE	ADDRESS. HEX LOCATION(00001FD0) IN CSECT(O44E8) LENGTH(1)
		269
108	ZERO	ABSOLUTE. HEX VALUE(00000000)
		168 173 521 633 644 666 695 733
101	ZEROS	ABSOLUTE. HEX VALUE(00001829)
		365

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                          COPYRIGHT IBM CORP 1976
001900                       3 045E8 START X'1900'
                             4 ********************************************************************
                             5 *                                                                  *
                             6 *                    ***       PREREQUISITES        ***           *
                             7 *                                                                  *
                             8 *                              NONE                                *
                             9 *                                                                  *
                            10 ********************************************************************
                            11 *                                                                  *
                            12 *                    ***       MODIFICATIONS        ***           *
                            13 *                                                                  *
                            14 *                     CORRECT THE CHAIN BIT OPERATION.             *
                            15 *                                                                  *
                            16 ********************************************************************
                            17 *                                                                  *
                            18 *                    ***     REA'S INCORPORATED     ***           *
                            19 *                                                                  *
                            20 *                              NONE                                *
                            21 *                                                                  *
                            22 ********************************************************************
                            23 *                                                                  *
                            24 *                    ***    SPECIAL INSTRUCTIONS    ***           *
                            25 *                                                                  *
                            26 *                              NONE                                *
                            27 *                                                                  *
                            28 ********************************************************************
                            29 *                                                                  *
                            30 *                    ***       E. C. HISTORY        ***           *
                            31 *                                                                  *
                            32 *          DATE 15SEP77  DATE 09DEC77  DATE          DATE          *
                            33 *          E.C. 754882   E.C. 755104   E.C.          E.C.          *
                            34 *                                                                  *
                            35 ********************************************************************
                            37 ********************************************************************
                            38 *                                                                  *
                            39 *      EQUATED NAMES FOR SUPPORTED SVC'S                           *
                            40 *                                                                  *
                            41 ********************************************************************
000000                      42 OUT    EQU   0                    OUT SVC
000001                      43 OUTIN  EQU   1                    OUTIN SVC
000002                      44 IDLE   EQU   2                    IDLE SVC
00001A                      45 HTOE   EQU   26                   HEX TO EBCIDIC
                            47 ********************************************************************
                            48 *                                                                  *
                            49 *      EQUATES FOR CODED STOPS USED BY THIS ROUTINE                *
                            50 *              (NORMAL AND ERROR)                                  *
                            51 *                                                                  *
                            52 ********************************************************************
00348B                      53 CDB    EQU   X'348B'              COMMANDS FOR 4978
00349B                      54 CD1B   EQU   X'349B'              INVALID COMMAND
0034A0                      55 CD20   EQU   X'34A0'              READ I.D. MISMATCH
0034A1                      56 CD21   EQU   X'34A1'              STANDARD DATA PATTERN
0034A2                      57 CD22   EQU   X'34A2'              LEVEL TO INTERRUPT
0034A3                      58 CD23   EQU   X'34A3'              LENGTH OF DELAY
0034A4                      59 CD24   EQU   X'34A4'              DATA TO BE USED FOR THIS TEST
0034A5                      60 CD25   EQU   X'34A5'              BYTE COUNT
0034A6                      61 CD26   EQU   X'34A6'              LOOP NOT STARTED
0034A7                      62 CD27   EQU   X'34A7'              NUMBER OF TIMES THRU LOOP
0034AF                      63 CD2F   EQU   X'34AF'              IS THIS DCB TO BE CHAINED
0034BC                      64 CD3C   EQU   X'34BC'              DCB CHAINING
0034CD                      65 CD3D   EQU   X'34CD'              ERASE AFTER BIT
0034CE                      66 CD3E   EQU   X'34CE'              END OF FIELD BIT
0034CF                      67 CD3F   EQU   X'34CF'              END OF LINE BIT
0034D0                      68 CD40   EQU   X'34D0'              ERASE BIT
0034D1                      69 CD41   EQU   X'34D1'              POST CURSOR BIT
0034D2                      70 CD42   EQU   X'34D2'              PRE-CURSOR BIT
0034D3                      71 CD43   EQU   X'34D3'              UP/DN BIT
0034D4                      72 CD44   EQU   X'34D4'              SHIFT BIT
0034D5                      73 CD45   EQU   X'34D5'              POST CURSOR ADDRESS
0034D6                      74 CD46   EQU   X'34D6'              PRE-CURSOR ADDRESS
0034D7                      75 CD47   EQU   X'34D7'              HI SHIFT BOUNDARY
0034D8                      76 CD48   EQU   X'34D8'              LOW SHIFT BOUNDARY
0034D9                      77 CD49   EQU   X'34D9'              PROTECT/UNPROTECT BIT
0034DA                      78 CD4A   EQU   X'34DA'              KEYBOARD LOCKOUT BIT
0034DB                      79 CD4B   EQU   X'34DB'              BLANK BIT
0034DC                      80 CD4C   EQU   X'34DC'              SHIFT COUNT
                            82 ********************************************************************
                            83 *                                                                  *
                            84 *      EQUATE TABLE                                                *
                            85 *                                                                  *
                            86 ********************************************************************
000232                      87 CPUTP  EQU   X'0232'              CPU TYPE
001810                      88 OPTN2  EQU   X'1810'              POINTER TO OPTION WORD 2
001812                      89 IDCPT  EQU   X'1812'              POINTER TO IDCB BUILD AREA
001814                      90 SRRTB  EQU   X'1814'              POINTER TO I/O STREAM BUILD AREA
001816                      91 DTENT  EQU   X'1816'              POINTER TO DATA BUILD AREA
001818                      92 DVCNT  EQU   X'1818'              POINTER TO DEVICE UNDER TEST
00181A                      93 DCBPT  EQU   X'181A'              POINTER TO DCB BUILD AREA
00181C                      94 BADCC  EQU   X'181C'              POINTER TO BAD CODE ROUTINE
00181E                      95 KMODE  EQU   X'181E'              POINTER TO DEVICE KEYING IN
00181F                      96 LPIND  EQU   X'181F'              LOOP INDICATOR
001820                      97 KEYMD  EQU   X'1820'              ADDRESS OF DEVICES KEYING
001824                      98 KYMOD  EQU   X'1824'              INDICATOR A DEVICE IS KEYING IN
001826                      99 LOOPS  EQU   X'1826'              ADDRESS OF LOOP START
001828                     100 HEXFF  EQU   X'1828'
001829                     101 ZEROS  EQU   X'1829'
00182A                     102 NUMDV  EQU   X'182A'
00182C                     103 DVPNT  EQU   X'182C'
00182E                     104 DEVC1  EQU   X'182E'
001830                     105 EPRNT  EQU   X'1830'
001832                     106 LOST   EQU   X'1832'
000000                     108 ZERO   EQU   0                    VALUE OF 0
000001                     109 ONE    EQU   1                             1
000002                     110 TWO    EQU   2                             2
000003                     111 THREE  EQU   3                             3
000004                     112 FOUR   EQU   4                             4
000005                     113 FIVE   EQU   5                             5
000006                     114 SIX    EQU   6                             6
000007                     115 SEVEN  EQU   7                             7
000008                     116 EIGHT  EQU   8                             8
000009                     117 NINE   EQU   9                             9
00000A                     118 TEN    EQU   10                            10
00000B                     119 ELEVN  EQU   11                            11
00000C                     120 TWELV  EQU   12                            12
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                          COPYRIGHT IBM CORP 1976
00000D                     121 THRTN  EQU   13                            13
00000E                     122 FORTN  EQU   14                            14
00000F                     123 FIFTN  EQU   15                            15
000010                     124 SIXTN  EQU   16                            16
000012                     125 EIGTN  EQU   18                            18
000014                     126 TWENY  EQU   20                            20
000016                     127 TWEN2  EQU   22                            22
000018                     128 TWEN4  EQU   24                            24
00001A                     129 TWEN6  EQU   26                            26
00001B                     130 TWEN7  EQU   27                            27
00001C                     131 TWEN8  EQU   28                            28
000020                     132 THIR6  EQU   32                            32
000028                     133 FORTY  EQU   40                            40
00003C                     134 SIXTY  EQU   60                            60
00003F                     135 SIXT3  EQU   63                            63
000040                     136 SIXT4  EQU   64                            64
000041                     137 SIXT5  EQU   65                            65
000050                     138 EIGTY  EQU   80                            80
00007F                     139 ONE27  EQU   127                           127
000080                     140 ONE28  EQU   128                           128
000100                     141 TWO56  EQU   256                           256
001C00                     142 STH68  EQU   7168                          7168
FFFFFF                     143 M1     EQU   -1                            -1
FFFFFC                     144 M4     EQU   -4                            -4
FFFFFA                     145 M6     EQU   -6                            -6
000002                     146 INERR  EQU   2
008080                     147 MASK1  EQU   X'8080'
008FE8                     148 MASK2  EQU   X'8FE8'
001900 45E8                150 PID    DC    X'45E8'                PROGRAM IDENTIFIER
001902 6802 1ACE           151 OVLST  B     VIR00                  BRANCH TO START OF OVERLAY
001906 0000000000000000    152 UBUFR  DC    32A(*-*)
001946 00000000            153 WORK1  DC    2A(*-*)
00194A 0000000000000000    154 DATIN  DC    32A(*-*)
00198A C1C2C3C4C5C6C7C8C   155 VIRDT  DC    C'ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890-=¬;'',./|@#$%¢&*()'
0019C0 C1C2C3C4C5C6C7C8C   156         DC    C'ABCDEFGHIJKLMNOPQRSTUVWXY'
0019D9 00                  157         DC    X'00'
                           159 ********************************************************************
                           160 *                                                                  *
                           161 *      THE FOLLOWING INSTRUCTIONS WILL BE MODIFIED FOR TESTING.    *
                           162 *      CARE SHOULD BE TAKEN TO ENSURE THE INSTRUCTIONS MAINTAIN    *
                           163 *      THE SAME RELATIVE POSITION IN THE INSTRUCTION STREAM.       *
                           164 *                                                                  *
                           165 ********************************************************************
0019DA 4324 1C00           166 INCOM  MVWI  STH68,R3
0019DE 4024 182E           167 INCOA  MVWI  DEVC1,R0
0019E2 4800                168         TBT   (R0,ZERO)
0019E4 1004                169         JZ    INC01
0019E6 6002                170         SVC   IDLE
0019E8 BBFA                171         JCT   INCOA,R3
0019EA 6F13 1832           172         BAL   LOST*,R7
0019EE 4840                173 INC01  TBTS  (R0,ZERO)
0019F0 0005                174         ABI   FIVE,R0
0019F2 4000 19F8           175         MVA   IOADR,(R0)
0019F6 680C 19F6           176 IONST  IO    *
0019F8                     177 IOADR  EQU   IONST+TWO
0019FA 6F04 1A02           178 CCCHK  BCC   SEVEN,GODCC
0019FE 6F13 181C           179         BAL   BADCC*,R7
001A02                     180 GODCC  EQU   *
000008                     181 CCDCP  EQU   GODCC-CCCHK
001A02 4029 1A0E FFFF      182 CNTST  AWI   M1,CNTWD
001A08 1004                183         JZ    *+TEN
001A0A 6802 1A0A           184 LPNST  B     *
001A0E 0000                185 CNTWD  DC    A(*-*)
001A10 0000                186 LPCNT  DC    A(*-*)
001A04                     187 CNTAD  EQU   CNTST+TWO
001A06                     188 JENST  EQU   CNTST+FOUR
001A12 8828 1A10 1A0E      189 RESTR  MVW   LPCNT,CNTWD
001A0C                     190 LPADR  EQU   LPNST+TWO
001A18 6F08 1A22           191 DLNST  MVW   DLCNT,R7
001A1C 6002                192 DLIST  SVC   IDLE
001A1E BFFE                193         JCT   DLIST,R7
001A20 5001                194         J     *+FOUR
001A1A                     195 DLADR  EQU   DLNST+TWO
001A22 0000                196 DLCNT  DC    A(*-*)
001A24 5000                197 JINST  J     *+TWO
001A26 5000                198         J     *+TWO
001A28 4724 1810           199 ERTST  MVWI  OPTN2,R7
001A2C 4F02                200         TBT   (R7,INERR)
001A2E 1002                201         JZ    ERTS1
001A30 6F13 1830           202         BAL   EPRNT*,R7
001A34                     203 ERTS1  EQU   *
001A34 4881                205 INC02  TBTR  (R0,ONE)
001A36 10FE                206         JZ    INC02
001A38 0000                207 WORKA  DC    A(*-*)
001A3A 0000                208 R2SAV  DC    A(*-*)
001A3C 0000                209 R3SAV  DC    A(*-*)
001A3E 0000                210 R4SAV  DC    A(*-*)
001A40 0000                211 R5SAV  DC    A(*-*)
001A42 0000                212 R6SAV  DC    A(*-*)
001A44 0000                213 R7SAV  DC    A(*-*)
001A46 0000                214 RETSV  DC    A(*-*)
001A48 0000                215 LPEND  DC    A(*-*)
001A4A 0B00                216 DVAL1  DC    X'0B00'
001A4C 0A0B                217 DVAL2  DC    X'0A0B'
001A4E 4506                218 DTCSS  DC    X'4506'
001A50 2000                219 RDIPT  DC    X'2000'
001A52 0000                220 UPPER  DC    A(*-*)
001A54 0000                221 LOWER  DC    A(*-*)
001A56 20                  222 RDID   DC    X'20'
001A57 00                  223 RDADR  DC    X'00'
001A58 0000                224 RDCOD  DC    X'0000'
001A5A 040E                225 VIRID  DC    X'040E'
001A5C 60                  226 PRPCD  DC    X'60'
001A5D 20                  227 RIDCD  DC    X'20'
001A5E 6F                  228 RSTCD  DC    X'6F'
001A5F 70                  229 SIOCD  DC    X'70'
001A60 05                  230 DBLCT  DC    X'05'
001A61 00                  231 DFAIT  DC    X'00'
001A62 05                  232 FIVDF  DC    X'05'
001A63 00                  233         ALIGN WORD
001A64 0000                234 DCBLD  DC    A(*-*)
001A66 0000                235 POSTC  DC    A(*-*)
001A68 0000                236 PRECR  DC    A(*-*)
001A6A 0000                237 BOUND  DC    A(*-*)
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LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT
001A6C  0000              238 SHIFT  DC    A(*-*)
001A6E  0000              239 CHNAD  DC    A(*-*)
001A70  0000              240 BYCNT  DC    A(*-*)
001A72  0000              241 SDADR  DC    A(*-*)
001A74  208C              242 RDBLD  DC    X'208C'
001A76  0730              243        DC    X'0730'
001A78  0000              244        DC    X'0000'
001A7A  0073              245        DC    X'0073'
001A7C  0001              246        DC    X'0001'
001A7E  0000              247        DC    A(*-*)
001A80  0050              248        DC    X'0050'
001A82  0000              249        DC    A(*-*)
001A84  000F              250 WRBLD  DC    X'000F'
001A86  0000              251        DC    X'0000'
001A88  0730              252        DC    X'0730'
001A8A  0073              253        DC    X'0073'
001A8C  0001              254        DC    X'0001'
001A8E  0000              255        DC    A(*-*)
001A90  0050              256        DC    X'0050'
001A92  0000              257        DC    A(*-*)
001A94                    258 VIRBL  EQU   *
001A94  2004              259        DC    A(DFLT1)
001A96  2016              260        DC    A(DFLT2)
001A98  1BF6              261        DC    A(PREPR)
001A9A  1C50              262        DC    A(UNPRP)
001A9C  1C5A              263        DC    A(REDID)
001A9E  1C60              264        DC    A(RESET)
001AA0  1C90              265        DC    A(DELAY)
001AA2  1D46              266        DC    A(LOPST)
001AA4  1CD6              267        DC    A(LOPND)
001AA6  1F96              268        DC    A(READ)
001AA8  1FD0              269        DC    A(WRITE)
001AAA  0000              270 AECVT  DC    A(*-*)
001AAC  0000              271 AETCV  DC    A(*-*)
001AAE  0000              272 AECTV  DC    A(*-*)
001AB0  0001              273 CVADR  DC    A(1)
001AB2  0000              274 CVAD1  DC    A(*-*)
001AB4  21F1              275 CVAD2  DC    A(M8A)
001AB6  0002              276 CLPST  DC    A(2)
001AB8  1826              277        DC    A(LDOPS)
001ABA  23E4              278        DC    A(LIST1)
001ABC  0002              279 CLPEN  DC    A(2)
001ABE  1A48              280        DC    A(LPEND)
001AC0  23FA              281        DC    A(LPEN1)
001AC2  0002              282 CVRID  DC    A(2)
001AC4  1A58              283        DC    A(RDCOD)
001AC6  241F              284        DC    A(IDMG3)
001AC8  D5                285 NO     DC    C'N'
001AC9  00                286 NOCHN  DC    X'00'
001ACA  00                287 ASKIT  DC    X'00'
001ACB  00                288 CHIND  DC    X'00'
001ACC  40                289 EBCBK  DC    C' '
001ACD  23                290 ALBRT  DC    X'23'
                          291        ALIGN WORD
001ACE                    292 VIR00  EQU   *
001ACE  6F0D 1A46         293        MVW   R7,RETSV          SAVE THE RETURN ADDRESS
001AD2  4624 1A64         294        MVA   DCBLD,R6          DCB TABLE ADR
001AD6  6908 182C         295        MVW   DVPNT,R1          DEVICE PARAMETERS UNDER TEST
001ADA  7921 0001         296        AWI   ONE,R1            BUMP THE POINTER
001ADE  690D 19E0         297        MVW   R1,INCOA+TWO      INTERRUPTING ADR
001AE2  7921 0001         298        AWI   ONE,R1            BUMP THE POINTER
001AE6  8860 1A4E         299        MVW   DTCSS,(R1)        SAVE THE CSS DATA
001AEA  7921 0002         300        AWI   TWO,R1            BUMP POINTER
001AEE  8860 1814         301        MVW   STRTB,(R1)        START ADR FOR THIS TEST
001AF2  6808 1814         302        MVW   STRTB,R0          SET R0
001AF6  9024 1A24         303        MVD   JINST,(R0)+       MOVE IN DUMMY INSTR'S
001AFA  680D 1814         304        MVW   R0,STRTB          SAVE THE INSTR STREAM POINTER
001AFE  6D0D 1AB2         305        MVW   R5,CVAD1          PREPARE TO CONVERT
001B02  4724 1AB0         306        MVA   CVADR,R7          CONTROL BLOCK ADDRESS
001B06  601A              307        SVC   HTOE              GO CONVERT
001B08  4424 000B         308        MVWI  ELEVN,R4          NUM OF POSSIBLE MESSAGES
001B0C  4724 2096         309        MVA   MG8,R7            START ADR OF MESSAGES
001B10                    310 VIR10  EQU   *
001B10  6000              311        SVC   OUT               OUTPUT THE MESSAGE
001B12  7FE1 0004         312        AWI   FOUR,R7           POSITION FOR NEXT MESSAGE
001B16  BCFC              313        JCT   VIR10,R4          TEST THE NEXT BIT
001B18  4724 20C6         314        MVA   VMG2,R7           DUMMY SVC TO GET DATA
001B1C  6001              315        SVC   OUTIN            ISSUE THE OUTIN
001B1E  8508 1A57         316        MVB   (R5),RDADR        PUT THE DEVICE ADR IN READ ID
001B22  680C 1A56         317        IO    RDID              DO A READ ID
001B26  882B 1A58 1A5A    318        CW    RDCOD,VIRID       IS IT O.K.
001B2C  1013              319        JE    VIR12             J-YES
001B2E  6F0D 1A44         320        MVW   R7,R7SAV          SAVE R7
001B32  4724 1AC2         321        MVA   CVRID,R7          CONVERT CONTROL BLOCK
001B36  601A              322        SVC   HTOE
001B38  4724 2120         323        MVA   IDMSG,R7          ADR OF MSG
001B3C  6001              324        SVC   OUTIN
001B3E  6F06 1A44         325        MVW   R7SAV,R7          RESTORE R7
001B42  802B 1A38 1AC8    326        CB    WORKA,NO          WAS THE ANSWER NO
001B48  1805              327        JNE   VIR12             J-NO
001B4A  4029 1814 FFFC    328        AWI   M4,STRTB          RESTORE POINTER
001B50  6812 1A46         329        B     RETSV*            RETURN TO SENDER
001B54                    330 VIR12  EQU   *
001B54  4324 1906         331        MVA   UBUFR,R3          INPUT DATA
001B58  4224 1A94         332        MVA   VIRBL,R2          ADR OF BR TABLE
001B5C                    333 VIR15  EQU   *
001B5C  C4C0              334        MVB   (R3),R4           GET THE COMMAND
001B5E  103A              335        JZ    VIR25             J-IF THE END
001B60  7C82 0001         336        SWI   ONE,R4            REDUCE NUMBER
001B64  D228 1A3A         337        MVD   R2,R2SAV          SAVE REGS
001B68  6F0D 1A44         338        MVW   R7,R7SAV          SAVE THE REGISTER
001B6C  7C06 000B         339        CWI   ELEVN,R4          IS IT A VALID COMMAND
001B70  6D01 202A         340        BGT   GOOOD             J-NO--TOO HIGH
001B74  3409              341        SLL   ONE,R4            DOUBLE FOR DISPL INTO COMMAND TABLE
001B76  7288              342        AW    R2,R4             GET THE COMMAND PROCESSOR ADDRESS
001B78  6808 1812         343        MVW   IDCPT,R0          ADR TO PUT THE IDCB
001B7C  6C88 0000         344        MVW   (R4),R4           GET THE ADDRESS IN THE TABLE
001B80  5400              345        BXS   (R4)              GO COMPLETE THE IDCB
001B82                    346 VIR20  EQU   *
001B82  6808 1814         347        MVW   STRTB,R0          ADR TO PUT OIO INSTR
001B86  8828 1812 19F8    348        MVW   IDCPT,IOADR       ADR OF THE IDCB
001B8C  8828 1812 19F4    349        MVW   IDCPT,INCO1+SIX   ADR OF THE IDCB
001B92  0F14              350        MVBI  TWENY,R7          NUM OF BYTES IN THE INSTR STREAM
001B94  4424 19DA         351        MVA   INCOM,R4          START ADR OF INSTR STREAM
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LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT
001B98  2C04              352        MVFN  (R4),(R0)        MOVE THE INSTRUCTIONS
001B9A  9024 19F6         353        MVD   IONST,(R0)+       MOVE THE I/O INSTR
001B9E  70E4              354        MVW   R0,R7             SAVE R0
001BA0  7FE1 0008         355        AWI   CCDCP,R7          COMPUTE A NEW ADDRESS
001BA4  6F0D 19FC         356        MVW   R7,CCCHK+TWO      INSERT NEW ADDRESS
001BA8  4724 19FA         357        MVA   CCCHK,R7          ADDRESS OF DATA TO MOVE
001BAC  9714              358        MVD   (R7)+,(R0)+       MOVE THE INSTR'S
001BAE  9714              359        MVD   (R7)+,(R0)+
001BB0  680D 1814         360        MVW   R0,STRTB          BUMP THE INSTR ADR
001BB4  4029 1812 0004    361        AWI   FOUR,IDCPT        BUMP THE IDCB ADR POINTER
001BBA                    362 VIR23  EQU   *
001BBA  0F10              363        MVBI  SIXTN,R7          NUMBER OF BYTES TO CLEAR
001BBC  4324 1A64         364        MVA   DCBLD,R3          ADR OF DATA TO CLEAR
001BC0  C220 1829         365        MVB   ZEROS,R2          CLEAR CHARACTER
001BC4  2A6C              366        FFN   R2,(R3)           CLEAR THE AREA
001BC6  D220 1A3A         367        MVD   R2SAV,R2          RESTORE REGS
001BCA  6F08 1A44         368        MVW   R7SAV,R7          RESTORE R7
001BCE  7B61 0001         369        AWI   ONE,R3            BUMP INPUT POINTER
001BD2  BFC4              370        JCT   VIR15,R7          GO SET UP FOR NEXT COMMAND
001BD4                    371 VIR25  EQU   *
001BD4  6908 182C         372        MVW   DVPNT,R1          DEVICE PARAMETERS UNDER TEST
001BD8  7921 000C         373        AWI   TWELV,R1          BUMP THE POINTER
001BDC  8860 1814         374        MVW   STRTB,(R1)        SAVE THE END ADR
001BE0  C025 181F         375        MVBZ  LPIND,R0          WAS A LOOP STARTED
001BE4  1006              376        JZ    VIR26             J-NO
001BE6  4724 21CA         377        MVA   LPSTM,R7          MSG ADR
001BEA  6000              378        SVC   OUT
001BEC  4724 21CE         379        MVA   LPENM,R7          MSG ADR
001BF0  6000              380        SVC   OUT
001BF2                    381 VIR26  EQU   *
001BF2  6812 1A46         382        B     RETSV*            RETURN TO FRIEND
001BF6                    383 PREPR  EQU   *
001BF6  8024 1A5C         384        MVB   PRPCD,(R0)+       MOVE THE COMMAND TO THE IDCB ADR
001BFA  8504              385        MVB   (R5),(R0)+        MOVE THE DEVICE ADR TO THE IDCB
001BFC  C715              386        MVBZ  (R0),R7           CLEAR THE BYTE
001BFE  C720 1A61         387        MVB   DFALT,R7          IS THE DEFAULT TO BE USED
001C02  1003              388        JZ    PREPA             J-NO
001C04  8020 1A62         389        MVB   FIVDF,(R0)        MOVE IN THE DEFAULT VALUE
001C08  500D              390        J     PREPB
001C0A                    391 PREPA  EQU   *
001C0A  4724 20E4         392        MVA   PRMSG,R7          MSG ASKING FOR PREP LEVEL
001C0E  6001              393        SVC   OUTIN
001C10  6F08 1946         394        MVW   WORK1,R7          GET THE DATA INPUT
001C14  3749              395        SLL   NINE,R7           POSITION THE LEVEL
001C16  6F0D 1946         396        MVW   R7,WORK1          PUT IT BACK IN THE WORK AREA
001C1A  4724 1946         397        MVA   WORK1,R7          ADR OF DATA
001C1E  4F47              398        TBTS  (R7,SEVEN)        SET THE I BIT
001C20  8020 1946         399        MVB   WORK1,(R0)        MOVE LEVEL & I BIT INTO IDCB
001C24                    400 PREPB  EQU   *
001C24  6808 1814         401        MVW   STRTB,R0          ADR TO PUT OIO INSTR
001C28  8828 1812 19F8    402        MVW   IDCPT,IOADR       ADR OF THE IDCB
001C2E  9024 19F6         403        MVD   IONST,(R0)+       MOVE THE I/O INSTR
001C32  70E4              404        MVW   R0,R7             SAVE R0
001C34  7FE1 0008         405        AWI   CCDCP,R7          COMPUTE A NEW ADDRESS
001C38  6F0D 19FC         406        MVW   R7,CCCHK+TWO      INSERT NEW ADDRESS
001C3C  4724 19FA         407        MVA   CCCHK,R7          ADDRESS OF DATA TO MOVE
001C40  9714              408        MVD   (R7)+,(R0)+       MOVE THE INSTR'S
001C42  9714              409        MVD   (R7)+,(R0)+
001C44  680D 1814         410        MVW   R0,STRTB          BUMP THE INSTR ADR
001C48  4029 1812 0004    411        AWI   FOUR,IDCPT        BUMP THE IDCB ADR POINTER
001C4E  50B5              412        J     VIR23
001C50                    413 UNPRP  EQU   *
001C50  8024 1A5C         414        MVB   PRPCD,(R0)+       IDCB COMMAND
001C54  8504              415        MVB   (R5),(R0)+        ENTER THE DEVICE ADDRESS
001C56  C805              416        MVWZ  (R0),R0           CLEAR THE DATA AREA
001C58  50E5              417        J     PREPB             GO FINISH THE IDCB
001C5A                    418 REDID  EQU   *
001C5A  8024 1A5D         419        MVB   RIDCD,(R0)+       READ ID IDCB COMMAND
001C5E  5014              420        J     COMCD             GO FINISH THE IDCB
001C60                    421 RESET  EQU   *
001C60  8024 1A5E         422        MVB   RSTCD,(R0)+       RESET IDCB COMMAND
001C64  8504              423        MVB   (R5),(R0)+        ENTER THE DEVICE ADDRESS
001C66  C805              424        MVWZ  (R0),R0           CLEAR THE DATA AREA
001C68  6808 1814         425        MVW   STRTB,R0          ADR TO PUT OIO INSTR
001C6C  8828 1812 19F8    426        MVW   IDCPT,IOADR       ADR OF THE IDCB
001C72  0F0C              427        MVBI  TWELV,R7          NUM OF BYTES IN THE INSTR STREAM
001C74  4424 19F6         428        MVA   IONST,R4          START ADR OF INSTR STREAM
001C78  2C04              429        MVFN  (R4),(R0)         MOVE THE INSTRUCTIONS
001C7A  680D 1814         430        MVW   R0,STRTB          BUMP THE INSTR ADR
001C7E  4029 1812 0004    431        AWI   FOUR,IDCPT        BUMP THE IDCB ADR POINTER
001C84  6802 1BBA         432        B     VIR23
001C88                    433 COMCD  EQU   *
001C88  8504              434        MVB   (R5),(R0)+        ENTER THE DEVICE ADDRESS
001C8A  C805              435        MVWZ  (R0),R0           CLEAR THE DATA AREA
001C8C  6802 1B82         436        B     VIR20
001C90                    437 DELAY  EQU   *
001C90  4724 20D0         438        MVA   DLMSG,R7          ASK FOR THE AMOUNT OF DELAY
001C94  6001              439        SVC   OUTIN
001C96  6D08 1946         440        MVW   WORK1,R5          GET THE DELAY IN MILLESEC
001C9A  6F03 2034         441        BAL   DTOH,R7           GO CONVERT
001C9E  75B4              442        MVW   R5,R7
001CA0  802B 1ACD 0232    443        CB    ALBRT,CPUTP       IS THIS A 4953 PROCESSOR
001CA6  1803              444        JNE   DLAY1             J-NO
001CA8  370A              445        SRL   ONE,R7            DIVIDE BY 2
001CAA  75E8              446        AW    R5,R7             THIS WILL MULTIPLY BY 1 1/2
001CAC  5002              447        J     DLAY2
001CAE                    448 DLAY1  EQU   *
001CAE  EF21 1A60         449        MB    DELCT,R7          MULTIPLY BY THE DELAY FACTOR
001CB2                    450 DLAY2  EQU   *
001CB2  6F0D 1A22         451        MVW   R7,DLCNT          PUT THE DELAY INTO THE INSTRUCTION
001CB6  6808 1814         452        MVW   STRTB,R0          ADR TO PUT THE DELAY
001CBA  4224 1A18         453        MVA   DLNST,R2          GEWT THE START OF THE INSTRUCTIONS
001CBE  4324 1A22         454        MVA   DLCNT,R3          DELAY COUNT
001CC2  726A              455        SW    R2,R3             COMPUTE THE DIFFERENCE
001CC4  7068              456        AW    R0,R3
001CC6  6B0D 1A1A         457        MVW   R3,DLADR          MOVE THE ADDRESS INTO THE INSTR
001CCA  0F0C              458        MVBI  TWELV,R7          NUMBER OF BYTES IN THE STREAM
001CCC  2A04              459        MVFN  (R2),(R0)         MOVE THE INSTRUCTIONS
001CCE  680D 1814         460        MVW   R0,STRTB          BUMP ADR FOR THE NEXT INSTR
001CD2  6802 1BBA         461        B     VIR23
001CD6                    462 LOPND  EQU   *
001CD6  C020 181F         463        MVB   LPIND,R0          WAS A LOOP STARTED.
001CDA  1805              464        JNZ   LOOP1             J-YES
001CDC  4724 20C2         465        MVA   NOLOP,R7          MSG-NO LOOP STARTED
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001CE0  6000                 466        SVC   OUT
001CE2  6802 1BBA            467        B     VIR23
001CE6                       468 LOOP1  EQU   *
001CE6  4724 20EE            469        MVA   LOPMG,R7              MESSAGE ADDRESS
001CEA  6001                 470        SVC   OUTIN
001CEC  6D0D 1A40            471        MVW   R5,R5SAV             SAVE THE REG
001CF0  6D08 1A0E            472        MVW   CNTWD,R5             GET THE DATA
001CF4  6F03 2034            473        BAL   DTOH,R7              GO CONVERT
001CF8  6D0D 1A10            474        MVW   R5,LPCNT
001CFC  6D08 1A40            475        MVW   R5SAV,R5             RESTORE R5
001D00  8828 1826 1A0C       476        MVW   LOOPS,LPADR          MOVE THE START ADR OF THE LOOP
001D06  6808 1814            477        MVW   STRTB,R0             ADR TO PUT THE BRANCH INSTR
001D0A  4224 1A02            478        MVA   CNTST,R2             INSTR START ADDRESS
001D0E  4324 1A0E            479        MVA   CNTWD,R3             LOOP COUNT ADDRESS
001D12  726A                 480        SW    R2,R3                COMPUTE THE DIFFERENCE
001D14  7068                 481        AW    R0,R3                ADD TO THE STARTING ADDRESS
001D16  6B0D 1A04            482        MVW   R3,CNTAD             PUT THE ADDRESS INTO THE INSTR
001D1A  6B0D 1A16            483        MVW   R3,RESTR+FOUR        ADR INTO THE INSTR
001D1E  7B61 0002            484        AWI   TWO,R3               BUMP THE ADR
001D22  6B0D 1A14            485        MVW   R3,RESTR+TWO         NEXT ADR INTO INSTR
001D26  0F16                 486        MVBI  TWEN2,R7             NUMBER OF BYTES TO MOVE
001D28  2A04                 487        MVFN  (R2),(R0)            MOVE THE INSTRUCTIONS
001D2A  680D 1A48            488        MVW   R0,LPEND             SET UP
001D2E  4029 1A48 FFFA       489        AWI   M6,LPEND                 LOOP END
001D34  4724 1ABC            490        MVA   CLPEN,R7                   ADDRESS
001D38  601A                 491        SVC   HTOE
001D3A  D220 1A3A            492        MVD   R2SAV,R2             RESTORE THE REGISTERS
001D3E  680D 1814            493        MVW   R0,STRTB             UPDATE THE INSTR STREAM ADR
001D42  6802 1BBA            494        B     VIR23
001D46                       495 LOPST  EQU   *
001D46  8828 1814 1826       496        MVW   STRTB,LOOPS          SAVE THE LOOP START ADR
001D4C  4724 1AB6            497        MVA   CLPST,R7             CONTROL BLOCK
001D50  601A                 498        SVC   HTOE
001D52  8028 1828 181F       499        MVB   HEXFF,LPIND          SET THE LOOP IND
001D58  6802 1BBA            500        B     VIR23
001D5C                       501 SIORT  EQU   *
001D5C  4624 1A64            502        MVA   DCBLD,R6             ADR OF THE BUILD AREA
001D60  6F08 1A44            503        MVW   R7SAV,R7             RESTORE R7
001D64  7F06 0001            504        CWI   ONE,R7               IS THIS THE LAST COMMAND
001D68  1023                 505        JE    SIOR1                J-YES
001D6A  C720 1ACA            506        MVB   ASKIT,R7             HAS THE QUESTION BEEN ASKED
001D6E  180D                 507        JNZ   S1                   J-YES
001D70  8028 1828 1ACA       508        MVB   HEXFF,ASKIT          T/ON THE IND
001D76  4724 20F8            509        MVA   DCBCH,R7             CONTROL BLOCK
001D7A  6001                 510        SVC   OUTIN
001D7C  802B 194A 1AC8       511        CB    DATIN,NO             WAS IT A NEGATIVE RESPONSE
001D82  1803                 512        JNE   S1                   J-NO
001D84  8028 1828 1AC9       513        MVB   HEXFF,NOCHN          T/ON THE IND
001D8A                       514 S1     EQU   *
001D8A  C720 1AC9            515        MVB   NOCHN,R7             IS THE IND ON
001D8E  1810                 516        JNZ   SIOR1                J-YES
001D90  4724 2102            517        MVA   CHBIT,R7             MSG CONTROL BLOCK
001D94  6001                 518        SVC   OUTIN
001D96  802B 194A 1AC8       519        CB    DATIN,NO             WAS THE ANSWER NEGATIVE
001D9C  1009                 520        JE    SIOR1                J-YES
001D9E  4E40                 521        TBTS  (R6,ZERO)            T/ON THE CHAIN BIT
001DA0  6E08 181A            522        MVW   DCBPT,R6             ADR OF DCB
001DA4  7EC1 0010            523        AWI   SIXTN,R6             BUMP TO NEXT DCB
001DA8  6E0D 1A6E            524        MVW   R6,CHNAD             MOVE IN THE CHAIN ADR
001DAC  4624 1A64            525        MVA   DCBLD,R6             ADR OF THE BUILD AREA
001DB0                       526 SIOR1  EQU   *
001DB0  4724 212A            527        MVA   CW080,R7             CONTROL BLOCK
001DB4  6001                 528        SVC   OUTIN
001DB6  802B 194A 1AC8       529        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001DBC  1001                 530        JE    SIO1                 J-NO
001DBE  4E48                 531        TBTS  (R6,EIGHT)           T/ON THE BIT
001DC0                       532 SIO1   EQU   *
001DC0  4724 2134            533        MVA   CW090,R7             CONTROL BLOCK
001DC4  6001                 534        SVC   OUTIN
001DC6  802B 194A 1AC8       535        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001DCC  1001                 536        JE    SIO2                 J-NO
001DCE  4E49                 537        TBTS  (R6,NINE)            T/ON THE BIT
001DD0                       538 SIO2   EQU   *
001DD0  4724 213E            539        MVA   CW010,R7             CONTROL BLOCK
001DD4  6001                 540        SVC   OUTIN
001DD6  802B 194A 1AC8       541        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001DDC  1001                 542        JE    SIO3                 J-NO
001DDE  4E4A                 543        TBTS  (R6,TEN)             T/ON THE BIT
001DE0                       544 SIO3   EQU   *
001DE0  4724 2152            545        MVA   CW012,R7             CONTROL BLOCK
001DE4  6001                 546        SVC   OUTIN
001DE6  802B 194A 1AC8       547        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001DEC  1001                 548        JE    SIO4                 J-NO
001DEE  4E4C                 549        TBTS  (R6,TWELV)           T/ON THE BIT
001DF0                       550 SIO4   EQU   *
001DF0  4724 215C            551        MVA   CW013,R7             CONTROL BLOCK
001DF4  6001                 552        SVC   OUTIN
001DF6  802B 194A 1AC8       553        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001DFC  1001                 554        JE    SIO5                 J-NO
001DFE  4E4D                 555        TBTS  (R6,THRTN)           T/ON THE BIT
001E00                       556 SIO5   EQU   *
001E00  4724 2170            557        MVA   CW015,R7             CONTROL BLOCK
001E04  6001                 558        SVC   OUTIN
001E06  802B 194A 1AC8       559        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001E0C  1009                 560        JE    SIO6                 J-NO
001E0E  4E4F                 561        TBTS  (R6,FIFTN)           T/ON THE BIT
001E10  4724 2166            562        MVA   CW014,R7             CONTROL BLOCK
001E14  6001                 563        SVC   OUTIN
001E16  802B 194A 1AC8       564        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001E1C  1001                 565        JE    SIO6                 J-NO
001E1E  4E4E                 566        TBTS  (R6,FORTN)           T/ON THE BIT
001E20                       567 SIO6   EQU   *
001E20  4724 217A            568        MVA   DCB1,R7
001E24  6001                 569        SVC   OUTIN
001E26  6D08 1A70            570        MVW   BYCNT,R5             GET THE BYTE COUNT
001E2A  6F03 2034            571        BAL   DTOH,R7              GO CONVERT
001E2E  6D0D 1A66            572        MVW   R5,POSTC             PUT THE VALUE IN THE DCB
001E32  4724 2184            573        MVA   DCB2,R7              CONTROL BLOCK
001E36  6001                 574        SVC   OUTIN
001E38  6D08 1A70            575        MVW   BYCNT,R5             GET THE BYTE COUNT
001E3C  6F03 2034            576        BAL   DTOH,R7              GO CONVERT
001E40  6D0D 1A68            577        MVW   R5,PRECR             PUT THE DATA IN THE DCB
001E44  4724 218E            578        MVA   DCB3A,R7             CONTROL BLOCK
001E48  6001                 579        SVC   OUTIN
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001E4A  6D08 194A            580        MVW   DATIN,R5             GET THE BYTE COUNT
001E4E  6F03 2034            581        BAL   DTOH,R7              GO CONVERT
001E52  6D0D 1A52            582        MVW   R5,UPPER             SAVE THE VALUE
001E56  4724 2198            583        MVA   DCB3B,R7             CONTROL BLOCK
001E5A  6001                 584        SVC   OUTIN
001E5C  6D08 194A            585        MVW   DATIN,R5             GET THE BYTE COUNT
001E60  6F03 2034            586        BAL   DTOH,R7              GO CONVERT
001E64  6D0D 1A54            587        MVW   R5,LOWER             SAVE THE VALUE
001E68  6F03 206C            588        BAL   RCOMP,R7             GENERATE THE BYTE COUNT
001E6C  402D 1A6A 8080       589        RBTWI MASK1,BOUND          RESET SPECIFIC BITS
001E72  4224 1A6C            590        MVA   SHIFT,R2             GET THE SHIFT PARAMETER ADDRESS
001E76  4724 21A2            591        MVA   DCB41,R7             CONTROL BLOCK
001E7A  6001                 592        SVC   OUTIN
001E7C  802B 194A 1AC8       593        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001E82  1001                 594        JE    SIO7                 J-NO
001E84  4A41                 595        TBTS  (R2,ONE)             T/ON THE BIT
001E86                       596 SIO7   EQU   *
001E86  4724 21AC            597        MVA   DCB42,R7             CONTROL BLOCK
001E8A  6001                 598        SVC   OUTIN
001E8C  802B 194A 1AC8       599        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001E92  1001                 600        JE    SIO8                 J-NO
001E94  4A42                 601        TBTS  (R2,TWO)             T/ON THE BIT
001E96                       602 SIO8   EQU   *
001E96  4724 21B6            603        MVA   DCB43,R7             CONTROL BLOCK
001E9A  6001                 604        SVC   OUTIN
001E9C  802B 194A 1AC8       605        CB    DATIN,NO             WAS IT A NEGATIVE REPLY
001EA2  1001                 606        JE    SIO9                 J-NO
001EA4  4A43                 607        TBTS  (R2,THREE)           T/ON THE BIT
001EA6                       608 SIO9   EQU   *
001EA6  4E0F                 609        TBT   (R6,FIFTN)           IS THE SHIFT BIT ON
001EA8  100C                 610        JOFF  SIO10                J-NO
001EAA  4724 21C0            611        MVA   DCB4A,R7             CONTROL BLOCK
001EAE  6001                 612        SVC   OUTIN
001EB0  6D08 1A70            613        MVW   BYCNT,R5             GET THE SHIFT COUNT
001EB4  6F03 2034            614        BAL   DTOH,R7              CONVERT
001EB8  C528 1A6D            615        MVB   R5,SHIFT+ONE         PUT THE VALUE IN THE DCB
001EBC  402D 1A6C 8FE8       616        RBTWI MASK2,SHIFT          RESET SPECIFIC BITS
001EC2                       617 SIO10  EQU   *
001EC2  4724 20DA            618        MVA   BYCTM,R7             CONTROL BLOCK
001EC6  6001                 619        SVC   OUTIN
001EC8  6D08 1A70            620        MVW   BYCNT,R5             GET THE BYTE COUNT
001ECC  6F03 2034            621        BAL   DTOH,R7              GO CONVERT
001ED0  6D0D 1A70            622        MVW   R5,BYCNT             PUT THE VALUE IN THE DCB
001ED4  4724 2116            623        MVA   DATRQ,R7             CONTROL BLOCK
001ED8  6001                 624        SVC   OUTIN
001EDA  802B 194A 1AC8       625        CB    DATIN,NO             WAS THE ANSWER NO
001EE0  1010                 626        JE    SIOR7                J-YES
001EE2                       627 SI7    EQU   *
001EE2  4724 0050            628        MVWI  EIGTY,R7             NUMBER OF BYTES TO MOVE
001EE6  4324 198A            629        MVA   VIRDT,R3             ADR OF DATA
001EEA  6A08 1816            630        MVW   DTENT,R2             DATA FIELD ADR
001EEE  6A0D 1A72            631        MVW   R2,SDADR             PUT DATA ADR IN DCB
001EF2  4624 1A61            632        MVA   DFALT,R6             GET THE DEFAULT INDICATOR
001EF6  4E80                 633        TBTR  (R6,ZERO)            IS THE READ DEFAULT ON
001EF8  1810                 634        JNZ   SIOR8                J-YES
001EFA  2A44                 635        MVFN  (R4),(R2)            MOVE THE DATA
001EFC  6A0D 1816            636        MVW   R2,DTENT             BUMP THE DATA FIELD ADR
001F00  500C                 637        J     SIOR8
001F02                       638 SIOR7  EQU   *
001F02  4724 210C            639        MVA   DATER,R7             CONTROL BLOCK
001F06  6001                 640        SVC   OUTIN
001F08  0F50                 641        MVBI  EIGTY,R7             MAX NUM OF BYTES
001F0A  7744                 642        MW    R7,R2                SAVE THE NUMBER
001F0C  4324 194A            643        MVA   DATIN,R3             ADR OF DATA
001F10  0C00                 644        MVBI  ZERO,R4              END CHARACTER
001F12  286F                 645        SFEN  R0,(R3)              LOOK FOR THE END CHAR
001F14  774A                 646        SW    R7,R2                COMPUTE THE MESSAGE LENGTH
001F16  CA2E 1816            647        AW    R2,DTENT             NEW DATA POINTER
001F1A                       648 SIOR8  EQU   *
001F1A  C720 1ACB            649        MVB   CHIND,R7             IS THE IND ON
001F1E  180F                 650        JNZ   S8                   J-YES
001F20  6808 1812            651        MVW   IDCPT,R0             GET THE POINTER
001F24  680D 19F8            652        MVW   R0,IOADR             MOVE IN THE IDCB POINTER
001F28  680D 19F4            653        MVW   R0,INCO1+SIX         MOVE IN THE IDCB POINTER
001F2C  8024 1A5F            654        MVB   SIOCD,(R0)+          IDCB COMMAND
001F30  8024 1A57            655        MVB   RDADR,(R0)+          DEVICE ADDRESS
001F34  8820 181A            656        MVW   DCBPT,(R0)           ADDRESS OF DCB BUILD AREA
001F38  4029 1812 0004       657        AWI   FOUR,IDCPT           BUMP THE POINTER
001F3E                       658 S8     EQU   *
001F3E  0F10                 659        MVBI  SIXTN,R7             LENGTH OF THE DCB
001F40  6A08 181A            660        MVW   DCBPT,R2             WHERE TO PUT THE DCB
001F44  72C4                 661        MW    R2,R6                SAVE THE POINTER
001F46  4324 1A64            662        MVA   DCBLD,R3             ADR OF DCB JUST BUILT
001F4A  2B44                 663        MVFN  (R3),(R2)            MOVE IN THE DCB
001F4C  6A0D 181A            664        MVW   R2,DCBPT             NEW POINTER
001F50  8028 1828 1ACB       665        MVB   HEXFF,CHIND          T/ON THE IND
001F56  4E00                 666        TBT   (R6,ZERO)            IS THE CHAIN BIT ON
001F58  6A00 1BBA            667        BON   VIR23                B-YES GO AGAIN
001F5C                       668 SIOR9  EQU   *
001F5C  C725 1ACB            669        MVBZ  CHIND,R7             CLEAR THE IND
001F60  6808 1814            670        MVW   STRTB,R0             GET THE INSTR STREAM
001F64  0F14                 671        MVBI  TWENY,R7             NUM OF BYTES IN THE INSTR STREAM
001F66  4424 19DA            672        MVA   INCOM,R4             START ADR OF INSTR STREAM
001F6A  2C04                 673        MVFN  (R4),(R0)            MOVE THE INSTRUCTIONS
001F6C  0F0C                 674        MVBI  TWELV,R7             NUM OF BYTES IN THE INSTR STREAM
001F6E  4424 1A28            675        MVA   ERTST,R4             START ADR OF INSTR STREAM
001F72  2C04                 676        MVFN  (R4),(R0)            MOVE THE INSTRUCTIONS
001F74  0F0C                 677        MVBI  TWELV,R7             NUM OF BYTES IN THE INSTR STREAM
001F76  4424 19EE            678        MVA   INCO1,R4             START ADR OF INSTR STREAM
001F7A  2C04                 679        MVFN  (R4),(R0)            MOVE THE INSTRUCTIONS
001F7C  70E4                 680        MW    R0,R4                SAVE R0
001F7E  7FE1 0008            681        AWI   CCDCP,R7             COMPUTE A NEW ADDRESS
001F82  6F0D 19FC            682        MVW   R7,CCCHK+TWO         INSERT NEW ADDRESS
001F86  4724 19FA            683        MVA   CCCHK,R7             ADDRESS OF DATA TO MOVE
001F8A  9714                 684        MVD   (R7)+,(R0)+          MOVE THE INSTR'S
001F8C  9714                 685        MVD   (R7)+,(R0)+
001F8E  680D 1814            686        MVW   R0,STRTB             BUMP THE POINTER FOR THE NEXT INSTR
001F92  6802 1BBA            687        B     VIR23
001F96                       688 READ   EQU   *
001F96  6808 1814            689        MVW   STRTB,R0             GET THE INSTR STREAM
001F9A  9024 19DE            690        MVD   INCOA,(R0)+          MOVE IN
001F9E  9024 1A34            691        MVD   INCO2,(R0)+             THE
001FA2  680D 1814            692        MVW   R0,STRTB                   INSTRUCTIONS
001FA6  6808 1812            693        MVW   IDCPT,R0             GET THE IDCB POINTER
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

001FAA  4724 1A61           694         MVA   DFALT,R7             GET THE DEFAULT IND
001FAE  4F00                695         TBT   (R7,ZERO)            IS THE READ DEFAULT ON
001FB0  100A                696         JZ    READA                J-YES
001FB2  0F10                697         MVBI  SIXTN,R7             NUM OF BYTES IN THE IDCB
001FB4  4324 1A64           698         MVA   DCBLD,R3             AREA TO MOVE INTO
001FB8  4224 1A74           699         MVA   RDBLD,R2             DATA TO MOVE
001FBC  2A64                700         MVFN  (R2),(R3)            MOVE THE DCB
001FBE  6808 1812           701         MVW   IDCPT,R0             RESTORE THE POINTER
001FC2  6802 1EE2           702         SI7
001FC6                      703 READA   EQU   *
001FC6  8828 1A50 1A64      704         MVW   RDIPT,DCBLD          SET THE READ COMMAND
001FCC  6802 1D5C           705         B     SIORT
001FD0                      706 WRITE   EQU   *
001FD0  4724 1A61           707         MVA   DFALT,R7             GET THE DEFAULT IND
001FD4  4F01                708         TBT   (R7,ONE)             IS THE WRITE DEFAULT ON
001FD6  100A                709         JZ    WRITA                J-YES
001FD8  0F10                710         MVBI  SIXTN,R7             NUM OF BYTES IN THE IDCB
001FDA  4324 1A64           711         MVA   DCBLD,R3             AREA TO MOVE INTO
001FDE  4224 1A84           712         MVA   WRBLD,R2             DATA TO MOVE
001FE2  2A64                713         MVFN  (R2),(R3)            MOVE THE DCB
001FE4  6808 1812           714         MVW   IDCPT,R0             RESTORE THE POINTER
001FE8  6802 1EE2           715         B     SI7
001FEC                      716 WRITA   EQU   *
001FEC  4724 2148           717         MVA   CW011,R7             CONTROL BLOCK
001FF0  6001                718         SVC   OUTIN
001FF2  802B 194A 1AC8      719         CB    DATIN,NO             WAS IT A NEGATIVE RESPONSE
001FF8  1003                720         JE    WRITB                J-YES
001FFA  4624 1A64           721         MVA   DCBLD,R6             ADR OF THE BUILD AREA
001FFE  4E4B                722         TBTS  (R6,ELEVN)           SET THE BIT
002000                      723 WRITB   EQU   *
002000  6802 1D5C           724         B     SIORT
002004                      725 DFLT1   EQU   *
002004  4724 1A61           726         MVA   DFALT,R7             GET THE ADR OF THE DEFAULT
002008  4F41                727         TBTS  (R7,ONE)             IND A WRITE DEFAULT
00200A  8828 1A4A 1906      728         MVW   DVAL1,UBUFR          PUT THE VALUE IN THE BUFFER
002010  0F01                729         MVBI  ONE,R7               IND TWO COMMANDS
002012  6802 1B54           730         B     VIR12
002016                      731 DFLT2   EQU   *
002016  4724 1A61           732         MVA   DFALT,R7             GET THE ADR OF THE DEFAULT
00201A  4F40                733         TBTS  (R7,ZERO)            IND A READ DEFAULT
00201C  4F41                734         TBTS  (R7,ONE)             IND A WRITE DEFAULT
00201E  8828 1A4C 1906      735         MVW   DVAL2,UBUFR          PUT THE VALUE IN THE BUFFER
002024  0F02                736         MVBI  TWO,R7               IND TWO COMMANDS
002026  6802 1B54           737         B     VIR12
00202A                      738 NGOOD   EQU   *
00202A  4724 21D2           739         MVA   INCMD,R7              ADR OF INVALID COMMAND MSG
00202E  6000                740         SVC   OUT                   OUTPUT THE MESSAGE
002030  6802 1B82           741         B     VIR20
002034                      742 DTOH    EQU   *
002034  6F0D 2090           743         MVW   R7,RTRTN
002038  6C0D 2092           744         MVW   R4,DHSAV             SAVE R4
00203C  6E0D 1A42           745         MVW   R6,R6SAV             SAVE R6
002040  748A                746         SW    R4,R4                CLEAR THE REG
002042  3425                747         SLLD  FOUR,R4              MOVE THOUSAND INTO R4
002044  EC25 208A           748         MW    THOUS,R4             MULTIPLY THOUSANDS
002048  3522                749         SRL   FOUR,R5              POSITION THE HUNS,TENS
00204A  3546                750         SRLD  EIGHT,R5             MOVE TENS AND UNITS INTO R6
00204C  ED21 208C           751         MB    HUN,R5               MULTIPLY HUNDREDS
002050  74A8                752         AW    R4,R5                ADD THOUS AND HUNS
002052  3642                753         SRL   EIGHT,R6
002054  3626                754         SRLD  FOUR,R6              MOVE UNITS INTO R7
002056  3762                755         SRL   TWELV,R7             POSITION THE UNITS
002058  77A8                756         AW    R7,R5                ADD UNITS TO THOUS AND HUNS
00205A  EE21 208E           757         MB    TENS,R6              MULTIPLY TENS
00205E  76A8                758         AW    R6,R5                GET THE GRAND TOTAL
002060  6C08 2092           759         MVW   DHSAV,R4             RESTORE R4
002064  6E08 1A42           760         MVW   R6SAV,R6             RESTORE R6
002068  6812 2090           761         B     RTRTN*
00206C                      762 RCOMP   EQU   *
00206C  6D08 1A54           763         MVW   LOWER,R5             GET THE LOWER VALUE
002070  ED21 208D           764         MB    HWD80,R5             MULTIPLY BY 80
002074  3522                765         SRL   FOUR,R5              POSITION THE BITS
002076  6D0D 1A6A           766         MVW   R5,BOUND             PUT THE VALUE IN THE DCB
00207A  6D08 1A52           767         MVW   UPPER,R5             GET THE UPPER VALUE
00207E  ED21 208D           768         MB    HWD80,R5             MULTIPLY BY 80
002082  3522                769         SRL   FOUR,R5              POSITION THE BITS
002084  C528 1A6A           770         MVB   R5,BOUND             PUT THE VALUE IN THE DCB
002088  5700                771         BXS   (R7)                 RETURN TO SENDER
00208A  03E8                772 THOUS   DC    A(1000)
00208C  64                  773 HUN     DC    H'100'
00208D  50                  774 HWD80   DC    H'80'
00208E  0A                  775 TENS    DC    H'10'
002090  0000                776 RTRTN   DC    A(*-*)
002092  0000                777 DHSAV   DC    A(*-*)
002094  0080                778         DC    X'0080'
002096  21D8                779 MG8     DC    A(M8)
002098  0080                780         DC    X'0080'
00209A  2280                781         DC    A(M11)
00209C  0080                782         DC    X'0080'
00209E  229E                783         DC    A(M12)
0020A0  0080                784         DC    X'0080'
0020A2  21F8                785         DC    A(M9)
0020A4  0080                786         DC    X'0080'
0020A6  220E                787         DC    A(M9A)
0020A8  0080                788         DC    X'0080'
0020AA  2226                789         DC    A(M9B)
0020AC  0080                790         DC    X'0080'
0020AE  2234                791         DC    A(M9C)
0020B0  0080                792         DC    X'0080'
0020B2  2240                793         DC    A(M9D)
0020B4  0080                794         DC    X'0080'
0020B6  224C                795         DC    A(M9E)
0020B8  0080                796         DC    X'0080'
0020BA  225C                797         DC    A(M9F)
0020BC  0080                798         DC    X'0080'
0020BE  226A                799         DC    A(M10)
0020C0  0080                800         DC    X'0080'
0020C2  2310                801 NOLOP   DC    A(NLOOP)
0020C4  00C0                802         DC    X'00C0'
0020C6  2274                803 VMG2    DC    A(M10A)
0020C8  1906                804         DC    A(UBUFR)
0020CA  0040                805         DC    A(64)
0020CC  0001                806         DC    A(1)
0020CE  00C0                807         DC    X'00C0'
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0020D0  22EC                808 DLMSG   DC    A(DMSGL)
0020D2  1946                809         DC    A(WORK1)
0020D4  0002                810         DC    A(2)
0020D6  0001                811         DC    A(1)
0020D8  00C0                812         DC    X'00C0'
0020DA  2388                813 BYCTM   DC    A(BYTEC)
0020DC  1A70                814         DC    A(BYCNT)
0020DE  0002                815         DC    A(2)
0020E0  0001                816         DC    A(1)
0020E2  00C0                817         DC    X'00C0'
0020E4  22D6                818 PRMSG   DC    A(PMSGR)
0020E6  1946                819         DC    A(WORK1)
0020E8  0002                820         DC    A(2)
0020EA  0001                821         DC    A(1)
0020EC  00C0                822         DC    X'00C0'
0020EE  2368                823 LOPMG   DC    A(LPMSG)
0020F0  1A0E                824         DC    A(CNTWD)
0020F2  0002                825         DC    A(2)
0020F4  0001                826         DC    A(1)
0020F6  00C0                827         DC    X'00C0'
0020F8  23B6                828 DCBCH   DC    A(DCBC1)
0020FA  194A                829         DC    A(DATIN)
0020FC  0001                830         DC    A(1)
0020FE  0000                831         DC    A(0)
002100  00C0                832         DC    X'00C0'
002102  2396                833 CHBIT   DC    A(CHBT)
002104  194A                834         DC    A(DATIN)
002106  0001                835         DC    A(1)
002108  0000                836         DC    A(0)
00210A  00C0                837         DC    X'00C0'
00210C  232E                838 DATER   DC    A(DTINN)
00210E  194A                839         DC    A(DATIN)
002110  0040                840         DC    A(64)
002112  0001                841         DC    A(1)
002114  00C0                842         DC    X'00C0'
002116  2338                843 DATRQ   DC    A(DINNT)
002118  194A                844         DC    A(DATIN)
00211A  0001                845         DC    A(1)
00211C  0000                846         DC    A(*-*)
00211E  00C0                847         DC    X'00C0'
002120  2402                848 IDMSG   DC    A(IDMG1)
002122  1A38                849         DC    A(WORKA)
002124  0001                850         DC    A(1)
002126  0000                851         DC    A(0)
002128  00C0                852         DC    X'00C0'
00212A  2434                853 CW080   DC    A(DBM1)
00212C  194A                854         DC    A(DATIN)
00212E  0001                855         DC    A(1)
002130  0000                856         DC    A(0)
002132  00C0                857         DC    X'00C0'
002134  2448                858 CW090   DC    A(DBM2)
002136  194A                859         DC    A(DATIN)
002138  0001                860         DC    A(1)
00213A  0000                861         DC    A(0)
00213C  00C0                862         DC    X'00C0'
00213E  245C                863 CW010   DC    A(DBM3)
002140  194A                864         DC    A(DATIN)
002142  0001                865         DC    A(1)
002144  0000                866         DC    A(0)
002146  00C0                867         DC    X'00C0'
002148  2470                868 CW011   DC    A(DBM4)
00214A  194A                869         DC    A(DATIN)
00214C  0001                870         DC    A(1)
00214E  0000                871         DC    A(0)
002150  00C0                872         DC    X'00C0'
002152  247E                873 CW012   DC    A(DBM5)
002154  194A                874         DC    A(DATIN)
002156  0001                875         DC    A(1)
002158  0000                876         DC    A(0)
00215A  00C0                877         DC    X'00C0'
00215C  2492                878 CW013   DC    A(DBM6)
00215E  194A                879         DC    A(DATIN)
002160  0001                880         DC    A(1)
002162  0000                881         DC    A(0)
002164  00C0                882         DC    X'00C0'
002166  24A4                883 CW014   DC    A(DBM7)
002168  194A                884         DC    A(DATIN)
00216A  0001                885         DC    A(1)
00216C  0000                886         DC    A(0)
00216E  00C0                887         DC    X'00C0'
002170  24B8                888 CW015   DC    A(DBM8)
002172  194A                889         DC    A(DATIN)
002174  0001                890         DC    A(1)
002176  0000                891         DC    A(0)
002178  00C0                892         DC    X'00C0'
00217A  24BE                893 DCB1    DC    A(DBM9)
00217C  1A70                894         DC    A(BYCNT)
00217E  0002                895         DC    A(2)
002180  0001                896         DC    A(1)
002182  00C0                897         DC    X'00C0'
002184  24D0                898 DCB2    DC    A(DBM10)
002186  1A70                899         DC    A(BYCNT)
002188  0002                900         DC    A(2)
00218A  0001                901         DC    A(1)
00218C  00C0                902         DC    X'00C0'
00218E  24E2                903 DCB3A   DC    A(DBM11)
002190  194A                904         DC    A(DATIN)
002192  0002                905         DC    A(2)
002194  0001                906         DC    A(1)
002196  00C0                907         DC    X'00C0'
002198  2504                908 DCB3B   DC    A(DBM12)
00219A  194A                909         DC    A(DATIN)
00219C  0002                910         DC    A(2)
00219E  0001                911         DC    A(1)
0021A0  00C0                912         DC    X'00C0'
0021A2  2526                913 DCB41   DC    A(DBM13)
0021A4  194A                914         DC    A(DATIN)
0021A6  0001                915         DC    A(1)
0021A8  0000                916         DC    A(0)
0021AA  00C0                917         DC    X'00C0'
0021AC  2540                918 DCB42   DC    A(DBM14)
0021AE  194A                919         DC    A(DATIN)
0021B0  0001                920         DC    A(1)
0021B2  0000                921         DC    A(0)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT
0021B4  00C0                922         DC    X'00C0'
0021B6  2558                923 DCB43   DC    A(DBM15)
0021B8  194A                924         DC    A(DATIN)
0021BA  0001                925         DC    A(1)
0021BC  0000                926         DC    A(0)
0021BE  00C0                927         DC    X'00C0'
0021C0  2566                928 DCB4A   DC    A(DBM16)
0021C2  1A70                929         DC    A(BYCNT)
0021C4  0002                930         DC    A(2)
0021C6  0001                931         DC    A(1)
0021C8  0080                932         DC    X'0080'
0021CA  23D4                933 LPSTM   DC    A(LPST)
0021CC  0080                934         DC    X'0080'
0021CE  23EC                935 LPENM   DC    A(LPEN)
0021D0  00C0                936         DC    X'00C0'
0021D2  22B6                937 INCMD   DC    A(INCMG)
0021D4  00                  938         DC    X'00'
0021D6  0000                939         DC    A(0)
0021D8  E2C5D3C5C3E340C3D   940 M8      DC    C'SELECT COMMAND(S) FOR DA '
0021F1  404040              941 M8A     DC    C'   '
0021F4  00                  942         DC    X'00'
0021F6  0000                943         DC    A(0)
0021F8  F0F340D7D9C5D7C1D   944 M9      DC    C'03 PREPARE I BIT ON'
00220B  00                  945         DC    X'00'
00220C  0000                946         DC    A(0)
00220E  F0F440D7D9C5D7C1D   947 M9A     DC    C'04 PREPARE I BIT OFF'
002222  00                  948         DC    X'00'
002224  0000                949         DC    A(0)
002226  F0F540D9C5C1C440C   950 M9B     DC    C'05 READ ID'
002230  00                  951         DC    X'00'
002232  0000                952         DC    A(0)
002234  F0F640D9C5E2C5E3    953 M9C     DC    C'06 RESET'
00223C  00                  954         DC    X'00'
00223E  0000                955         DC    A(0)
002240  F0F740C4C5D3C1E8    956 M9D     DC    C'07 DELAY'
002248  00                  957         DC    X'00'
00224A  0000                958         DC    A(0)
00224C  F0F840D3D6D6D740E   959 M9E     DC    C'08 LOOP START'
002259  00                  960         DC    X'00'
00225A  0000                961         DC    A(0)
00225C  F0F940D3D6D6D740C   962 M9F     DC    C'09 LOOP END'
002267  00                  963         DC    X'00'
002268  0000                964         DC    A(0)
00226A  F0C140D9C5C1C4      965 M10     DC    C'0A READ'
002271  00                  966         DC    X'00'
002272  348B                967         DC    A(CDB)
002274  F0C240E6D9C9E3C5    968 M10A    DC    C'0B WRITE'
00227C  00                  969         DC    X'00'
00227E  0000                970         DC    A(0)
002280  F0F140C4C5C6C1E4D   971 M11     DC    C'01 DEFAULT=WRITE,SHIFT UP 1'
00229B  00                  972         DC    X'00'
00229C  0000                973         DC    A(0)
00229E  F0F240C4C5C6C1E4D   974 M12     DC    C'02 DEFAULT=READ,WRITE'
0022B3  00                  975         DC    X'00'
0022B4  349B                976         DC    A(CD1B)
0022B6  E6D9D6D5C740C9C4C   977 INCMG   DC    C'WRONG IDCB COMMAND,START OVER'
0022D3  00                  978         DC    X'00'
0022D4  34A2                979         DC    A(CD22)
0022D6  D3C5E5C5D340E3D64   980 PMSGR   DC    C'LEVEL TO INTERRUPT'
0022E8  00                  981         DC    X'00'
0022EA  34A3                982         DC    A(CD23)
0022EC  D3C5D5C7E3C840D6C   983 DMSGL   DC    C'LENGTH OF DELAY(IN MILLISECONDS)'
00230C  00                  984         DC    X'00'
00230E  34A6                985         DC    A(CD26)
002310  D3D6D6D740D5D6E34   986 NLOOP   DC    C'LOOP NOT STARTED,START OVER'
00232B  00                  987         DC    X'00'
00232C  34A4                988         DC    A(CD24)
00232E  C4C1E3C140C9E2      989 DTINN   DC    C'DATA IS'
002335  00                  990         DC    X'00'
002336  34A1                991         DC    A(CD21)
002338  C4D640E8D6E440E6C   992 DINNT   DC    C'DO YOU WANT TO USE THE STANDARD DATA PATTERN?'
002365  00                  993         DC    X'00'
002366  34A7                994         DC    A(CD27)
002368  C8D6E640D4C1D5E84   995 LPMSG   DC    C'HOW MANY TIMES THRU THE LOOP'
002384  00                  996         DC    X'00'
002386  34A5                997         DC    A(CD25)
002388  C2E8E3C540C3D6E4D   998 BYTEC   DC    C'BYTE COUNT'
002392  00                  999         DC    X'00'
002394  34AF               1000         DC    A(CD2F)
002396  C4D640E8D6E440E6C   1001 CHBT   DC    C'DO YOU WANT THE CHAIN BIT ON?'
0023B3  00                 1002         DC    X'00'
0023B4  34BC               1003         DC    A(CD3C)
0023B6  E6C9D3D340C1D5E84  1004 DCBC1   DC    C'WILL ANY DCB''S BE CHAINED?'
0023D0  00                 1005         DC    X'00'
0023D2  0000               1006         DC    A(0)
0023D4  D3D6D6D740E2E3C1D  1007 LPST    DC    C'LOOP STARTED AT '
0023E4  F0F0F0F0           1008 LPST1   DC    C'0000'
0023E8  00                 1009         DC    X'00'
0023EA  0000               1010         DC    A(0)
0023EC  D3D6D6D740C5D5C4C  1011 LPEN    DC    C'LOOP ENDED AT '
0023FA  F0F0F0F0           1012 LPEN1   DC    C'0000'
0023FE  00                 1013         DC    X'00'
002400  34A0               1014         DC    A(CD20)
002402  D9C5C1C440C9C440C  1015 IDMG1   DC    C'READ ID EXPECTED '
002413  F0F4F0C540C9C440E  1016 IDMG2   DC    C'040E ID WAS '
00241F  E7E7E7E740C9E240E  1017 IDMG3   DC    C'XXXX IS THIS O.K.?'
002431  00                 1018         DC    X'00'
002432  34CD               1019         DC    A(CD3D)
002434  C5D9C1E2C540C1C6E  1020 DBM1    DC    C'ERASE AFTER BIT?'
002444  00                 1021         DC    X'00'
002446  34CE               1022         DC    A(CD3E)
002448  C5D5C440D6C640C6C  1023 DBM2    DC    C'END OF FIELD BIT?'
002459  00                 1024         DC    X'00'
00245A  34CF               1025         DC    A(CD3F)
00245C  C5D5C440D6C640D3C  1026 DBM3    DC    C'END OF LINE BIT?'
00246C  00                 1027         DC    X'00'
00246E  34D0               1028         DC    A(CD40)
002470  C5D9C1E2C540C2C9E  1029 DBM4    DC    C'ERASE BIT?'
00247A  00                 1030         DC    X'00'
00247C  34D1               1031         DC    A(CD41)
00247E  D7D6E2E340C3E4D9E  1032 DBM5    DC    C'POST CURSOR BIT?'
00248E  00                 1033         DC    X'00'
002490  34D2               1034         DC    A(CD42)
002492  D7D9C560C3E4D9E2D  1035 DBM6    DC    C'PRE-CURSOR BIT?'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT
0024A1  00                 1036         DC    X'00'
0024A2  34D3               1037         DC    A(CD43)
0024A4  E2C8C9C6E340E4D76  1038 DBM7    DC    C'SHIFT UP?'
0024AD  00                 1039         DC    X'00'
0024AE  34D4               1040         DC    A(CD44)
0024B0  E2C8C9C6E340C2C9E  1041 DBM8    DC    C'SHIFT BIT?'
0024BA  00                 1042         DC    X'00'
0024BC  34D5               1043         DC    A(CD45)
0024BE  D7D6E2E340C3E4D9E  1044 DBM9    DC    C'POST CURSOR ADR'
0024CD  00                 1045         DC    X'00'
0024CE  34D6               1046         DC    A(CD46)
0024D0  D7D9C560C3E4D9E2D  1047 DBM10   DC    C'PRE-CURSOR ADR'
0024DE  00                 1048         DC    X'00'
0024E0  34D7               1049         DC    A(CD47)
0024E2  E4D7D7C5D9404DC8C  1050 DBM11   DC    C'UPPER (HI) LINE ADR(0000-0023)'
002500  00                 1051         DC    X'00'
002502  34D8               1052         DC    A(CD48)
002504  D3D6E6C5D9404DD3D  1053 DBM12   DC    C'LOWER (LO) LINE ADR(0000-0023)'
002522  00                 1054         DC    X'00'
002524  34D9               1055         DC    A(CD49)
002526  D7D9D6E3C5C3E361E  1056 DBM13   DC    C'PROTECT/UNPROTECT BIT?'
00253C  00                 1057         DC    X'00'
00253E  34DA               1058         DC    A(CD4A)
002540  D2C5E8C2D6C1D9C44  1059 DBM14   DC    C'KEYBOARD LOCKOUT BIT?'
002555  00                 1060         DC    X'00'
002556  34DB               1061         DC    A(CD4B)
002558  C2D3C1D5D240C2C9E  1062 DBM15   DC    C'BLANK BIT?'
002562  00                 1063         DC    X'00'
002564  34DC               1064         DC    A(CD4C)
002566  E2C8C9C6E340C3D6E  1065 DBM16   DC    C'SHIFT COUNT'
002571  00                 1066         DC    X'00'
000000                     1067         END
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
0	.R0.	ABSOLUTE. HEX VALUE(00000000) 167 168 173 174 175 205 302 303 304 343 347 352 353 354 358 359 360 375 384 385 386 387 399 401 403 404 408 409 410 414 415 416 416 419 422 423 424 424 425 429 430 434 435 435 452 456 459 460 463 477 481 487 488 493 645 651 652 653 654 655 656 656 670 673 676 679 680 684 685 686 689 690 691 692 693 701 714
0	.R1.	ABSOLUTE. HEX VALUE(00000001) 295 296 297 298 299 299 300 301 301 372 373 374 374
0	.R2.	ABSOLUTE. HEX VALUE(00000002) 332 337 342 365 366 367 453 455 459 478 480 487 492 590 595 601 607 630 631 635 636 642 646 647 660 661 663 664 699 700 712 713
0	.R3.	ABSOLUTE. HEX VALUE(00000003) 166 171 331 334 364 366 369 454 455 456 457 479 480 481 482 483 484 485 629 635 643 645 662 663 698 700 711 713
0	.R4.	ABSOLUTE. HEX VALUE(00000004) 308 313 334 336 339 341 342 344 344 344 344 345 351 352 428 429 644 672 673 675 676 678 679 744 746 746 747 748 752 759
0	.R5.	ABSOLUTE. HEX VALUE(00000005) 305 316 385 415 423 434 440 442 446 471 472 474 475 570 572 575 577 580 582 585 587 613 615 620 622 749 750 751 752 756 758 763 764 765 766 767 768 769 770
0	.R6.	ABSOLUTE. HEX VALUE(00000006) 294 502 521 522 523 524 525 531 537 543 549 555 561 566 609 632 633 661 666 721 722 745 753 754 757 758 760
0	.R7.	ABSOLUTE. HEX VALUE(00000007) 172 179 191 193 199 200 202 293 306 309 312 314 320 321 323 325 338 350 354 355 356 357 358 359 363 368 370 377 379 386 387 392 394 395 396 397 398 404 405 406 407 408 409 427 438 441 442 445 446 449 451 458 465 469 473 486 490 497 503 504 506 509 515 517 527 533 539 545 551 557 562 568 571 573 576 578 581 583 586 588 591 597 603 611 614 618 621 623 628 639 641 642 646 649 659 669 671 674 677 680 681 682 683 684 685 694 695 697 707 708 710 717 726 727 729 732 733 734 736 739 743 755 756 771
290	ALBRT	ADDRESS. HEX LOCATION(00001ACD) IN CSECT(045E8) LENGTH(1) 443
287	ASKIT	ADDRESS. HEX LOCATION(00001ACA) IN CSECT(045E8) LENGTH(1) 506 508
94	BADCC	ABSOLUTE. HEX VALUE(0000181C) 179
237	BOUND	ADDRESS. HEX LOCATION(00001A6A) IN CSECT(045E8) LENGTH(2) 589 766 770
240	BYCNT	ADDRESS. HEX LOCATION(00001A70) IN CSECT(045E8) LENGTH(2) 570 575 613 620 622 814 894 899 929
813	BYCTM	ADDRESS. HEX LOCATION(000020DA) IN CSECT(045E8) LENGTH(2) 618
998	BYTEC	ADDRESS. HEX LOCATION(00002388) IN CSECT(045E8) LENGTH(10) 813
178	CCCHK	ADDRESS. HEX LOCATION(000019FA) IN CSECT(045E8) LENGTH(4) 181 356 357 406 407 682 683
181	CCDCP	ABSOLUTE. HEX VALUE(00000008) 355 405 681
53	CDB	ABSOLUTE. HEX VALUE(0000348B) 967
54	CD1B	ABSOLUTE. HEX VALUE(0000349B) 976
63	CD2F	ABSOLUTE. HEX VALUE(000034AF) 1000
55	CD20	ABSOLUTE. HEX VALUE(000034A0) 1014
56	CD21	ABSOLUTE. HEX VALUE(000034A1) 991
57	CD22	ABSOLUTE. HEX VALUE(000034A2) 979
58	CD23	ABSOLUTE. HEX VALUE(000034A3) 982
59	CD24	ABSOLUTE. HEX VALUE(000034A4) 988
60	CD25	ABSOLUTE. HEX VALUE(000034A5) 997
61	CD26	ABSOLUTE. HEX VALUE(000034A6) 985
62	CD27	ABSOLUTE. HEX VALUE(000034A7) 994
64	CD3C	ABSOLUTE. HEX VALUE(000034BC) 1003
65	CD3D	ABSOLUTE. HEX VALUE(000034CD) 1019
66	CD3E	ABSOLUTE. HEX VALUE(000034CE) 1022
67	CD3F	ABSOLUTE. HEX VALUE(000034CF) 1025
78	CD4A	ABSOLUTE. HEX VALUE(000034DA) 1058
79	CD4B	ABSOLUTE. HEX VALUE(000034DB) 1061
80	CD4C	ABSOLUTE. HEX VALUE(000034DC) 1064
68	CD40	ABSOLUTE. HEX VALUE(000034D0) 1028
69	CD41	ABSOLUTE. HEX VALUE(000034D1) 1031

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
70	CD42	ABSOLUTE. HEX VALUE(000034D2) 1034
71	CD43	ABSOLUTE. HEX VALUE(000034D3) 1037
72	CD44	ABSOLUTE. HEX VALUE(000034D4) 1040
73	CD45	ABSOLUTE. HEX VALUE(000034D5) 1043
74	CD46	ABSOLUTE. HEX VALUE(000034D6) 1046
75	CD47	ABSOLUTE. HEX VALUE(000034D7) 1049
76	CD48	ABSOLUTE. HEX VALUE(000034D8) 1052
77	CD49	ABSOLUTE. HEX VALUE(000034D9) 1055
833	CHBIT	ADDRESS. HEX LOCATION(00002102) IN CSECT(045E8) LENGTH(2) 517
1001	CHBT	ADDRESS. HEX LOCATION(00002396) IN CSECT(045E8) LENGTH(29) 833
288	CHIND	ADDRESS. HEX LOCATION(00001ACB) IN CSECT(045E8) LENGTH(1) 649 665 669
239	CHWAD	ADDRESS. HEX LOCATION(00001A6E) IN CSECT(045E8) LENGTH(2) 524
279	CLPEN	ADDRESS. HEX LOCATION(00001ABC) IN CSECT(045E8) LENGTH(2) 490
276	CLPST	ADDRESS. HEX LOCATION(00001AB6) IN CSECT(045E8) LENGTH(2) 497
187	CNTAD	ADDRESS. HEX LOCATION(00001A04) IN CSECT(045E8) LENGTH(1) 482
182	CNTST	ADDRESS. HEX LOCATION(00001A02) IN CSECT(045E8) LENGTH(6) 187 188 478
185	CNTWD	ADDRESS. HEX LOCATION(00001A0E) IN CSECT(045E8 182 189 472 479 824
433	COMCD	ADDRESS. HEX LOCATION(00001C88) IN CSECT(045E8) LENGTH(1) 420
87	CPUTP	ABSOLUTE. HEX VALUE(00000232) 443
273	CVADR	ADDRESS. HEX LOCATION(00001AB0) IN CSECT(045E8) LENGTH(2) 306
274	CVAD1	ADDRESS. HEX LOCATION(00001AB2) IN CSECT(045E8) LENGTH(2) 305
282	CVRID	ADDRESS. HEX LOCATION(00001AC2) IN CSECT(045E8) LENGTH(2) 321
863	CW010	ADDRESS. HEX LOCATION(0000213E) IN CSECT(045E8) LENGTH(2) 539
868	CW011	ADDRESS. HEX LOCATION(00002148) IN CSECT(045E8) LENGTH(2) 717
873	CW012	ADDRESS. HEX LOCATION(00002152) IN CSECT(045E8) LENGTH(2) 545
878	CW013	ADDRESS. HEX LOCATION(0000215C) IN CSECT(045E8) LENGTH(2) 551
883	CW014	ADDRESS. HEX LOCATION(00002166) IN CSECT(045E8) LENGTH(2) 562
888	CW015	ADDRESS. HEX LOCATION(00002170) IN CSECT(045E8) LENGTH(2) 557
853	CW080	ADDRESS. HEX LOCATION(0000212A) IN CSECT(045E8) LENGTH(2) 527
858	CW090	ADDRESS. HEX LOCATION(00002134) IN CSECT(045E8) LENGTH(2) 533
838	DATER	ADDRESS. HEX LOCATION(0000210C) IN CSECT(045E8) LENGTH(2) 639
154	DATIN	ADDRESS. HEX LOCATION(0000194A) IN CSECT(045E8) LENGTH(2) 511 519 529 535 541 547 553 559 564 580 585 593 599 605 625 643 719 829 834 839 844 854 859 864 869 874 879 884 889 904 909 914 919 924
843	DATRQ	ADDRESS. HEX LOCATION(00002116) IN CSECT(045E8) LENGTH(2) 623
1020	DBM1	ADDRESS. HEX LOCATION(00002434) IN CSECT(045E8) LENGTH(16) 853
1047	DBM10	ADDRESS. HEX LOCATION(000024D0) IN CSECT(045E8) LENGTH(14) 898
1050	DBM11	ADDRESS. HEX LOCATION(000024E2) IN CSECT(045E8) LENGTH(30) 903
1053	DBM12	ADDRESS. HEX LOCATION(00002504) IN CSECT(045E8) LENGTH(30) 908
1056	DBM13	ADDRESS. HEX LOCATION(00002526) IN CSECT(045E8) LENGTH(22) 913
1059	DBM14	ADDRESS. HEX LOCATION(00002540) IN CSECT(045E8) LENGTH(21) 918
1062	DBM15	ADDRESS. HEX LOCATION(00002558) IN CSECT(045E8) LENGTH(10) 923
1065	DBM16	ADDRESS. HEX LOCATION(00002566) IN CSECT(045E8) LENGTH(11) 928
1023	DBM2	ADDRESS. HEX LOCATION(00002448) IN CSECT(045E8) LENGTH(17) 858
1026	DBM3	ADDRESS. HEX LOCATION(0000245C) IN CSECT(045E8) LENGTH(16) 863
1029	DBM4	ADDRESS. HEX LOCATION(00002470) IN CSECT(045E8) LENGTH(10) 868
1032	DBM5	ADDRESS. HEX LOCATION(0000247E) IN CSECT(045E8) LENGTH(16) 873
1035	DBM6	ADDRESS. HEX LOCATION(00002492) IN CSECT(045E8) LENGTH(15) 878
1038	DBM7	ADDRESS. HEX LOCATION(000024A4) IN CSECT(045E8) LENGTH(9) 883
1041	DBM8	ADDRESS. HEX LOCATION(000024B0) IN CSECT(045E8) LENGTH(10) 888
1044	DBM9	ADDRESS. HEX LOCATION(000024BE) IN CSECT(045E8) LENGTH(15) 893
828	DCBCH	ADDRESS. HEX LOCATION(000020F8) IN CSECT(045E8) LENGTH(2) 509
1004	DCBC1	ADDRESS. HEX LOCATION(000023B6) IN CSECT(045E8) LENGTH(26) 828
234	DCBLD	ADDRESS. HEX LOCATION(00001A64) IN CSECT(045E8) LENGTH(2) 294 364 502 525 662 698 704 711 721
93	DCBPT	ABSOLUTE. HEX VALUE(0000181A) 522 656 660 664
893	DCB1	ADDRESS. HEX LOCATION(0000217A) IN CSECT(045E8) LENGTH(2) 568

CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
   898    DCB2       ADDRESS. HEX LOCATION(00002184) IN CSECT(045E8   ) LENGTH(2)
                     573
   903    DCB3A      ADDRESS. HEX LOCATION(0000218E) IN CSECT(045E8   ) LENGTH(2)
                     578
   908    DCB3B      ADDRESS. HEX LOCATION(00002198) IN CSECT(045E8   ) LENGTH(2)
                     583
   928    DCB4A      ADDRESS. HEX LOCATION(000021C0) IN CSECT(045E8   ) LENGTH(2)
                     611
   913    DCB41      ADDRESS. HEX LOCATION(000021A2) IN CSECT(045E8   ) LENGTH(2)
                     591
   918    DCB42      ADDRESS. HEX LOCATION(000021AC) IN CSECT(045E8   ) LENGTH(2)
                     597
   923    DCB43      ADDRESS. HEX LOCATION(000021B6) IN CSECT(045E8   ) LENGTH(2)
                     603
   437    DELAY      ADDRESS. HEX LOCATION(00001C90) IN CSECT(045E8   ) LENGTH(1)
                     265
   230    DELCT      ADDRESS. HEX LOCATION(00001A60) IN CSECT(045E8   ) LENGTH(1)
                     449
   104    DEVC1      ABSOLUTE. HEX VALUE(0000182E)
                     167
   231    DFALT      ADDRESS. HEX LOCATION(00001A61) IN CSECT(045E8   ) LENGTH(1)
                     387    632    694    707    726    732
   725    DFLT1      ADDRESS. HEX LOCATION(00002004) IN CSECT(045E8   ) LENGTH(1)
                     259
   731    DFLT2      ADDRESS. HEX LOCATION(00002016) IN CSECT(045E8   ) LENGTH(1)
                     260
   777    DHSAV      ADDRESS. HEX LOCATION(00002092) IN CSECT(045E8   ) LENGTH(2)
                     744    759
   992    DINNT      ADDRESS. HEX LOCATION(00002338) IN CSECT(045E8   ) LENGTH(45)
                     843
   195    DLADR      ADDRESS. HEX LOCATION(00001A1A) IN CSECT(045E8   ) LENGTH(1)
                     457
   448    DLAY1      ADDRESS. HEX LOCATION(00001CAE) IN CSECT(045E8   ) LENGTH(1)
                     444
   450    DLAY2      ADDRESS. HEX LOCATION(00001CB2) IN CSECT(045E8   ) LENGTH(1)
                     447
   196    DLCNT      ADDRESS. HEX LOCATION(00001A22) IN CSECT(045E8   ) LENGTH(2)
                     191    451    454
   192    DLIST      ADDRESS. HEX LOCATION(00001A1C) IN CSECT(045E8   ) LENGTH(2)
                     193
   808    DLMSG      ADDRESS. HEX LOCATION(000020D0) IN CSECT(045E8   ) LENGTH(2)
                     438
   191    DLNST      ADDRESS. HEX LOCATION(00001A18) IN CSECT(045E8   ) LENGTH(4)
                     195    453
   983    DMSGL      ADDRESS. HEX LOCATION(000022EC) IN CSECT(045E8   ) LENGTH(32)
                     808
   218    DTCSS      ADDRESS. HEX LOCATION(00001A4E) IN CSECT(045E8   ) LENGTH(2)
                     299
   .91    DTENT      ABSOLUTE. HEX VALUE(00001816)
                     630    636    647
   989    DTINN      ADDRESS. HEX LOCATION(0000232E) IN CSECT(045E8   ) LENGTH(7)
                     838
   742    DTOH       ADDRESS. HEX LOCATION(00002034) IN CSECT(045E8   ) LENGTH(1)
                     441    473    571    576    581    586    614    621
   216    DVAL1      ADDRESS. HEX LOCATION(00001A4A) IN CSECT(045E8   ) LENGTH(2)
                     728
   217    DVAL2      ADDRESS. HEX LOCATION(00001A4C) IN CSECT(045E8   ) LENGTH(2)
                     735
   103    DVPNT      ABSOLUTE. HEX VALUE(0000182C)
                     295    372
   116    EIGHT      ABSOLUTE. HEX VALUE(00000008)
                     531    750    753
   138    EIGTY      ABSOLUTE. HEX VALUE(00000050)
                     628    641
   119    ELEVN      ABSOLUTE. HEX VALUE(0000000B)
                     308    339    722
   105    EPRNT      ABSOLUTE. HEX VALUE(00001830)
                     202
   199    ERTST      ADDRESS. HEX LOCATION(00001A28) IN CSECT(045E8   ) LENGTH(4)
                     675
   203    ERTS1      ADDRESS. HEX LOCATION(00001A34) IN CSECT(045E8   ) LENGTH(1)
                     201
   123    FIFTN      ABSOLUTE. HEX VALUE(0000000F)
                     561    609
   232    FIVDF      ADDRESS. HEX LOCATION(00001A62) IN CSECT(045E8   ) LENGTH(1)
                     389
   113    FIVE       ABSOLUTE. HEX VALUE(00000005)
                     174
   122    FORTN      ABSOLUTE. HEX VALUE(0000000E)
                     566
   112    FOUR       ABSOLUTE. HEX VALUE(00000004)
                     188    194    312    361    411    431    483    657    747
                     749    754    765    769
   180    GODCC      ADDRESS. HEX LOCATION(00001A02) IN CSECT(045E8   ) LENGTH(1)
                     178    181
   100    HEXFF      ABSOLUTE. HEX VALUE(00001828)
                     499    508    513    665
   45     HTOE       ABSOLUTE. HEX VALUE(0000001A)
                     307    322    491    498
   773    HUN        ADDRESS. HEX LOCATION(0000208C) IN CSECT(045E8   ) LENGTH(1)
                     751
   774    HWD80      ADDRESS. HEX LOCATION(0000208D) IN CSECT(045E8   ) LENGTH(1)
                     764    768
   89     IDCPT      ABSOLUTE. HEX VALUE(00001812)
                     343    348    349    361    402    411    426    431    651
                     657    693    701    714
   44     IDLE       ABSOLUTE. HEX VALUE(00000002)
                     170    192
  1015    IDMG1      ADDRESS. HEX LOCATION(00002402) IN CSECT(045E8   ) LENGTH(17)
                     848
  1017    IDMG3      ADDRESS. HEX LOCATION(0000241F) IN CSECT(045E8   ) LENGTH(18)
                     284
   848    IDMSG      ADDRESS. HEX LOCATION(00002120) IN CSECT(045E8   ) LENGTH(2)
                     323
   937    INCMD      ADDRESS. HEX LOCATION(000021D2) IN CSECT(045E8   ) LENGTH(2)
                     739
   977    INCMG      ADDRESS. HEX LOCATION(000022B6) IN CSECT(045E8   ) LENGTH(29)
                     937
   167    INCOA      ADDRESS. HEX LOCATION(000019DE) IN CSECT(045E8   ) LENGTH(4)
                     171    297    690
   166    INCOM      ADDRESS. HEX LOCATION(000019DA) IN CSECT(045E8   ) LENGTH(4)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                     351    672
   173    INCO1      ADDRESS. HEX LOCATION(000019EE) IN CSECT(045E8   ) LENGTH(2)
                     169    349    653    678
   205    INCO2      ADDRESS. HEX LOCATION(00001A34) IN CSECT(045E8   ) LENGTH(2)
                     206    691
   146    INERR      ABSOLUTE. HEX VALUE(00000002)
                     200
   177    IOADR      ADDRESS. HEX LOCATION(000019F8) IN CSECT(045E8   ) LENGTH(1)
                     175    348    402    426    652
   176    IONST      ADDRESS. HEX LOCATION(000019F6) IN CSECT(045E8   ) LENGTH(4)
                     177    353    403    428
   197    JINST      ADDRESS. HEX LOCATION(00001A24) IN CSECT(045E8   ) LENGTH(2)
                     303
    99    LOOPS      ABSOLUTE. HEX VALUE(00001826)
                     277    476    496
   468    LOOP1      ADDRESS. HEX LOCATION(00001CE6) IN CSECT(045E8   ) LENGTH(1)
                     464
   823    LOPMG      ADDRESS. HEX LOCATION(000020EE) IN CSECT(045E8   ) LENGTH(2)
                     469
   462    LOPND      ADDRESS. HEX LOCATION(00001CD6) IN CSECT(045E8   ) LENGTH(1)
                     267
   495    LOPST      ADDRESS. HEX LOCATION(00001D46) IN CSECT(045E8   ) LENGTH(1)
                     266
   106    LOST       ABSOLUTE. HEX VALUE(00001832)
                     172
   221    LOWER      ADDRESS. HEX LOCATION(00001A54) IN CSECT(045E8   ) LENGTH(2)
                     587    763
   190    LPADR      ADDRESS. HEX LOCATION(00001A0C) IN CSECT(045E8   ) LENGTH(1)
                     476
   186    LPCNT      ADDRESS. HEX LOCATION(00001A10) IN CSECT(045E8   ) LENGTH(2)
                     189    474
  1011    LPEN       ADDRESS. HEX LOCATION(000023EC) IN CSECT(045E8   ) LENGTH(14)
                     935
   215    LPEND      ADDRESS. HEX LOCATION(00001A48) IN CSECT(045E8   ) LENGTH(2)
                     280    488    489
   935    LPENM      ADDRESS. HEX LOCATION(000021CE) IN CSECT(045E8   ) LENGTH(2)
                     379
  1012    LPEN1      ADDRESS. HEX LOCATION(000023FA) IN CSECT(045E8   ) LENGTH(4)
                     281
    96    LPIND      ABSOLUTE. HEX VALUE(0000181F)
                     375    463    499
   995    LPMSG      ADDRESS. HEX LOCATION(00002368) IN CSECT(045E8   ) LENGTH(28)
                     823
   184    LPNST      ADDRESS. HEX LOCATION(00001A0A) IN CSECT(045E8   ) LENGTH(4)
                     190
  1007    LPST       ADDRESS. HEX LOCATION(000023D4) IN CSECT(045E8   ) LENGTH(16)
                     933
   933    LPSTM      ADDRESS. HEX LOCATION(000021CA) IN CSECT(045E8   ) LENGTH(2)
                     377
  1008    LPST1      ADDRESS. HEX LOCATION(000023E4) IN CSECT(045E8   ) LENGTH(4)
                     278
   147    MASK1      ABSOLUTE. HEX VALUE(00008080)
                     589
   148    MASK2      ABSOLUTE. HEX VALUE(00008FE8)
                     616
   779    MG8        ADDRESS. HEX LOCATION(00002096) IN CSECT(045E8   ) LENGTH(2)
                     309
   143    M1         ABSOLUTE. HEX VALUE(FFFFFFFF)
                     182
   965    M10        ADDRESS. HEX LOCATION(0000226A) IN CSECT(045E8   ) LENGTH(7)
                     799
   968    M10A       ADDRESS. HEX LOCATION(00002274) IN CSECT(045E8   ) LENGTH(8)
                     803
   971    M11        ADDRESS. HEX LOCATION(00002280) IN CSECT(045E8   ) LENGTH(27)
                     781
   974    M12        ADDRESS. HEX LOCATION(0000229E) IN CSECT(045E8   ) LENGTH(21)
                     783
   144    M4         ABSOLUTE. HEX VALUE(FFFFFFFC)
                     328
   145    M6         ABSOLUTE. HEX VALUE(FFFFFFFA)
                     489
   940    M8         ADDRESS. HEX LOCATION(000021D8) IN CSECT(045E8   ) LENGTH(25)
                     779
   941    M8A        ADDRESS. HEX LOCATION(000021F1) IN CSECT(045E8   ) LENGTH(3)
                     275
   944    M9         ADDRESS. HEX LOCATION(000021F8) IN CSECT(045E8   ) LENGTH(19)
                     785
   947    M9A        ADDRESS. HEX LOCATION(0000220E) IN CSECT(045E8   ) LENGTH(20)
                     787
   950    M9B        ADDRESS. HEX LOCATION(00002226) IN CSECT(045E8   ) LENGTH(10)
                     789
   953    M9C        ADDRESS. HEX LOCATION(00002234) IN CSECT(045E8   ) LENGTH(8)
                     791
   956    M9D        ADDRESS. HEX LOCATION(00002240) IN CSECT(045E8   ) LENGTH(8)
                     793
   959    M9E        ADDRESS. HEX LOCATION(0000224C) IN CSECT(045E8   ) LENGTH(13)
                     795
   962    M9F        ADDRESS. HEX LOCATION(0000225C) IN CSECT(045E8   ) LENGTH(11)
                     797
   738    NGOOD      ADDRESS. HEX LOCATION(0000202A) IN CSECT(045E8   ) LENGTH(1)
                     340
   117    NINE       ABSOLUTE. HEX VALUE(00000009)
                     395    537
   986    NLOOP      ADDRESS. HEX LOCATION(00002310) IN CSECT(045E8   ) LENGTH(27)
                     801
   285    NO         ADDRESS. HEX LOCATION(00001AC8) IN CSECT(045E8   ) LENGTH(1)
                     326    511    519    529    535    541    547    553    559
                     564    593    599    605    625    719
   286    NOCHN      ADDRESS. HEX LOCATION(00001AC9) IN CSECT(045E8   ) LENGTH(1)
                     513    515
   801    NOLOP      ADDRESS. HEX LOCATION(000020C2) IN CSECT(045E8   ) LENGTH(2)
                     465
   109    ONE        ABSOLUTE. HEX VALUE(00000001)
                     205    296    298    336    341    369    445    504    595
                     615    708    727    729    734
    88    OPTN2      ABSOLUTE. HEX VALUE(00001810)
                     199
    42    OUT        ABSOLUTE. HEX VALUE(00000000)
                     311    378    380    466    740
    43    OUTIN      ABSOLUTE. HEX VALUE(00000001)
                     315    324    393    439    470    510    518    528    534
                     540    546    552    558    563    569    574    579    584
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		592 598 604 612 619 624 640 718
3	045E8	CSECT. START(00001900) LENGTH(3186) ESDID(0)
		3
980	PMSGR	ADDRESS. HEX LOCATION(000022D6) IN CSECT(045E8) LENGTH(18)
		818
235	POSTC	ADDRESS. HEX LOCATION(00001A66) IN CSECT(045E8) LENGTH(2)
		572
236	PRECR	ADDRESS. HEX LOCATION(00001A68) IN CSECT(045E8) LENGTH(2)
		577
391	PREPA	ADDRESS. HEX LOCATION(00001C0A) IN CSECT(045E8) LENGTH(1)
		388
400	PREPB	ADDRESS. HEX LOCATION(00001C24) IN CSECT(045E8) LENGTH(1)
		390 417
383	PREPR	ADDRESS. HEX LOCATION(00001BF6) IN CSECT(045E8) LENGTH(1)
		261
818	PRMSG	ADDRESS. HEX LOCATION(000020E4) IN CSECT(045E8) LENGTH(2)
		392
226	PRPCD	ADDRESS. HEX LOCATION(00001A5C) IN CSECT(045E8) LENGTH(1)
		384 414
762	RCOMP	ADDRESS. HEX LOCATION(0000206C) IN CSECT(045E8) LENGTH(1)
		588
223	RDADR	ADDRESS. HEX LOCATION(00001A57) IN CSECT(045E8) LENGTH(1)
		316 655
242	RDBLD	ADDRESS. HEX LOCATION(00001A74) IN CSECT(045E8) LENGTH(2)
		699
224	RDCOD	ADDRESS. HEX LOCATION(00001A58) IN CSECT(045E8) LENGTH(2)
		283 318
222	RDID	ADDRESS. HEX LOCATION(00001A56) IN CSECT(045E8) LENGTH(1)
		317
219	RDIPT	ADDRESS. HEX LOCATION(00001A50) IN CSECT(045E8) LENGTH(2)
		704
688	READ	ADDRESS. HEX LOCATION(00001F96) IN CSECT(045E8) LENGTH(1)
		268
703	READA	ADDRESS. HEX LOCATION(00001FC6) IN CSECT(045E8) LENGTH(1)
		696
418	REDID	ADDRESS. HEX LOCATION(00001C5A) IN CSECT(045E8) LENGTH(1)
		263
421	RESET	ADDRESS. HEX LOCATION(00001C60) IN CSECT(045E8) LENGTH(1)
		264
189	RESTR	ADDRESS. HEX LOCATION(00001A12) IN CSECT(045E8) LENGTH(6)
		483 485
214	RETSV	ADDRESS. HEX LOCATION(00001A46) IN CSECT(045E8) LENGTH(2)
		293 329 382
227	RIDCD	ADDRESS. HEX LOCATION(00001A5D) IN CSECT(045E8) LENGTH(1)
		419
228	RSTCD	ADDRESS. HEX LOCATION(00001A5E) IN CSECT(045E8) LENGTH(1)
		422
776	RTRTN	ADDRESS. HEX LOCATION(00002090) IN CSECT(045E8) LENGTH(2)
		743 761
208	R2SAV	ADDRESS. HEX LOCATION(00001A3A) IN CSECT(045E8) LENGTH(2)
		337 367 492
211	R5SAV	ADDRESS. HEX LOCATION(00001A40) IN CSECT(045E8) LENGTH(2)
		471 475
212	R6SAV	ADDRESS. HEX LOCATION(00001A42) IN CSECT(045E8) LENGTH(2)
		745 760
213	R7SAV	ADDRESS. HEX LOCATION(00001A44) IN CSECT(045E8) LENGTH(2)
		320 325 338 368 503
241	SDADR	ADDRESS. HEX LOCATION(00001A72) IN CSECT(045E8) LENGTH(2)
		631
115	SEVEN	ABSOLUTE. HEX VALUE(00000007)
		178 398
238	SHIFT	ADDRESS. HEX LOCATION(00001A6C) IN CSECT(045E8) LENGTH(2)
		590 615 616
229	SIOCD	ADDRESS. HEX LOCATION(00001A5F) IN CSECT(045E8) LENGTH(1)
		654
501	SIORT	ADDRESS. HEX LOCATION(00001D5C) IN CSECT(045E8) LENGTH(1)
		705 724
526	SIOR1	ADDRESS. HEX LOCATION(00001DB0) IN CSECT(045E8) LENGTH(1)
		505 516 520
638	SIOR7	ADDRESS. HEX LOCATION(00001F02) IN CSECT(045E8) LENGTH(1)
		626
648	SIOR8	ADDRESS. HEX LOCATION(00001F1A) IN CSECT(045E8) LENGTH(1)
		634 637
532	SIO1	ADDRESS. HEX LOCATION(00001DC0) IN CSECT(045E8) LENGTH(1)
		530
617	SIO10	ADDRESS. HEX LOCATION(00001EC2) IN CSECT(045E8) LENGTH(1)
		610
538	SIO2	ADDRESS. HEX LOCATION(00001DD0) IN CSECT(045E8) LENGTH(1)
		536
544	SIO3	ADDRESS. HEX LOCATION(00001DE0) IN CSECT(045E8) LENGTH(1)
		542
550	SIO4	ADDRESS. HEX LOCATION(00001DF0) IN CSECT(045E8) LENGTH(1)
		548
556	SIO5	ADDRESS. HEX LOCATION(00001E00) IN CSECT(045E8) LENGTH(1)
		554
567	SIO6	ADDRESS. HEX LOCATION(00001E20) IN CSECT(045E8) LENGTH(1)
		560 565
596	SIO7	ADDRESS. HEX LOCATION(00001E86) IN CSECT(045E8) LENGTH(1)
		594
602	SIO8	ADDRESS. HEX LOCATION(00001E96) IN CSECT(045E8) LENGTH(1)
		600
608	SIO9	ADDRESS. HEX LOCATION(00001EA6) IN CSECT(045E8) LENGTH(1)
		606
114	SIX	ABSOLUTE. HEX VALUE(00000006)
		349 653
124	SIXTN	ABSOLUTE. HEX VALUE(00000010)
		363 523 659 697 710
627	SI7	ADDRESS. HEX LOCATION(00001EE2) IN CSECT(045E8) LENGTH(1)
		702 715
142	STH68	ABSOLUTE. HEX VALUE(00001C00)
		166
90	STRTB	ABSOLUTE. HEX VALUE(00001814)
		301 302 304 328 347 360 374 401 410
		425 430 452 460 477 493 496 670 686
		689 692
514	S1	ADDRESS. HEX LOCATION(00001D8A) IN CSECT(045E8) LENGTH(1)
		507 512
658	S8	ADDRESS. HEX LOCATION(00001F3E) IN CSECT(045E8) LENGTH(1)
		650
118	TEN	ABSOLUTE. HEX VALUE(0000000A)
		183 543

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
775	TENS	ADDRESS. HEX LOCATION(0000208E) IN CSECT(045E8) LENGTH(1)
		757
772	THOUS	ADDRESS. HEX LOCATION(0000208A) IN CSECT(045E8) LENGTH(2)
		748
111	THREE	ABSOLUTE. HEX VALUE(00000003)
		607
121	THRTN	ABSOLUTE. HEX VALUE(0000000D)
		555
120	TWELV	ABSOLUTE. HEX VALUE(0000000C)
		373 427 458 549 674 677 755
126	TWENY	ABSOLUTE. HEX VALUE(00000014)
		350 671
127	TWEN2	ABSOLUTE. HEX VALUE(00000016)
		486
110	TWO	ABSOLUTE. HEX VALUE(00000002)
		177 187 190 195 197 198 297 300 356
		406 484 485 601 682 736
152	UBUFR	ADDRESS. HEX LOCATION(00001906) IN CSECT(045E8) LENGTH(2)
		331 728 735 804
413	UNPRP	ADDRESS. HEX LOCATION(00001C50) IN CSECT(045E8) LENGTH(1)
		262
220	UPPER	ADDRESS. HEX LOCATION(00001A52) IN CSECT(045E8) LENGTH(2)
		582 767
258	VIRBL	ADDRESS. HEX LOCATION(00001A94) IN CSECT(045E8) LENGTH(1)
		332
155	VIRDT	ADDRESS. HEX LOCATION(0000198A) IN CSECT(045E8) LENGTH(54)
		629
225	VIRID	ADDRESS. HEX LOCATION(00001A5A) IN CSECT(045E8) LENGTH(2)
		318
292	VIR00	ADDRESS. HEX LOCATION(00001ACE) IN CSECT(045E8) LENGTH(1)
		151
310	VIR10	ADDRESS. HEX LOCATION(00001B10) IN CSECT(045E8) LENGTH(1)
		313
330	VIR12	ADDRESS. HEX LOCATION(00001B54) IN CSECT(045E8) LENGTH(1)
		319 327 730 737
333	VIR15	ADDRESS. HEX LOCATION(00001B5C) IN CSECT(045E8) LENGTH(1)
		370
346	VIR20	ADDRESS. HEX LOCATION(00001B82) IN CSECT(045E8) LENGTH(1)
		436 741
362	VIR23	ADDRESS. HEX LOCATION(00001BBA) IN CSECT(045E8) LENGTH(1)
		412 432 461 467 494 500 667 687
371	VIR25	ADDRESS. HEX LOCATION(00001BD4) IN CSECT(045E8) LENGTH(1)
		335
381	VIR26	ADDRESS. HEX LOCATION(00001BF2) IN CSECT(045E8) LENGTH(1)
		376
803	VMG2	ADDRESS. HEX LOCATION(000020C6) IN CSECT(045E8) LENGTH(2)
		314
207	WORKA	ADDRESS. HEX LOCATION(00001A38) IN CSECT(045E8) LENGTH(2)
		326 849
153	WORK1	ADDRESS. HEX LOCATION(00001946) IN CSECT(045E8) LENGTH(2)
		394 396 397 399 440 809 819
250	WRBLD	ADDRESS. HEX LOCATION(00001A84) IN CSECT(045E8) LENGTH(2)
		712
716	WRITA	ADDRESS. HEX LOCATION(00001FEC) IN CSECT(045E8) LENGTH(1)
		709
723	WRITB	ADDRESS. HEX LOCATION(00002000) IN CSECT(045E8) LENGTH(1)
		720
706	WRITE	ADDRESS. HEX LOCATION(00001FD0) IN CSECT(045E8) LENGTH(1)
		269
108	ZERO	ABSOLUTE. HEX VALUE(00000000)
		168 173 521 633 644 666 695 733
101	ZEROS	ABSOLUTE. HEX VALUE(00001829)
		365

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001900                        3 048E8 START X'1900'
                              4 ********************************************************************************
                              5 *                                                                              *
                              6 *                    ***       PREREQUISITES        ***                        *
                              7 *                                                                              *
                              8 *                              NONE                                            *
                              9 *                                                                              *
                             10 ********************************************************************************
                             11 *                                                                              *
                             12 *                    ***       MODIFICATIONS        ***                        *
                             13 *                                                                              *
                             14 *                    CORRECT THE CHAIN BIT OPERATION.                          *
                             15 *                                                                              *
                             16 ********************************************************************************
                             17 *                                                                              *
                             18 *                    ***     REA'S INCORPORATED     ***                        *
                             19 *                                                                              *
                             20 *                              NONE                                            *
                             21 *                                                                              *
                             22 ********************************************************************************
                             23 *                                                                              *
                             24 *                    ***    SPECIAL INSTRUCTIONS    ***                        *
                             25 *                                                                              *
                             26 *                              NONE                                            *
                             27 *                                                                              *
                             28 ********************************************************************************
                             29 *                                                                              *
                             30 *                    ***       E. C. HISTORY        ***                        *
                             31 *                                                                              *
                             32 *          DATE 06MAY77  DATE 15SEP77  DATE 09DEC77  DATE                      *
                             33 *          E.C. 578756   E.C. 754882   E.C. 755104   E.C.                       *
                             34 *                                                                              *
                             35 ********************************************************************************
                             37 ********************************************************************************
                             38 *                                                                              *
                             39 *     EQUATED NAMES FOR SUPPORTED SVC'S                                        *
                             40 *                                                                              *
                             41 ********************************************************************************
000000                       42 OUT    EQU   0                    OUT SVC
000001                       43 OUTIN  EQU   1                    OUTIN SVC
000002                       44 IDLE   EQU   2                    IDLE SVC
00001A                       45 HTOE   EQU   26                   HEX TO EBCDIC
                             47 ********************************************************************************
                             48 *                                                                              *
                             49 *     EQUATES FOR CODED STOPS USED BY THIS UTILITY MONITOR                     *
                             50 *           (NORMAL AND ERROR)                                                 *
                             51 *                                                                              *
                             52 ********************************************************************************
003484                       53 CD4    EQU   X'3484'              COMMAND(S) FOR 4964
00349B                       54 CD1B   EQU   X'349B'              INVALID COMMAND
0034A0                       55 CD20   EQU   X'34A0'              READ I.D. MISMATCH
0034A1                       56 CD21   EQU   X'34A1'              STANDARD DATA PATTERN TO BE USED
0034A2                       57 CD22   EQU   X'34A2'              LEVEL TO INTERRUPT
0034A3                       58 CD23   EQU   X'34A3'              LENGTH OF DELAY
0034A4                       59 CD24   EQU   X'34A4'              DATA TO BE USED FOR THIS TEST
0034A5                       60 CD25   EQU   X'34A5'              BYTE COUNT
0034A6                       61 CD26   EQU   X'34A6'              LOOP NOT STARTED
0034A7                       62 CD27   EQU   X'34A7'              NUMBER OF TIMES THRU LOOP
0034A8                       63 CD28   EQU   X'34A8'              SEEK DIFFERENCE
0034A9                       64 CD29   EQU   X'34A9'              SEEK DIRECTION
0034AA                       65 CD2A   EQU   X'34AA'              FORMAT WORD
0034AB                       66 CD2B   EQU   X'34AB'              CYLINDER NUMBER
0034AC                       67 CD2C   EQU   X'34AC'              SECTOR SIZE
0034AD                       68 CD2D   EQU   X'34AD'              SECTOR NUMBER
0034AE                       69 CD2E   EQU   X'34AE'              HEAD NUMBER
0034AF                       70 CD2F   EQU   X'34AF'              IS THIS DCB TO BE CHAINED
0034BA                       71 CD3A   EQU   X'34BA'              DO YOU WANT TO USE THE DATA JUST READ
0034BB                       72 CD3B   EQU   X'34BB'              NUMBER OF DATA WORDS
0034BC                       73 CD3C   EQU   X'34BC'              DCB CHAINING
                             75 ********************************************************************************
                             76 *                                                                              *
                             77 *     EQUATE TABLE                                                             *
                             78 *                                                                              *
                             79 ********************************************************************************
000232                       80 CPUTP  EQU   X'0232'              CPU TYPE
001810                       81 OPTN2  EQU   X'1810'              POINTER TO OPTION WORD 2
001812                       82 IDCPT  EQU   X'1812'              POINTER TO IDCB BUILD AREA
001814                       83 STRTB  EQU   X'1814'              POINTER TO STREAM BUILD AREA
001816                       84 DTENT  EQU   X'1816'              POINTER TO DATA BUILD AREA
001818                       85 DVCNT  EQU   X'1818'              POINTER TO DEVICE UNDER TEST
00181A                       86 DCBPT  EQU   X'181A'              POINTER TO DCB BUILD AREA
00181C                       87 BADCC  EQU   X'181C'              POINTER TO BAD CODE ROUTINE
00181E                       88 KMODE  EQU   X'181E'              POINTER TO DEVICE KEYING IN
00181F                       89 LPIND  EQU   X'181F'              LOOP INDICATOR
001820                       90 KEYMD  EQU   X'1820'              ADDRESS OF DEVICES KEYING
001824                       91 KYMOD  EQU   X'1824'              INDICATOR A DEVICE IS KEYING IN
001826                       92 LOOPS  EQU   X'1826'              ADDRESS OF LOOP START
001828                       93 HEXFF  EQU   X'1828'
001829                       94 ZEROS  EQU   X'1829'
00182A                       95 NUMDV  EQU   X'182A'
00182C                       96 DVPNT  EQU   X'182C'
00182E                       97 DEVC1  EQU   X'182E'
001830                       98 EPRNT  EQU   X'1830'
001832                       99 LOST   EQU   X'1832'
000000                      100 ZERO   EQU   0                    VALUE OF 0
000001                      101 ONE    EQU   1                             1
000002                      102 TWO    EQU   2                             2
000003                      103 THREE  EQU   3                             3
000004                      104 FOUR   EQU   4                             4
000005                      105 FIVE   EQU   5                             5
000006                      106 SIX    EQU   6                             6
000007                      107 SEVEN  EQU   7                             7
000008                      108 EIGHT  EQU   8                             8
000009                      109 NINE   EQU   9                             9
00000A                      110 TEN    EQU   10                            10
00000C                      111 TWELV  EQU   12                            12
00000D                      112 THRTN  EQU   13                            13
00000E                      113 FORTN  EQU   14                            14
00000F                      114 FIFTN  EQU   15                            15
000010                      115 SIXTN  EQU   16                            16
000011                      116 SVNTN  EQU   17                            17
000012                      117 EIGTN  EQU   18                            18
000014                      118 TWENY  EQU   20                            20
000016                      119 TWEN2  EQU   22                            22
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00001A                      120 TWEN6  EQU   26                            26
00001B                      121 TWEN7  EQU   27                            27
00001C                      122 TWEN8  EQU   28                            28
000020                      123 THIR6  EQU   32                            32
000028                      124 FORTY  EQU   40                            40
00003C                      125 SIXTY  EQU   60                            60
00003F                      126 SIXT3  EQU   63                            63
000040                      127 SIXT4  EQU   64                            64
00007F                      128 ONE27  EQU   127                           127
000080                      129 ONE28  EQU   128                           128
000084                      130 ONE32  EQU   132                           132
000100                      131 TWO56  EQU   256                           256
001C00                      132 STH68  EQU   7168                          7168
FFFFFF                      133 H1     EQU   -1                            -1
FFFFFC                      134 H4     EQU   -4                            -4
FFFFFA                      135 H6     EQU   -6                            -6
FFFFF6                      136 MIN10  EQU   -10                           -10
000002                      137 INERR  EQU   2
001900 048E8                139 PID    DC    X'48E8'                 PROGRAM IDENTIFIER
001902 6802 1A8E            140 OVLST  B     IBI00                   BRANCH TO START OF OVERLAY
001906 00000000000000000    141 UBUFR  DC    32A(*-*)
001946 00000000             142 WORK   DC    2A(*-*)
00194A 00000000000000000    143 DATIN  DC    32A(*-*)
00198A DEB66BED             144 IBIDT  DC    X'DEB66BED'
                            146 ********************************************************************************
                            147 *                                                                              *
                            148 *     THE FOLLOWING INSTRUCTIONS WILL BE MODIFIED FOR TESTING.                 *
                            149 *     CARE SHOULD BE TAKEN TO ENSURE THE INSTRUCTIONS MAINTAIN                 *
                            150 *     THE SAME RELATIVE POSITION IN THE INSTRUCTION STREAM.                    *
                            151 *                                                                              *
                            152 ********************************************************************************
00198E 4324 1C00            153 INCOM  MVWI  STH68,R3
001992 4024 182E            154 INCOA  MVWI  DEVC1,R0
001996 4800                 155        TBT   (R0,ZERO)
001998 1004                 156        JZ    INC01
00199A 6002                 157        SVC   IDLE
00199C BBFA                 158        JCT   INCOA,R3
00199E 6F13 1832            159        BAL   LOST*,R7
0019A2 4840                 160 INC01  TBTS  (R0,ZERO)
0019A4 0005                 161        ABI   FIVE,R0
0019A6 4000 19AC            162        MVA   IOADR,(R0)
0019AA 680C 19AA            163 IONST  IO    *
0019AC                      164 IOADR  EQU   IONST+TWO
0019AE 6F04 19B6            165 CCCHK  BCC   SEVEN,GODCC
0019B2 6F13 181C            166        BAL   BADCC*,R7
0019B6                      167 GODCC  EQU   *
000008                      168 CCDCP  EQU   GODCC-CCCHK
0019B6 4029 19C2 FFFF       169 CNTST  AWI   M1,CNTWD
0019BC 1004                 170        JZ    **TEN
0019BE 6802 19BE            171 LPNST  B     *
0019C2 0000                 172 CNTWD  DC    A(*-*)
0019C4 0000                 173 LPCNT  DC    A(*-*)
0019B8                      174 CNTAD  EQU   CNTST+TWO
0019BA                      175 JENST  EQU   CNTST+FOUR
0019C6 8828 19C4 19C2       176 RCSTR  MVW   LPCNT,CNTWD
0019C0                      177 LPADR  EQU   LPNST+TWO
0019CC 6F08 19D6            178 DLNST  MVW   DLCNT,R7
0019D0 6002                 179 DLIST  SVC   IDLE
0019D2 BFFE                 180        JCT   DLIST,R7
0019D4 5001                 181        J     **FOUR
0019CE                      182 DLADR  EQU   DLNST+TWO
0019D6 0000                 183 DLCNT  DC    A(*-*)
0019D8 5000                 184 JINST  J     **TWO
0019DA 5000                 185        J     **TWO
0019DC 4724 1810            186 ERTST  MVWI  OPTN2,R7
0019E0 4F02                 187        TBT   (R7,INERR)
0019E2 1002                 188        JZ    ERTS1
0019E4 6F13 1830            189        BAL   EPRNT*,R7
0019E8                      190 ERTS1  EQU   *
0019E8 0000                 192 WORKA  DC    A(*-*)
0019EA 0000                 193 R2SAV  DC    A(*-*)
0019EC 0000                 194 R3SAV  DC    A(*-*)
0019EE 0000                 195 R5SAV  DC    A(*-*)
0019F0 0000                 196 R6SAV  DC    A(*-*)
0019F2 0000                 197 R7SAV  DC    A(*-*)
0019F4 0000                 198 RETSV  DC    A(*-*)
0019F6 0000                 199 LPEND  DC    A(*-*)
0019F8 0000                 200 CNTSV  DC    A(*-*)
0019FA 0F0D                 201 DVAL1  DC    X'0F0D'
0019FC 0F0D0C00             202 DVAL2  DC    X'0F0D0C00'
                            203        ALIGN WORD
001A00 4804                 204 DTCSS  DC    X'4804'
001A02 20                   205 RDID   DC    X'20'
001A03 00                   206 RDADR  DC    X'00'
001A04 0000                 207 RDCOD  DC    X'0000'
001A06 0106                 208 IBIID  DC    X'0106'
001A08 200A                 209 RDSID  DC    X'200A'
001A0A 2009                 210 RDATA  DC    X'2009'
001A0C 000C                 211 RDVRF  DC    X'000C'
001A0E 0001                 212 WRTDA  DC    X'0001'
001A10 60                   213 PRPCD  DC    X'60'
001A11 20                   214 RIDCD  DC    X'20'
001A12 6F                   215 RSTCD  DC    X'6F'
001A13 70                   216 SIOCD  DC    X'70'
001A14 05                   217 DELCT  DC    X'05'
001A15 00                   218 DFALT  DC    X'00'
001A16 05                   219 FIVDF  DC    X'05'
001A17 07                   220 RECAL  DC    X'07'
001A18 05                   221 SEKOP  DC    X'05'
001A19 02                   222 FRMOP  DC    X'02'
001A1A 08                   223 NEGAT  DC    X'08'
001A1B 00                   224        ALIGN WORD
001A1C 0000                 225 DCBLD  DC    A(*-*)
001A1E 0000                 226 DRDFR  DC    A(*-*)
001A20 0000                 227 FORMT  DC    A(*-*)
001A22 0000                 228 SZCYL  DC    A(*-*)
001A24 0000                 229 HDREC  DC    A(*-*)
001A26 0000                 230 CHNAD  DC    A(*-*)
001A28 0000                 231 BYCNT  DC    A(*-*)
001A2A 0000                 232 SDADR  DC    A(*-*)
001A2C 0110                 233 SCYLN  DC    X'0110'
001A2E 0001                 234 HSECT  DC    X'0001'
001A30 004C                 235 CNDDF  DC    X'004C'
001A32 0100                 236 CNDBT  DC    X'0100'
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LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT
001A34 0004               237 SIDBC DC    X'0004'
001A36                    238 IBIBL EQU   *
001A36 2080               239       DC    A(DFLT1)
001A38 2092               240       DC    A(DFLT2)
001A3A 1BC8               241       DC    A(PREPR)
001A3C 1C24               242       DC    A(UNPRP)
001A3E 1C30               243       DC    A(REDID)
001A40 1C36               244       DC    A(RESET)
001A42 1C44               245       DC    A(DELAY)
001A44 1CF6               246       DC    A(LOPST)
001A46 1C8A               247       DC    A(LOPND)
001A48 1FD2               248       DC    A(READ)
001A4A 1FE8               249       DC    A(WRITE)
001A4C 1FF8               250       DC    A(READS)
001A4E 201A               251       DC    A(SEEK)
001A50 203C               252       DC    A(FRMAT)
001A52 2046               253       DC    A(RCALB)
001A54 2058               254       DC    A(READV)
001A56 0000               255 AECVT DC    A(*-*)
001A58 0000               256 AETCV DC    A(*-*)
001A5A 0000               257 AECTV DC    A(*-*)
001A5C 0001               258 CVADR DC    A(1)
001A5E 0000               259 CVAD1 DC    A(*-*)
001A60 221B               260 CVAD2 DC    A(M8A)
001A62 0002               261 CLPST DC    A(2)
001A64 1826               262       DC    A(LOOPS)
001A66 2538               263       DC    A(LPST1)
001A68 0002               264 CLPEN DC    A(2)
001A6A 19F6               265       DC    A(LPEND)
001A6C 254E               266       DC    A(LPEN1)
001A6E 0002               267 CVRID DC    A(2)
001A70 1A04               268       DC    A(RDCOD)
001A72 25B9               269       DC    A(IDMG3)
001A74 0002               270 CVEXP DC    A(2)
001A76 1A06               271       DC    A(IBIID)
001A78 25AD               272       DC    A(IDMG2)
001A7A D5                 273 NO    DC    C'N'
001A7B 00                 274 RDIND DC    X'00'
001A7C 00                 275 NOCHN DC    X'00'
001A7D FF                 276 ASKHD DC    X'FF'
001A7E 00                 277 SAVHD DC    X'00'
001A7F 00                 278 ASKIT DC    X'00'
001A80 00                 279 CHIND DC    X'00'
001A81 40                 280 EBCBK DC    C' '
001A82 00                 281 VRFYS DC    X'00'
001A83 23                 282 ALBRT DC    X'23'
001A84 0000               283 SKSAV DC    A(*-*)
001A86 0000               284 RDSAV DC    A(*-*)
001A88 0000               285 WDCNT DC    A(*-*)
001A8A 0000               286 WRTSV DC    A(*-*)
001A8C 0000               287 RDISV DC    A(*-*)
                          288       ALIGN WORD
001A8E                    289 IBI00 EQU   *
001A8E 6F0D 19F4          290       MVW   R7,RETSV          SAVE THE RETURN ADDRESS
001A92 6908 1816          291       MVW   DTENT,R1          GET DATA ADR
001A96 7921 0001          292       AWI   ONE,R1            THIS IS
001A9A 310A               293       SRL   ONE,R1                TO SET
001A9C 3109               294       SLL   ONE,R1                    WORD BOUNDARY
001A9E 690D 1816          295       MVW   R1,DTENT          SAVE THE ADR
001AA2 6908 182C          296       MVW   DVENT,R1          DEVICE POINTER
001AA6 7921 0001          297       AWI   ONE,R1            BUMP POINTER
001AAA 690D 1994          298       MVW   R1,INCOA+TWO      PUT IN THE INSTR STREAM
001AAE 7921 0001          299       AWI   ONE,R1            BUMP ADDRESS
001AB2 8860 1A00          300       MVW   DTCSS,(R1)        ENTER DEVICE TYPE
001AB6 7921 0002          301       AWI   TWO,R1            BUMP POINTER
001ABA 8860 1814          302       MVW   STRTB,(R1)        START ADR FOR THIS TEST
001ABE 6808 1814          303       MVW   STRTB,R0          SET R0
001AC2 9024 19D8          304       MVD   JINST,(R0)+       MOVE IN DUMMY INSTR'S
001AC6 680D 1814          305       MVW   R0,STRTB          SAVE THE INSTR STREAM POINTER
001ACA 6D0D 1A5E          306       MVW   R5,CVAD1          PREPARE TO CONVERT
001ACE 4724 1A5C          307       MVA   CVADR,R7          CONTROL BLOCK ADDRESS
001AD2 601A               308       SVC   HTOE              GO CONVERT
001AD4 4424 0012          309       MVWI  EIGTN,R4          NUM OF POSSIBLE MESSAGES
001AD8 4724 20F0          310       MVA   MG8,R7            START ADR OF MESSAGES
001ADC                    311 IBI10 EQU   *
001ADC 6000               312       SVC   OUT               OUTPUT THE MESSAGE
001ADE 7FE1 0004          313       AWI   FOUR,R7           POSITION FOR NEXT MESSAGE
001AE2 BCFC               314       JCT   IBI10,R4          TEST THE NEXT BIT
001AE4 4724 213C          315       MVA   TMG2,R7           DUMMY SVC TO GET DATA
001AE8 6001               316       SVC   OUTIN             ISSUE THE OUTIN
001AEA 8508 1A03          317       MVB   (R5),RDADR       PUT THE DEVICE ADR IN READ I.D.
001AEE 680C 1A02          318       IO    RDID              DO A READ I.D.
001AF2 882B 1A04 1A06     319       CW    RDCOD,IBIID       IS IT O.K.
001AF8 1016               320       JE    IBI12             J-YES
001AFA 6F0D 19F2          321       MVW   R7,R7SAV          SAVE R7
001AFE 4724 1A6E          322       MVA   CVRID,R7          CONVERT CONTROL BLOCK
001B02 601A               323       SVC   HTOE
001B04 4724 1A74          324       MVA   CVEXP,R7          CONVERT CONTROL BLOCK
001B08 601A               325       SVC   HTOE
001B0A 4724 2196          326       MVA   IDMSG,R7          ADR OF MSG
001B0E 6001               327       SVC   OUTIN
001B10 6F08 19F2          328       MVW   R7SAV,R7          RESTORE R7
001B14 802B 19E8 1A7A     329       CB    WORKA,NO          WAS THE ANSWER NO
001B1A 1805               330       JNE   IBI12             J-NO
001B1C 4029 1814 FFFC     331       AWI   M4,STRTB          RESTORE POINTER
001B22 6812 19F4          332       B     RETSV*            RETURN TO SENDER
001B26                    333 IBI12 EQU   *
001B26 4324 1906          334       MVA   UBUFR,R3          INPUT DATA
001B2A 4224 1A36          335       MVA   IBIBL,R2          ADR OF BR TABLE
001B2E                    336 IBI15 EQU   *
001B2E C4C0               337       MVB   (R3),R4           GET THE COMMAND
001B30 103A               338       JZ    IBI25             END
001B32 7C82 0001          339       SWI   ONE,R4            REDUCE BY ONE
001B36 D228 19EA          340       MVD   R2,R2SAV          SAVE THE REGS
001B3A 6F0D 19F2          341       MVW   R7,R7SAV          SAVE THE REGISTER
001B3E 7C06 0011          342       CWI   SVNTN,R4          IS IT A VALID COMMAND
001B42 6D01 20A4          343       BGT   NGOOD             J-NO--TOO HIGH
001B46 3409               344       SLL   ONE,R4            DOUBLE FOR DISPL INTO COMMAND TABLE
001B48 7288               345       AW    R2,R4             GET THE COMMAND PROCESSOR ADDRESS
001B4A 6808 1812          346       MVW   IDCPT,R0          ADR TO PUT THE IDCB
001B4E 6C88 0000          347       MVW   (R4),R4           GET THE ADDRESS IN THE TABLE
001B52 5400               348       BXS   (R4)              GO COMPLETE THE IDCB
001B54                    349 IBI20 EQU   *
001B54 6808 1814          350       MVW   STRTB,R0          ADR TO PUT OIO INSTR
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LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT
001B58 8828 1812 19AC     351       MVW   IDCPT,IOADR       ADR OF THE IDCB
001B5E 8828 1812 19A8     352       MVW   IDCPT,INCO1+SIX   ADR OF THE IDCB
001B64 0F14               353       MVBI  TWFNY,R7          NUM OF BYTES IN THE INSTR STREAM
001B66 4424 198E          354       MVA   INCOM,R4          START ADR OF INSTR STREAM
001B6A 2C04               355       MVFN  (R4),(R0)         MOVE THE INSTRUCTIONS
001B6C 9024 19AA          356       MVD   IONST,(R0)+       MOVE THE INSTRUCTION
001B70 70E4               357       MVW   R0,R7             SAVE R0
001B72 7FE1 0008          358       AWI   CCDCP,R7          COMPUTE A NEW ADDRESS
001B76 6F0D 19B0          359       MVW   R7,CCCHK+TWO      INSERT NEW ADDRESS
001B7A 4724 19AE          360       MVA   CCCHK,R7          ADDRESS OF DATA TO MOVE
001B7E 9714               361       MVD   (R7)+,(R0)+       MOVE THE INSTR'S
001B80 9714               362       MVD   (R7)+,(R0)+
001B82 680D 1814          363       MVW   R0,STRTB          BUMP THE INSTR ADR
001B86 4029 1812 0004     364       AWI   FOUR,IDCPT        BUMP THE IDCB ADR POINTER
001B8C                    365 IBI23 EQU   *
001B8C 0F10               366       MVBI  SIXTN,R7           NUMBER OF BYTES TO CLEAR
001B8E 4324 1A1C          367       MVA   DCBLD,R3           ADR OF AREA TO CLEAR
001B92 C220 1829          368       MVB   ZEROS,R2           DATA TO CLEAR WITH
001B96 2A6C               369       FFN   R2,(R3)            CLEAR THE AREA
001B98 D220 19EA          370       MVD   F2SAV,R2          RESTORE THE REGS
001B9C 6F08 19F2          371       MVW   R7SAV,R7          RESTORE R7
001BA0 7B61 0001          372       AWI   ONE,R3            BUMP INPUT POINTER
001BA4 BFC4               373       JCT   IBI15,R7          GO SET UP FOR NEXT COMMAND
001BA6                    374 IBI25 EQU   *
001BA6 6908 182C          375       MVW   DVPNT,R1          DEVICE PARAMETERS UNDER TEST
001BAA 7921 000C          376       AWI   TWELV,R1          BUMP THE POINTER
001BAE 8860 1814          377       MVW   STRTB,(R1)        SAVE THE END ADR
001BB2 C025 181F          378       MVBZ  LPIND,R0          WAS A LOOP STARTED
001BB6 1006               379       JZ    IBI26             J-NO
001BB8 4724 21A0          380       MVA   LPSTM,R7          MSG ADR
001BBC 6000               381       SVC   OUT
001BBE 4724 21A4          382       MVA   LPENM,R7          MSG ADR
001BC2 6000               383       SVC   OUT
001BC4                    384 IBI26 EQU   *
001BC4 6812 19F4          385       B     RETSV*            RETURN TO FRIEND
001BC8                    386 PREPR EQU   *
001BC8 8024 1A10          387       MVB   PRPCD,(R0)+       MOVE THE COMMAND TO THE IDCB ADR
001BCC 8024 1A03          388       MVB   RDADR,(R0)+       MOVE THE DEVICE ADR TO THE IDCB
001BD0 C715               389       MVBZ  (R0)+,R7          CLEAR THE BYTE
001BD2 C720 1A15          390       MVB   DFALT,R7          IS THE DEFAULT TO BE USED
001BD6 1003               391       JZ    PREPA             J-NO
001BD8 8020 1A16          392       MVB   FIVDF,(R0)        MOVE IN THE DEFAULT VALUE
001BDC 500D               393       J     PREPB
001BDE                    394 PREPA EQU   *
001BDE 4724 215A          395       MVA   PRMSG,R7          MSG ASKING FOR PREP LEVEL
001BE2 6001               396       SVC   OUTIN
001BE4 6F08 1946          397       MVW   WORK1,R7          GET THE DATA INPUT
001BE8 3749               398       SLL   NINE,R7           POSITION THE LEVEL
001BEA 6F0D 1946          399       MVW   R7,WORK1          PUT IT BACK IN THE WORK AREA
001BEE 4724 1946          400       MVA   WORK1,R7          ADR OF DATA
001BF2 4F47               401       TBTS  (R7,SEVEN)        SET THE I BIT
001BF4 8020 1946          402       MVB   WORK1,(R0)        MOVE LEVEL & I BIT INTO IDCB
001BF8                    403 PREPB EQU   *
001BF8 6808 1814          404       MVW   STRTB,R0          ADR TO PUT OIO INSTR
001BFC 8828 1812 19AC     405       MVW   IDCPT,IOADR       ADR OF THE IDCB
001C02 9024 19AA          406       MVD   IONST,(R0)+       MOVE THE I/O INSTR
001C06 70E4               407       MVW   R0,R7             SAVE R0
001C08 7FE1 0008          408       AWI   CCDCP,R7          COMPUTE A NEW ADDRESS
001C0C 6F0D 19B0          409       MVW   R7,CCCHK+TWO      INSERT NEW ADDRESS
001C10 4724 19AE          410       MVA   CCCHK,R7          ADDRESS OF DATA TO MOVE
001C14 9714               411       MVD   (R7)+,(R0)+       MOVE THE INSTR'S
001C16 9714               412       MVD   (R7)+,(R0)+
001C18 680D 1814          413       MVW   R0,STRTB          BUMP THE INSTR ADR
001C1C 4029 1812 0004     414       AWI   FOUR,IDCPT        BUMP THE IDCB ADR POINTER
001C22 50B4               415       J     IBI23
001C24                    416 UNPRP EQU   *
001C24 8024 1A10          417       MVB   PRPCD,(R0)+       IDCB COMMAND
001C28 8024 1A03          418       MVB   RDADR,(R0)+       ENTER THE DEVICE ADDRESS
001C2C C805               419       MVWZ  (R0),R0           CLEAR THE DATA AREA
001C2E 50E4               420       J     PREPB             GO FINISH THE IDCB
001C30                    421 REDID EQU   *
001C30 8024 1A11          422       MVB   RIDCD,(R0)+       READ ID IDCB COMMAND
001C34 5002               423       J     COMCD             GO FINISH THE IDCB
001C36                    424 RESET EQU   *
001C36 8024 1A12          425       MVB   RSTCD,(R0)+       RESET IDCB COMMAND
001C3A                    426 COMCD EQU   *
001C3A 8024 1A03          427       MVB   RDADR,(R0)+       ENTER THE DEVICE ADDRESS
001C3E C805               428       MVWZ  (R0),R0           CLEAR THE DATA AREA
001C40 6802 1B54          429       B     IBI20
001C44                    430 DELAY EQU   *
001C44 4724 2146          431       MVA   DLMSG,R7          ASK FOR THE AMOUNT OF DELAY
001C48 6001               432       SVC   OUTIN
001C4A 6D08 1946          433       MVW   WORK1,R5          GET THE DATA
001C4E 6F03 20AE          434       BAL   DTOH,R7           GO CONVERT
001C52 75E4               435       MVW   R5,R7             MOVE TO CONVERT
001C54 802B 1A83 0232     436       CB    ALBRT,CPUTP       IS THIS A 4953 PROCESSOR
001C5A 1803               437       JNE   DLAY1             J-NO
001C5C 370A               438       SRL   ONE,R7            DIVIDE BY 2
001C5E 75B8               439       AW    R5,R7             THIS WILL MULTIPLY BY 1 1/2
001C60 5002               440       J     DLAY2
001C62                    441 DLAY1 EQU   *
001C62 EF21 1A14          442       MB    DELCT,R7          MULTIPLY BY THE DELAY FACTOR
001C66                    443 DLAY2 EQU   *
001C66 6F0D 19D6          444       MVW   R7,DLCNT          PUT THE DELAY INTO THE INSTRUCTION
001C6A 6808 1814          445       MVW   STRTB,R0          ADR TO PUT THE DELAY
001C6E 4224 19CC          446       MVA   DLNST,R2          GENT THE START OF THE INSTRUCTIONS
001C72 4324 19D6          447       MVA   DLCNT,R3          DELAY COUNT
001C76 726A               448       SW    R2,R3             COMPUTE THE DIFFERENCE
001C78 7068               449       AW    R0,R3
001C7A 6B0D 19CE          450       MVW   R3,DLADR          MOVE THE ADDRESS INTO THE INSTR
001C7E 0F0C               451       MVBI  TWELV,R7          NUMBER OF BYTES IN THE STREAM
001C80 2A04               452       MVFN  (R2),(R0)         MOVE THE INSTRUCTIONS
001C82 680D 1814          453       MVW   R0,STRTB          BUMP ADR FOR THE NEXT INSTR
001C86 6802 1B8C          454       B     IBI23
001C8A                    455 LOPND EQU   *
001C8A C020 181F          456       MVB   LPIND,R0          WAS A LOOP STARTED
001C8E 1805               457       JNZ   LOOP1             J-YES
001C90 4724 2138          458       MVA   NOLOP,R7          MSG-NO LOOP STARTED
001C94 6000               459       SVC   OUT
001C96 6802 1B8C          460       B     IBI23
001C9A                    461 LOOP1 EQU   *
001C9A 4724 2164          462       MVA   LOPMG,R7          MESSAGE ADDRESS
001C9E 6001               463       SVC   OUTIN
001CA0 6D0D 19EE          464       MVW   R5,R5SAV          SAVE THE REG
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LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT
001CA4 6D08 19C2           465       MVW   CNTWD,R5          GET THE DATA
001CA8 6F03 20AE           466       BAL   DTOH,R7           GO CONVERT
001CAC 6D0D 19C4           467       MVW   R5,LPCNT
001CB0 6D08 19EE           468       MVW   R5SAV,R5          RESTORE R5
001CB4 8828 1826 19C0      469       MVW   LOOPS,LPADR       MOVE THE STAPT ADR OF THE LOOP
001CBA 6808 1814           470       MVW   STRTB,R0          ADR TO PUT THE BRANCH INSTR
001CBE 4224 19B6           471       MVA   CNTST,R2          INSTR START ADDRESS
001CC2 4324 19C2           472       MVA   CNTWD,R3          LOOP COUNT ADDRESS
001CC6 726A                473       SW    R2,R3             COMPUTE THE DIFFERENCE
001CC8 7068                474       AW    R0,R3             ADD TO THE STARTING ADDRESS
001CCA 6B0D 19B8           475       MVW   R3,CNTAD          PUT THE ADDRESS INTO THE INSTR
001CCE 6B0D 19CA           476       MVW   R3,RESTR+FOUR     ADR INTO THE INSTR
001CD2 7B61 0002           477       AWI   TWO,R3            BUMP THE ADR
001CD6 6B0D 19C8           478       MVW   R3,RESTR+TWO      NEXT ADR INTO INSTR
001CDA 0F16                479       MVBI  TWEN2,R7          NUMBER OF BYTES TO MOVE
001CDC 2A04                480       MVFN  (R2),(R0)         MOVE THE INSTRUCTIONS
001CDE 680D 19F6           481       MVW   R0,LPEND          SET UP
001CE2 4029 19F6 FFFA      482       AWI   M6,LPEND               LOOP END
001CE8 4724 1A68           483       MVA   CLPEN,R7                 ADDRESS
001CEC 601A                484       SVC   HTOE
001CEE 680D 1814           485       MVW   R0,STRTB          UPDATE THE INSTR STREAM ADR
001CF2 6802 1B8C           486       B     IBI23
001CF6                     487 LOPST EQU   *
001CF6 8828 1814 1826      488       MVW   STRTB,LOOPS       SAVE THE LOOP START ADR
001CFC 4724 1A62           489       MVA   CLPST,R7          CONTROL BLOCK
001D00 601A                490       SVC   HTOE
001D02 8028 1828 181F      491       MVB   HEXFF,LPIND       SET THE LOOP IND
001D08 6802 1B8C           492       B     IBI23
001D0C                     493 SIORT EQU   *
001D0C 802B 1A18 1A1D      494       CB    SEKOP,DCBLD+ONE    IS THIS A SEEK
001D12 181A                495       JNE   SIRT3              J-NO
001D14 4724 21A8           496       MVA   DFCNT,R7           DIFFERENCE MSG
001D18 6001                497       SVC   OUTIN
001D1A 6D08 1A1E           498       MVW   DRDFR,R5          GET THE DATA
001D1E 6F03 20AE           499       BAL   DTOH,R7           GO CONVERT
001D22 6D0D 1A1E           500       MVW   R5,DRDFR          MOVE TO CONVERT
001D26 6D0D 1A84           501       MVW   R5,SKSAV           SAVE FOR THE FUTURE
001D2A 4724 21B2           502       MVA   SDIRT,R7           DIRECTION MSG
001D2E 6001                503       SVC   OUTIN
001D30 802B 194A 1A7A      504       CB    DATIN,NO           POSITIVE SEEK
001D36 1004                505       JE    SIRT2              J-NO
001D38 8028 1829 1A1E      506       MVB   ZEROS,DRDFR        SET POSITIVE SEEK
001D3E 505B                507       J     SIRT5
001D40                     508 SIRT2  EQU   *
001D40 8028 1A1A 1A1E      509       MVB   NEGAT,DRDFR        SET NEGATIVE SEEK
001D46 5057                510       J     SIRT5
001D48                     511 SIRT3  EQU   *
001D48 802B 1A19 1A1D      512       CB    FRMOP,DCBLD+ONE    FORMAT OP
001D4E 1803                513       JNE   SIRT4              J-NO
001D50 4724 21BC           514       MVA   FRWRD,R7           FORMAT WORD
001D54 6001                515       SVC   OUTIN
001D56                     516 SIRT4  EQU   *
001D56 882B 1A08 1A1C      517       CW    RDSID,DCBLD        IS THIS A READ SECT I.D.
001D5C 180B                518       JNE   SIOR4              J-YES
001D5E 8828 1A34 1A28      519       MVW   SIDBC,BYCNT        THIS IS THE BYTE COUNT
001D64 8828 1816 1A2A      520       MVW   DTENT,SDADR        THIS IS THE DATA AREA
001D6A 4029 1816 0006      521       AWI   SIX,DTENT          BUMP THE POINTER
001D70 6802 1F56           522       B     SIOR8
001D74                     523 SIOR4  EQU   *
001D74 4724 21C6           524       MVA   CLNUM,R7           CYLINDER NUMBER
001D78 6001                525       SVC   OUTIN
001D7A 6D08 1A22           526       MVW   SZCYL,R5           GET THE DATA
001D7E 6F03 20AE           527       BAL   DTOH,R7           GO CONVERT
001D82 6D0D 1A22           528       MVW   R5,SZCYL           MOVE TO CONVERT
001D86                     529 SI4    EQU   *
001D86 C720 1A7B           530       MVB   RDIND,R7           IS THE READ IND ON
001D8A 1013                531       JZ    SI4A               J-NO
001D8C 4724 21F8           532       MVA   WRRDM,R7           ADR OF CONTROL BLOCK
001D90 6001                533       SVC   OUTIN
001D92 802B 194A 1A7A      534       CB    DATIN,NO           WAS IT A NEGATIVE RESPONSE
001D98 100A                535       JE    SI4AA              J-YES
001D9A 6D08 1A8C           536       MVW   RD1SV,R5           GET THE DCB POINTER
001D9E 0F10                537       MVBI  SIXTN,R7           NUMBER OF BYTES
001DA0 4324 1A1C           538       MVA   DCBLD,R3           WHERE TO PUT THE DCB
001DA4 2D64                539       MVFN  (R5),(R3)          MOVE THE DCB
001DA6 8828 1A0E 1A1C      540       MVW   WRTDA,DCBLD        WRITE COMMAND
001DAC 5031                541       J     SIOR5
001DAE                     542 SI4AA  EQU   *
001DAE C725 1A7B           543       MVBZ  RDIND,R7           CLEAR THE INDICATOR
001DB2                     544 SI4A   EQU   *
001DB2 802B 1A1E 1A1A      545       CB    DRDFR,NEGAT        IS THIS A BACKWARD SEEK
001DB8 1004                546       JE    S14B               J-YES
001DBA A828 1A84 1A86      547       AW    SKSAV,RDSAV        ADD FOR CYLINDER NUMBER
001DC0 5003                548       J     S14C               CONTINUE
001DC2                     549 S14B   EQU   *
001DC2 A829 1A84 1A86      550       SW    SKSAV,RDSAV        SUBTRACT FOR CYLINDER NUMBER
001DC8                     551 S14C   EQU   *
001DC8 8828 1A86 1A22      552       MVW   RDSAV,SZCYL        PUT IT IN THE DCB
001DCE 4724 21D0           553       MVA   SSIZE,R7           SECTOR SIZE
001DD2 6001                554       SVC   OUTIN
001DD4 6D08 194A           555       MVW   DATIN,R5           GET THE DATA
001DD8 6F03 20AE           556       BAL   DTOH,R7           GO CONVERT
001DDC 3542                557       SRL   EIGHT,R5           POSITION THE BITS
001DDE 3521                558       SLL   FOUR,R5            POSITION THE BITS
001DE0 C528 1A22           559       MVB   R5,SZCYL           PUT IN THE DCB
001DE4 4724 21DA           560       MVA   RCNUM,R7           SECTOR
001DE8 6001                561       SVC   OUTIN
001DEA 6D08 1A24           562       MVW   HDREC,R5           GET THE DATA
001DEE 6F03 20AE           563       BAL   DTOH,R7           GO CONVERT
001DF2 6D0D 1A24           564       MVW   R5,HDREC           MOVE TO CONVERT
001DF6                     565 SIRT5  EQU   *
001DF6 C725 1A7D           566       MVBZ  ASKHD,R7           IS THE IND ON
001DFA 1007                567       JZ    SI5                J-NO
001DFC 4724 21E4           568       MVA   HDNUM,R7           HEAD
001E00 6001                569       SVC   OUTIN
001E02 6F08 194A           570       MVW   DATIN,R7           GET THE DATA
001E06 C728 1A7E           571       MVB   R7,SAVHD           SAVE THE HEAD NUMBER
001E0A                     572 SI5    EQU   *
001E0A 8028 1A7E 1A24      573       MVB   SAVHD,HDREC        PUT THE HEAD IN THE DCB
001E10                     574 SIOR5  EQU   *
001E10 6F08 19F2           575       MVW   R7SAV,R7           RESTORE R7
001E14 7F06 0001           576       CWI   ONE,R7             IS THIS THE LAST COMMAND
001E18 1023                577       JE    SIOR6              J-YES
001E1A C720 1A7F           578       MVB   ASKIT,R7           HAS THE QUESTION BEEN ASKED
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LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT
001E1E 180D                579       JNZ   S5                 J-YES
001E20 8028 1828 1A7F      580       MVB   HEXFF,ASKIT        T/ON THE IND
001E26 4724 21EE           581       MVA   DCBCH,R7           CONTROL BLOCK
001E2A 6001                582       SVC   OUTIN
001E2C 802B 194A 1A7A      583       CB    DATIN,NO           WAS IT A NEGATIVE RESPONSE
001E32 1803                584       JNE   S5                 J-NO
001E34 8028 1828 1A7C      585       MVB   HEXFF,NOCHN        T/ON THE IND
001E3A                     586 S5     EQU   *
001E3A C720 1A7C           587       MVB   NOCHN,R7           IS THE IND ON
001E3E 1810                588       JNZ   SIOR6              J-YES
001E40 4724 216E           589       MVA   CHBIT,R7           MSG CONTROL BLOCK
001E44 6001                590       SVC   OUTIN
001E46 802B 194A 1A7A      591       CB    DATIN,NO           WAS THE ANSWER NEGATIVE
001E4C 1009                592       JE    SIOR6              J-YES
001E4E 4624 1A1C           593       MVA   DCBLD,R6           ADR OF THE DCB
001E52 4E40                594       TBTS  (R6,ZERO)          T/ON THE CHAIN BIT
001E54 6E08 181A           595       MVW   DCBPT,R6           GET THE POINTER
001E58 7EC1 0010           596       AWI   SIXTN,R6           GET THE ADR OF NEXT DCB
001E5C 6E0D 1A26           597       MVW   R6,CHNAD           MOVE IN THE CHAIN ADR
001E60                     598 SIOR6  EQU   *
001E60 802B 1A17 1A1D      599       CB    RECAL,DCBLD+ONE    IS THIS A RECALIBRATE
001E66 1077                600       JE    SIOR8              J-YES
001E68 802B 1A18 1A1D      601       CB    SEKOP,DCBLD+ONE    IS THIS A SEEK
001E6E 1073                602       JE    SIOR8              J-YES
001E70 802B 1A19 1A1D      603       CB    FRMOP,DCBLD+ONE    IS THIS A FORMAT
001E76 106F                604       JE    SIOR8              J-YES
001E78 C720 1A82           605       MVB   VRFYS,R7           IS THE READ IND ON
001E7C 180B                606       JNZ   SI6                J-NO
001E7E 802B 1A0D 1A1D      607       CB    RDVRF+ONE,DCBLD+ONE IS THIS A READ VERIFY
001E84 1068                608       JE    SIOR8              J-YES
001E86 C720 1A7B           609       MVB   RDIND,R7           IS THE READ IND ON
001E8A 1004                610       JZ    SI6                J-NO
001E8C 802B 1A0F 1A1D      611       CB    WRTDA+ONE,DCBLD+ONE IS THIS A WRITE COMMAND
001E92 1061                612       JE    SIOR8              J-YES
001E94                     613 SI6    EQU   *
001E94 4724 2150           614       MVA   BYCTM,R7           CONTROL BLOCK
001E98 6001                615       SVC   OUTIN
001E9A 6D08 1A28           616       MVW   BYCNT,R5           GET THE DATA
001E9E 6F03 20AE           617       BAL   DTOH,R7           GO CONVERT
001EA2 6D0D 1A28           618       MVW   R5,BYCNT           MOVE TO CONVERT
001EA6 C725 1A82           619       MVBZ  VRFYS,R7           IS THE IND ON
001EAA 1855                620       JNZ   SIOR8
001EAC 802B 1A0B 1A1D      621       CB    RDATA+ONE,DCBLD+ONE IS THIS A READ
001EB2 1807                622       JNE   SI6A               J-NO
001EB4 8828 1816 1A2A      623       MVW   DTENT,SDADR        DATA RECEIVE AREA
001EBA A828 1A28 1816      624       AW    BYCNT,DTENT        NEW DATA ADR
001EC0 504A                625       J     SIOR8
001EC2                     626 SI6A   EQU   *
001EC2 4724 218C           627       MVA   DATRQ,R7           CONTROL BLOCK
001EC6 6001                628       SVC   OUTIN
001EC8 802B 194A 1A7A      629       CB    DATIN,NO           WAS THE ANSWER NO
001ECE 1011                630       JE    SIOR7              J-YES
001ED0                     631 SIRT6  EQU   *
001ED0 6F08 1A28           632       MVW   BYCNT,R7           NUMBER OF BYTES TO MOVE
001ED4 6A0D 1816           633       MVW   DTENT,R2           DATA FIELD ADR
001ED8 6A0D 1A2A           634       MVW   R2,SDADR           PUT DATA ADR IN DCB
001EDC CF2E 1816           635       AW    R7,DTENT           BUMP THE DATA AREA POINTER
001EE0 370A                636       SRL   ONE,R7             WORD BOUNDARY
001EE2                     637 SIR6   EQU   *
001EE2 4324 198A           638       MVA   IBIDT,R3           ADR OF DATA
001EE6 8B94                639       MVW   (R3)+,(R2)+        MOVE A WORD
001EE8 BF01                640       JCT   SIR6A,R7
001EEA 5002                641       J     SIR6B
001EEC                     642 SIR6A  EQU   *
001EEC 8B94                643       MVW   (R3)+,(R2)+        MOVE THE NEXT WORD
001EEE BFF9                644       JCT   SIR6,R7
001EF0                     645 SIR6B  EQU   *
001EF0 5032                646       J     SIOR8
001EF2                     647 SIOR7  EQU   *
001EF2 4724 2182           648       MVA   ROCNT,R7           CONTROL BLOCK FOR WORD COUNT
001EF6 6001                649       SVC   OUTIN
001EF8 6D08 1A88           650       MVW   WDCNT,R5           GET THE WORD COUNT
001EFC 6F03 20AE           651       BAL   DTOH,R7           CONVERT TO HEX
001F00 6D0D 1A88           652       MVW   R5,WDCNT           SAVE THE HEX NUMBER
001F04 6D0D 19F8           653       MVW   R5,CNTSV           SAVE THE HEX NUMBER
001F08 6A08 1816           654       MVW   DTENT,R2           GET THE START ADR
001F0C 6A0D 1A2A           655       MVW   R2,SDADR           PUT DATA ADR IN DCB
001F10                     656 SI7    EQU   *
001F10 4724 2178           657       MVA   DATER,R7           CONTROL BLOCK
001F14 6001                658       SVC   OUTIN
001F16 370A                659       SRL   ONE,R7             WORDS
001F18 CF2F 1A88           660       SW    R7,WDCNT           SUBTRACT FROM THE TOTAL
001F1C 4324 194A           661       MVA   DATIN,R3           START OF DATA JUST ENTERED
001F20                     662 SI7A   EQU   *
001F20 8B94                663       MVW   (R3)+,(R2)+        MOVE A WORD
001F22 BFFE                664       JCT   SI7A,R7            MOVE ALL THE WORDS
001F24 6F08 1A88           665       MVW   WDCNT,R7           IS THERE MORE WORDS TO INPUT
001F28 11F3                666       JP    SI7                J-YES
001F2A 6D08 1A28           667       MVW   BYCNT,R5           GET THE BYTE COUNT
001F2E 350A                668       SRL   ONE,R5             WORD COUNT
001F30 6D0D 1A88           669       MVW   R5,WDCNT           SAVE THE WORD COUNT
001F34 ED26 19F8           670       DW    CNTSV,R5           NUMBER OF TIMES TO REPEAT
001F38 7DA1 FFFF           671       AWI   M1,R5              REDUCE BY ONE
001F3C 6F08 19F8           672       MVW   CNTSV,R7           GET THE WORD COUNT
001F40 3709                673       SLL   ONE,R7             MAKE A BYTE COUNT
001F42 6F0D 19F8           674       MVW   R7,CNTSV           RESTORE THE COUNT
001F46                     675 SI7B   EQU   *
001F46 6F08 19F8           676       MVW   CNTSV,R7           NUMBER OF BYTES TO MOVE
001F4A 6B08 1816           677       MVW   DTENT,R3           START OF DATA
001F4E 2B44                678       MVFN  (R3),(R2)          MOVE THE DATA
001F50 BDFA                679       JCT   SI7B,R5            REPEAT
001F52 6A0D 1816           680       MVW   R2,DTENT           UPDATE THE ADDRESS
001F56                     681 SIOR8  EQU   *
001F56 C720 1A80           682       MVB   CHIND,R7           IS THE IND ON
001F5A 180F                683       JNZ   S8                 J-YES
001F5C 6B08 1812           684       MVW   IOCPT,R0           GET THE POINTER
001F60 680D 19AC           685       MVW   R0,IOADR           MOVE IN THE IDCB POINTER
001F64 680D 19A8           686       MVW   R0,INCO1+SIX       MOVE IN THE IDCB POINTER
001F68 8024 1A13           687       MVB   SIOCD,(R0)+        IDCB COMMAND
001F6C 8024 1A03           688       MVB   RDADR,(R0)+        DEVICE ADDRESS
001F70 8820 181A           689       MVW   DCBPT,(R0)         ADDRESS OF DCB BUILD AREA
001F74 4029 1812 0004      690       AWI   FOUR,IOCPT         BUMP THE POINTER
001F7A                     691 S8     EQU   *
001F7A 0F10                692       MVBI  SIXTN,R7           LENGTH OF THE DCB
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001F7C  6A08 181A           693         MVW   DCBPT,R2             WHERE TO PUT THE DCB
001F80  72C4                694         MVW   R2,R6               SAVE THE POINTER
001F82  4324 1A1C           695         MVA   DCBLD,R3             ADR OF DCB JUST BUILT
001F86  2B44                696         MVFN  (R3),(R2)            MOVE IN THE DCB
001F88  6A0D 181A           697         MVW   R2,DCBPT             NEW POINTER
001F8C  8028 1828 1A80      698         MVB   HEXFF,CHIND          T/ON THE IND
001F92  4E00                699         TBT   (R6,ZERO)            IS THE CHAIN BIT ON
001F94  6A00 1B8C           700         BON   IBI23                B-YES GO AGAIN
001F98                      701 SIOR9   EQU   *
001F98  C725 1A80           702         MVBZ  CHIND,R7             CLEAR THE IND
001F9C  6808 1814           703         MVW   STRTB,R0             GET THE INSTR STREAM
001FA0  0F14                704         MVBI  TWENY,R7             NUM OF BYTES IN THE INSTR STREAM
001FA2  4424 198E           705         MVA   INCOM,R4             START ADR OF INSTR STREAM
001FA6  2C04                706         MVFN  (R4),(R0)            MOVE THE INSTRUCTIONS
001FA8  0F0C                707         MVBI  TWELV,R7             NUM OF BYTES IN THE INSTR STREAM
001FAA  4424 19DC           708         MVA   ERTST,R4             START ADR OF INSTR STREAM
001FAE  2C04                709         MVFN  (R4),(R0)            MOVE THE INSTRUCTIONS
001FB0  0F0C                710         MVBI  TWELV,R7             NUM OF BYTES IN THE INSTR STREAM
001FB2  4424 19A2           711         MVA   INCO1,R4             START ADR OF INSTR STREAM
001FB6  2C04                712         MVFN  (R4),(R0)            MOVE THE INSTRUCTIONS
001FB8  70E4                713         MVW   R0,R7                SAVE R0
001FBA  7FE1 0008           714         AWI   CCDCP,R7             COMPUTE A NEW ADDRESS
001FBE  6F0D 19B0           715         MVW   R7,CCCHK+TWO         INSERT NEW ADDRESS
001FC2  4724 19AE           716         MVA   CCCHK,R7             ADDRESS OF DATA TO MOVE
001FC6  9714                717         MVD   (R7)+,(R0)+          MOVE THE INSTR'S
001FC8  9714                718         MVD   (R7)+,(R0)+
001FCA  680D 1814           719         MVW   R0,STRTB             BUMP THE POINTER FOR THE NEXT INSTR
001FCE  6802 1B8C           720         B     IBI23
001FD2                      721 READ    EQU   *
001FD2  8828 1A0A 1A1C      722         MVW   RDATA,DCBLD          DCB COMMAND
001FD8  8828 181A 1A8C      723         MVW   DCBPT,RD1SV          SAVE THE DCB POINTER
001FDE  8028 1828 1A7B      724         MVB   HEXFF,RDIND          SET THE READ IND
001FE4  6802 1DB2           725         B     SI4A
001FE8                      726 WRITE   EQU   *
001FE8  8828 1A0E 1A1C      727         MVW   WRTDA,DCBLD          DCB COMMAND
001FEE  8828 181A 1A8A      728         MVW   DCBPT,WRTSV          SAVE THE DCB POINTER
001FF4  6802 1D86           729         B     SI4
001FF8                      730 READS   EQU   *
001FF8  8828 1A08 1A1C      731         MVW   RDSID,DCBLD          DCB COMMAND
001FFE  C720 1A15           732         MVB   DFALT,R7             IS THIS THE DEFAULT OPTION
002002  6800 1D0C           733         BZ    SIORT                J-NO
002006  8828 1A34 1A28      734         MVW   SIDBC,BYCNT          THESE ARE THE DEFAULT OPTION
00200C  8828 1816 1A2A      735         MVW   DTENT,SDADR          ''
002012  4029 1816 0006      736         AWI   SIX,DTENT            ''
002018  509E                737         J     SIOR8
00201A                      738 SEEK    EQU   *
00201A  C725 1A7B           739         MVBZ  RDIND,R7             RESET THE IND
00201E  8028 1828 1A7D      740         MVB   HEXFF,ASKHD          T/ON THE IND
002024  8028 1A18 1A1D      741         MVB   SEKOP,DCBLD+ONE      DCB COMMAND
00202A  C720 1A15           742         MVB   DFALT,R7             IS THE DEFAULT TO BE USED
00202E  6800 1D0C           743         BZ    SIORT                B-NO
002032  8828 1A30 1A1E      744         MVW   CNDDF,DRDFR          DEFAULT PARAMETERS
002038  6802 1F56           745         B     SIOR8
00203C                      746 FRMAT   EQU   *
00203C  8028 1A19 1A1D      747         MVB   FRMOP,DCBLD+ONE      DCB COMMAND
002042  6802 1D0C           748         B     SIORT
002046                      749 RCALB   EQU   *
002046  8028 1A17 1A1D      750         MVB   RECAL,DCBLD+ONE      DCB COMMAND
00204C  C720 1A15           751         MVB   DFALT,R7             IS THE DEFAULT TO BE USED
002050  6800 1E10           752         BZ    SIOR5                J-NO
002054  6802 1F56           753         B     SIOR8
002058                      754 READV   EQU   *
002058  6E08 1A8A           755         MVW   WRTSV,R6             GET THE DCB POINTER
00205C  1009                756         JZ    REDVF                J-NOT FOLLOWING A WRITE
00205E  0F10                757         MVBI  SIXTN,R7             NUMBER OF BYTES
002060  4324 1A1C           758         MVA   DCBLD,R3             DCB BUILD AREA
002064  2E64                759         MVFN  (R6),(R3)            MOVE IN THE WRITE DCB
002066  8828 1A0C 1A1C      760         MVW   RDVRF,DCBLD          DCB COMMAND
00206C  6802 1E10           761         B     SIOR5
002070                      762 REDVF   EQU   *
002070  8028 1828 1A82      763         MVB   HEXFF,VRFYS          T/ON THF IND
002076  8828 1A0C 1A1C      764         MVW   RDVRF,DCBLD          PUT THE VALUE IN THE BUFFER
00207C  6802 1DB2           765         B     SI4A
002080                      766 DFLT1   EQU   *
002080  8028 1828 1A15      767         MVB   HEXFF,DFALT          IND DEFAULT IS TO BE USED
002086  8828 19FA 1906      768         MVW   DVAL1,UBUFR          PUT THE VALUE IN THE BUFFER
00208C  0F02                769         MVBI  TWO,R7               IND THREE COMMANDS
00208E  6802 1B26           770         B     IBI12
002092                      771 DFLT2   EQU   *
002092  8028 1828 1A15      772         MVB   HEXFF,DFALT          IND DEFAULT IS TO BE USED
002098  9028 19FC 1906      773         MVD   DVAL2,UBUFR          PUT THE VALUE IN THE BUFFER
00209E  0F03                774         MVBI  THREE,R7             IND FIVE COMMANDS
0020A0  6802 1B26           775         B     IBI12
0020A4                      776 NGOOD   EQU   *
0020A4  4724 2294           777         MVA   INCMD,R7             ADR OF INVALID COMMAND MSG
0020A8  6000                778         SVC   OUT                  OUTPUT THE MESSAGE
0020AA  6802 1B54           779         B     IBI20
0020AE                      780 DTOH    EQU   *
0020AE  6F0D 20EA           781         MVW   R7,RTRTN
0020B2  6C0D 20EC           782         MVW   R4,DHSAV             SAVE R4
0020B6  6E0D 19F0           783         MVW   R6,P6SAV             SAVE R6
0020BA  748A                784         SW    R4,R4                CLEAR THE REG
0020BC  3425                785         SLLD  FOUR,R4              MOVE THOUSAND INTO R4
0020BE  EC25 20E6           786         MW    THOUS,R4             MULTIPLY THOUSANDS
0020C2  3522                787         SRL   FOUR,R5              POSITION THE HUNS,TENS
0020C4  3546                788         SRLD  EIGHT,R5             MOVE TENS AND UNITS INTO R6
0020C6  ED21 20E8           789         MB    HUN,R5               MUTIPLY HUNDREDS
0020CA  74A8                790         AW    R4,R5                ADD THOUS AND HUNS
0020CC  3642                791         SRL   EIGHT,R6
0020CE  3626                792         SRLD  FOUR,R6              MOVE UNITS INTO R7
0020D0  3762                793         SRL   TWELV,R7             POSITION THE UNITS
0020D2  77A8                794         AW    R7,R5                ADD UNITS TO THOUS AND HUNS
0020D4  EE21 20E9           795         MB    TENS,R6              MULTIPLY TENS
0020D8  76A8                796         AW    R6,R5                GET THE GRAND TOTAL
0020DA  6C08 20EC           797         MVW   DHSAV,R4             RESTORE R4
0020DE  6E08 19F0           798         MVW   P6SAV,R6             RESTORE R6
0020E2  6812 20EA           799         B     RTRTN*
0020E6  03E8                800 THOUS   DC    A(1000)
0020E8  64                  801 HUN     DC    H'100'
0020E9  0A                  802 TENS    DC    H'10'
0020EA  0000                803 RTRTN   DC    A(*-*)
0020EC  0000                804 DHSAV   DC    A(*-*)
0020EE  0080                805         DC    X'0080'
0020F0  2202                806 MG8     DC    A(M8)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0020F2  0080                807         DC    X'0080'
0020F4  2362                808         DC    A(M11)
0020F6  0080                809         DC    X'0080'
0020F8  237A                810         DC    A(M12)
0020FA  0080                811         DC    X'0080'
0020FC  2222                812         DC    A(M9)
0020FE  0080                813         DC    X'0080'
002100  2238                814         DC    A(M9A)
002102  0080                815         DC    X'0080'
002104  2250                816         DC    A(M9B)
002106  0080                817         DC    X'0080'
002108  225E                818         DC    A(M9C)
00210A  0080                819         DC    X'0080'
00210C  226A                820         DC    A(M9D)
00210E  0080                821         DC    X'0080'
002110  2276                822         DC    A(M9E)
002112  0080                823         DC    X'0080'
002114  2286                824         DC    A(M9F)
002116  0080                825         DC    X'0080'
002118  2298                826         DC    A(M10)
00211A  0080                827         DC    X'0080'
00211C  22A8                828         DC    A(M10A)
00211E  0080                829         DC    X'0080'
002120  22B8                830         DC    A(M10B)
002122  0080                831         DC    X'0080'
002124  22CC                832         DC    A(M10D)
002126  0080                833         DC    X'0080'
002128  22D6                834         DC    A(M10E)
00212A  0080                835         DC    X'0080'
00212C  22E8                836         DC    A(M10F)
00212E  0080                837         DC    X'0080'
002130  22FA                838         DC    A(M10H)
002132  0080                839         DC    X'0080'
002134  230C                840         DC    A(M10J)
002136  0080                841         DC    X'0080'
002138  23FA                842 NOLOP   DC    A(NLOOP)
00213A  00C0                843         DC    X'00C0'
00213C  2320                844 TMG2    DC    A(M10G)
00213E  1906                845         DC    A(UBUFR)
002140  0040                846         DC    A(64)
002142  0001                847         DC    A(1)
002144  00C0                848         DC    X'00C0'
002146  23D6                849 DLMSG   DC    A(DMSGL)
002148  1946                850         DC    A(WORK1)
00214A  0002                851         DC    A(2)
00214C  0001                852         DC    A(1)
00214E  00C0                853         DC    X'00C0'
002150  2474                854 BYCTM   DC    A(BYTEC)
002152  1A28                855         DC    A(BYCNT)
002154  0002                856         DC    A(2)
002156  0001                857         DC    A(1)
002158  00C0                858         DC    X'00C0'
00215A  23C0                859 PRMSG   DC    A(PMSGR)
00215C  1946                860         DC    A(WORK1)
00215E  0002                861         DC    A(2)
002160  0001                862         DC    A(1)
002162  00C0                863         DC    X'00C0'
002164  2452                864 LOPMG   DC    A(LPMSG)
002166  19C2                865         DC    A(CNTWD)
002168  0002                866         DC    A(2)
00216A  0001                867         DC    A(1)
00216C  00C0                868         DC    X'00C0'
00216E  24EA                869 CHBIT   DC    A(CHBT)
002170  194A                870         DC    A(DATIN)
002172  0001                871         DC    A(1)
002174  0000                872         DC    A(0)
002176  00C0                873         DC    X'00C0'
002178  2418                874 DATER   DC    A(DTINN)
00217A  194A                875         DC    A(DATIN)
00217C  0040                876         DC    A(64)
00217E  0001                877         DC    A(1)
002180  00C0                878         DC    X'00C0'
002182  2582                879 RQCNT   DC    A(COUNT)
002184  1A88                880         DC    A(WDCNT)
002186  0004                881         DC    A(4)
002188  0001                882         DC    A(1)
00218A  00C0                883         DC    X'00C0'
00218C  2422                884 DATRQ   DC    A(DINNT)
00218E  194A                885         DC    A(DATIN)
002190  0001                886         DC    A(1)
002192  0000                887         DC    A(*-*)
002194  00C0                888         DC    X'00C0'
002196  259C                889 IDMSG   DC    A(DMG1)
002198  19E8                890         DC    A(WORKA)
00219A  0001                891         DC    A(1)
00219C  0000                892         DC    A(0)
00219E  0080                893         DC    X'0080'
0021A0  2528                894 LPSTM   DC    A(LPST)
0021A2  0080                895         DC    X'0080'
0021A4  2540                896 LPENM   DC    A(LPEN)
0021A6  00C0                897         DC    X'00C0'
0021A8  2482                898 DFCNT   DC    A(DFMSG)
0021AA  1A1E                899         DC    A(DRDFR)
0021AC  0002                900         DC    A(2)
0021AE  0001                901         DC    A(1)
0021B0  00C0                902         DC    X'00C0'
0021B2  24A4                903 SDIRT   DC    A(SDMSG)
0021B4  194A                904         DC    A(DATIN)
0021B6  0001                905         DC    A(1)
0021B8  0000                906         DC    A(0)
0021BA  00C0                907         DC    X'00C0'
0021BC  24A4                908 FRWRD   DC    A(FRMSG)
0021BE  1A20                909         DC    A(FORMT)
0021C0  0002                910         DC    A(2)
0021C2  0001                911         DC    A(1)
0021C4  00C0                912         DC    X'00C0'
0021C6  24B2                913 CLNUM   DC    A(CLMSG)
0021C8  1A22                914         DC    A(SZCYL)
0021CA  0002                915         DC    A(2)
0021CC  0001                916         DC    A(1)
0021CE  00C0                917         DC    X'00C0'
0021D0  24C4                918 SSIZE   DC    A(SSMSG)
0021D2  194A                919         DC    A(DATIN)
0021D4  0002                920         DC    A(2)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

0021D6  0001               921         DC    A(1)
0021D8  00C0               922         DC    X'00C0'
0021DA  24D2               923  RCNUM  DC    A(RCMSG)
0021DC  1A24               924         DC    A(HDREC)
0021DE  0002               925         DC    A(2)
0021E0  0001               926         DC    A(1)
0021E2  00C0               927         DC    X'00C0'
0021E4  24E2               928  HDNUM  DC    A(HDMSG)
0021E6  194A               929         DC    A(DATIN)
0021E8  0002               930         DC    A(2)
0021EA  0001               931         DC    A(1)
0021EC  00C0               932         DC    X'00C0'
0021EE  250A               933  DCBCH  DC    A(DCBC1)
0021F0  194A               934         DC    A(DATIN)
0021F2  0001               935         DC    A(1)
0021F4  0000               936         DC    A(0)
0021F6  00C0               937         DC    X'00C0'
0021F8  2556               938  WRRDM  DC    A(WRDMG)
0021FA  194A               939         DC    A(DATIN)
0021FC  0001               940         DC    A(1)
0021FE  0000               941         DC    A(0)
002200  0000               942         DC    A(0)
002202  E2C5D3C5C3E340C3D  943  M8     DC    C'SELECT COMMAND(S) FOR DA '
00221B  404040             944  M8A    DC    C'   '
00221E  00                 945         DC    X'00'
002220  0000               946         DC    A(0)
002222  F0F340D7D9C5D7C1D  947  M9     DC    C'03 PREPARE I BIT ON'
002235  00                 948         DC    X'00'
002236  0000               949         DC    A(0)
002238  F0F440D7D9C5D7C1D  950  M9A    DC    C'04 PREPARE I BIT OFF'
00224C  00                 951         DC    X'00'
00224E  0000               952         DC    A(0)
002250  F0F540D9C5C1C440C  953  M9B    DC    C'05 READ ID'
00225A  00                 954         DC    X'00'
00225C  0000               955         DC    A(0)
00225E  F0F640D9C5E2C5E3   956  M9C    DC    C'06 RESET'
002266  00                 957         DC    X'00'
002268  0000               958         DC    A(0)
00226A  F0F740C4C5D3C1E8   959  M9D    DC    C'07 DELAY'
002272  00                 960         DC    X'00'
002274  0000               961         DC    A(0)
002276  F0F840D3D6D6D740E  962  M9E    DC    C'08 LOOP START'
002283  00                 963         DC    X'00'
002284  0000               964         DC    A(0)
002286  F0F940D3D6D6D740C  965  M9F    DC    C'09 LOOP END'
002291  00                 966         DC    X'00'
002292  00C0               967         DC    X'00C0'
002294  23A0               968  INCMD  DC    A(INCMG)
002296  0000               969         DC    A(0)
002298  F0C140D9C5C1C440C  970  M10    DC    C'0A READ DATA'
0022A4  00                 971         DC    X'00'
0022A6  0000               972         DC    A(0)
0022A8  F0C240E6D9C9E3C54  973  M10A   DC    C'0B WRITE DATA'
0022B5  00                 974         DC    X'00'
0022B6  0000               975         DC    A(0)
0022B8  F0C340D9C5C1C440E  976  M10B   DC    C'0C READ SECTOR ID'
0022C9  00                 977         DC    X'00'
0022CA  0000               978         DC    A(0)
0022CC  F0C440E2C5C5D2     979  M10D   DC    C'0D SEEK'
0022D3  00                 980         DC    X'00'
0022D4  0000               981         DC    A(0)
0022D6  F0C540C6D6D9D4C1E  982  M10E   DC    C'0E FORMAT TRACK'
0022E5  00                 983         DC    X'00'
0022E6  0000               984         DC    A(0)
0022E8  F0C640D9C5C3C1D3C  985  M10F   DC    C'0F RECALIBRATE'
0022F6  00                 986         DC    X'00'
0022F8  0000               987         DC    A(0)
0022FA  F1F040D9C5C1C440E  988  M10H   DC    C'10 READ VERIFY'
002308  00                 989         DC    X'00'
00230A  0000               990         DC    A(0)
00230C  5C5C5C5C40C3C1E4E  991  M10J   DC    C'**** CAUTION ****'
00231D  00                 992         DC    X'00'
00231E  3484               993         DC    A(CD4)
002320  E2D6D4C540C3D6D4D  994  M10G   DC    C'SOME COMMAND(S) WHEN USED COULD DESTROY CUSTOMER DATA '
002356  C9D5E3C5C7D9C9E3E  995         DC    C'INTEGRITY'
00235F  00                 996         DC    X'00'
002360  0000               997         DC    A(0)
002362  F0F140C4C5C6C1E4D  998  M11    DC    C'01 DEFAULT=RECAL,SEEK'
002377  00                 999         DC    X'00'
002378  0000              1000         DC    A(0)
00237A  F0F240C4C5C6C1E4D 1001  M12    DC    C'02 DEFAULT=RECAL,SEEK,READ SECT ID'
00239C  00                1002         DC    X'00'
00239E  349B              1003         DC    A(CD1B)
0023A0  E6D9D6D5C740C9C4C 1004  INCMG  DC    C'WRONG IDCB COMMAND,START OVER'
0023BD  00                1005         DC    X'00'
0023BE  34A2              1006         DC    A(CD22)
0023C0  D3C5E5C5D340E3D64 1007  PMSGR  DC    C'LEVEL TO INTERRUPT'
0023D2  00                1008         DC    X'00'
0023D4  34A3              1009         DC    A(CD23)
0023D6  D3C5D5C7E3C840D6C 1010  DMSGL  DC    C'LENGTH OF DELAY(IN MILLISECONDS)'
0023F6  00                1011         DC    X'00'
0023F8  34A6              1012         DC    A(CD26)
0023FA  D3D6D6D740D5D6E34 1013  NLOOP  DC    C'LOOP NOT STARTED,START OVER'
002415  00                1014         DC    X'00'
002416  34A4              1015         DC    A(CD24)
002418  C4C1E3C140C9E2    1016  DTINN  DC    C'DATA IS'
00241F  00                1017         DC    X'00'
002420  34A1              1018         DC    A(CD21)
002422  C4D640E8D6E440E6C 1019  DINNT  DC    C'DO YOU WANT TO USE THE STANDARD DATA PATTERN?'
00244F  00                1020         DC    X'00'
002450  34A7              1021         DC    A(CD27)
002452  C8D6E640D4C1D5E84 1022  LPMSG  DC    C'HOW MANY TIMES THROUGH THE LOOP'
002471  00                1023         DC    X'00'
002472  34A5              1024         DC    A(CD25)
002474  C2E8E3C540C3D6E4D 1025  BYTEC  DC    C'BYTE COUNT'
00247E  00                1026         DC    X'00'
002480  34A8              1027         DC    A(CD28)
002482  E2C5C5D240C4C9C6C 1028  DFMSG  DC    C'SEEK DIFFERENCE'
002491  00                1029         DC    X'00'
002492  34A9              1030         DC    A(CD29)
002494  C6D6D9E6C1D9C440E 1031  SDMSG  DC    C'FORWARD SEEK?'
0024A1  00                1032         DC    X'00'
0024A2  34AA              1033         DC    A(CD2A)
0024A4  C6D6D9D4C1E340E6D 1034  FRMSG  DC    C'FORMAT WORD'
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

0024AF  00                1035         DC    X'00'
0024B0  34AB              1036         DC    A(CD2B)
0024B2  C3E8D3C9D5C4C5D94 1037  CLHSG  DC    C'CYLINDER NUMBER'
0024C1  00                1038         DC    X'00'
0024C2  34AC              1039         DC    A(CD2C)
0024C4  E2C5C3E3D6D940E2C 1040  SSHSG  DC    C'SECTOR SIZE'
0024CF  00                1041         DC    X'00'
0024D0  34AD              1042         DC    A(CD2D)
0024D2  E2C5C3E3D6D940D5E 1043  RCHSG  DC    C'SECTOR NUHBER'
0024DF  00                1044         DC    X'00'
0024E0  34AE              1045         DC    A(CD2E)
0024E2  C8C5C1C4          1046  HDHSG  DC    C'HEAD'
0024E6  00                1047         DC    X'00'
0024E8  34AF              1048         DC    A(CD2F)
0024EA  C4D640E8D6E440E6C 1049  CHBT   DC    C'DO YOU WANT THE CHAIN BIT ON?'
002507  00                1050         DC    X'00'
002508  34BC              1051         DC    A(CD3C)
00250A  E6C9D3D340C1D5E84 1052  DCBC1  DC    C'WILL ANY DCB''S BE CHAINED?'
002524  00                1053         DC    X'00'
002526  0000              1054         DC    A(0)
002528  D3D6D6D740E2E3C1D 1055  LPST   DC    C'LOOP STARTED AT '
002538  F0F0F0F0          1056  LPST1  DC    C'0000'
00253C  00                1057         DC    X'00'
00253E  0000              1058         DC    A(0)
002540  D3D6D6D740C5D5C4C 1059  LPEN   DC    C'LOOP ENDED AT '
00254E  F0F0F0F0          1060  LPEN1  DC    C'0000'
002552  00                1061         DC    X'00'
002554  34BA              1062         DC    A(CD3A)
002556  C4D640E8D6E440E6C 1063  WRDMG  DC    C'DO YOU WANT TO WRITE THE DATA JUST READ?'
00257E  00                1064         DC    X'00'
002580  34BB              1065         DC    A(CD3B)
002582  C8D6E640D4C1D5E84 1066  COUNT  DC    C'HOW MANY WORDS OF DATA'
002598  00                1067         DC    X'00'
00259A  34A0              1068         DC    A(CD20)
00259C  D9C5C1C440C9C440C 1069  IDMG1  DC    C'READ ID EXPECTED '
0025AD  E7E7E7E740C9C440E 1070  IDMG2  DC    C'XXXX ID WAS '
0025B9  E7E7E7E740C9E240E 1071  IDMG3  DC    C'XXXX IS THIS O.K.?'
0025CB  00                1072         DC    X'00'
000000                    1073         END
```

CROSS-REFERENCE LISTING

```
DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R0.     ABSOLUTE. HEX VALUE(00000000)
                   154  155  160  161  162  303  304  305  346
                   350  355  356  357  361  362  363  378  387
                   388  389  392  402  404  406  407  411  412
                   413  417  418  419  419  422  425  427  428
                   428  445  449  452  453  456  470  474  480
                   481  485  684  685  686  687  688  689  689
                   703  706  709  712  713  717  718  719
       0  .R1.     ABSOLUTE. HEX VALUE(00000001)
                   291  292  293  294  295  296  297  298  299
                   300  300  301  302  302  375  376  377  377
       0  .R2.     ABSOLUTE. HEX VALUE(00000002)
                   335  340  345  368  369  370  446  448  452
                   471  473  480  633  634  639  639  643  643
                   654  655  663  663  678  680  693  694  696
                   697
       0  .R3.     ABSOLUTE. HEX VALUE(00000003)
                   153  158  334  337  367  369  372  447  448
                   449  450  472  473  474  475  476  477  478
                   538  539  638  639  643  661  663  677  678
                   695  696  758  759
       0  .R4.     ABSOLUTE. HEX VALUE(00000004)
                   309  314  337  339  342  344  345  347  347
                   347  347  348  354  355  705  706  708  709
                   711  712  782  784  784  785  786  790  797
       0  .R5.     ABSOLUTE. HEX VALUE(00000005)
                   306  317  433  435  439  464  465  467  468
                   498  500  501  526  528  536  539  555  557
                   558  559  562  564  616  618  650  652  653
                   667  668  669  670  671  679  787  788  789
                   790  794  796
       0  .R6.     ABSOLUTE. HEX VALUE(00000006)
                   593  594  595  596  597  694  699  755  759
                   783  791  792  795  796  798
       0  .R7.     ABSOLUTE. HEX VALUE(00000007)
                   159  166  178  180  186  187  189  290  307
                   310  313  315  321  322  324  326  328  341
                   353  357  358  359  360  361  362  366  371
                   373  380  382  389  390  395  397  398  399
                   400  401  407  408  409  410  411  412  431
                   434  435  438  439  442  444  451  458  462
                   466  479  483  489  496  499  502  514  524
                   527  530  532  537  543  553  556  560  563
                   566  568  570  571  575  576  578  581  587
                   589  605  609  614  617  619  627  632  635
                   636  640  644  648  651  657  659  660  664
                   665  672  673  674  676  682  692  702  704
                   707  710  713  714  715  716  717  718  732
                   739  742  751  757  769  774  777  781  793
                   794
     282  ALBRT    ADDRESS. HEX LOCATION(00001A83) IN CSECT(048E8   ) LENGTH(1)
                   436
     276  ASKHD    ADDRESS. HEX LOCATION(00001A7D) IN CSECT(048E8   ) LENGTH(1)
                   566  740
     278  ASKIT    ADDRESS. HEX LOCATION(00001A7F) IN CSECT(048E8   ) LENGTH(1)
                   578  580
      87  BADCC    ABSOLUTE. HEX VALUE(0000181C)
                   166
     231  BYCNT    ADDRESS. HEX LOCATION(00001A28) IN CSECT(048E8   ) LENGTH(2)
                   519  616  618  624  632  667  734  855
     854  BYCTM    ADDRESS. HEX LOCATION(00002150) IN CSECT(048E8   ) LENGTH(2)
                   614
    1025  BYTEC    ADDRESS. HEX LOCATION(00002474) IN CSECT(048E8   ) LENGTH(10)
                   854
     165  CCCHK    ADDRESS. HEX LOCATION(000019AE) IN CSECT(048E8   ) LENGTH(4)
                   168  359  360  409  410  715  716
     168  CCDCP    ABSOLUTE. HEX VALUE(00000008)
                   358  408  714
      54  CD1B     ABSOLUTE. HEX VALUE(0000349B)
                  1003
      65  CD2A     ABSOLUTE. HEX VALUE(000034AA)
                  1033
      66  CD2B     ABSOLUTE. HEX VALUE(000034AB)
                  1036
      67  CD2C     ABSOLUTE. HEX VALUE(000034AC)
                  1039
      68  CD2D     ABSOLUTE. HEX VALUE(000034AD)
                  1042
      69  CD2E     ABSOLUTE. HEX VALUE(000034AE)
                  1045
      70  CD2F     ABSOLUTE. HEX VALUE(000034AF)
                  1048
      55  CD20     ABSOLUTE. HEX VALUE(000034A0)
                  1068
      56  CD21     ABSOLUTE. HEX VALUE(000034A1)
                  1018
      57  CD22     ABSOLUTE. HEX VALUE(000034A2)
                  1006
      58  CD23     ABSOLUTE. HEX VALUE(000034A3)
                  1009
      59  CD24     ABSOLUTE. HEX VALUE(000034A4)
                  1015
      60  CD25     ABSOLUTE. HEX VALUE(000034A5)
                  1024
      61  CD26     ABSOLUTE. HEX VALUE(000034A6)
                  1012
      62  CD27     ABSOLUTE. HEX VALUE(000034A7)
                  1021
      63  CD28     ABSOLUTE. HEX VALUE(000034A8)
                  1027
      64  CD29     ABSOLUTE. HEX VALUE(000034A9)
                  1030
      71  CD3A     ABSOLUTE. HEX VALUE(000034BA)
                  1062
      72  CD3B     ABSOLUTE. HEX VALUE(000034BB)
                  1065
      73  CD3C     ABSOLUTE. HEX VALUE(000034BC)
                  1051
      53  CD4      ABSOLUTE. HEX VALUE(00003484)
                   993
     869  CHBIT    ADDRESS. HEX LOCATION(0000216E) IN CSECT(048E8   ) LENGTH(2)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                   589
    1049  CHBT     ADDRESS. HEX LOCATION(000024EA) IN CSECT(048E8   ) LENGTH(29)
                   869
     279  CHIND    ADDRESS. HEX LOCATION(00001A80) IN CSECT(048E8   ) LENGTH(1)
                   682  698  702
     230  CHNAD    ADDRESS. HEX LOCATION(00001A26) IN CSECT(048E8   ) LENGTH(2)
                   597
    1037  CLMSG    ADDRESS. HEX LOCATION(000024B2) IN CSECT(048E8   ) LENGTH(15)
                   913
     913  CLNUM    ADDRESS. HEX LOCATION(000021C6) IN CSECT(048E8   ) LENGTH(2)
                   524
     264  CLPEN    ADDRESS. HEX LOCATION(00001A68) IN CSECT(048E8   ) LENGTH(2)
                   483
     261  CLPST    ADDRESS. HEX LOCATION(00001A62) IN CSECT(048E8   ) LENGTH(2)
                   489
     235  CNDDF    ADDRESS. HEX LOCATION(00001A30) IN CSECT(048E8   ) LENGTH(2)
                   744
     174  CNTAD    ADDRESS. HEX LOCATION(000019B8) IN CSECT(048E8   ) LENGTH(1)
                   475
     169  CNTST    ADDRESS. HEX LOCATION(000019B6) IN CSECT(048E8   ) LENGTH(6)
                   174  175  471
     200  CNTSV    ADDRESS. HEX LOCATION(000019F8) IN CSECT(048E8   ) LENGTH(2)
                   653  670  672  674  676
     172  CNTWD    ADDRESS. HEX LOCATION(000019C2) IN CSECT(048E8   ) LENGTH(2)
                   169  176  465  472  865
     426  COMCD    ADDRESS. HEX LOCATION(00001C3A) IN CSECT(048E8   ) LENGTH(1)
                   423
    1066  COUNT    ADDRESS. HEX LOCATION(00002582) IN CSECT(048E8   ) LENGTH(22)
                   879
      80  CPUTP    ABSOLUTE. HEX VALUE(00000232)
                   436
     258  CVADR    ADDRESS. HEX LOCATION(00001A5C) IN CSECT(048E8   ) LENGTH(2)
                   307
     259  CVAD1    ADDRESS. HEX LOCATION(00001A5E) IN CSECT(048E8   ) LENGTH(2)
                   306
     270  CVEXP    ADDRESS. HEX LOCATION(00001A74) IN CSECT(048E8   ) LENGTH(2)
                   324
     267  CVRID    ADDRESS. HEX LOCATION(00001A6E) IN CSECT(048E8   ) LENGTH(2)
                   322
     874  DATER    ADDRESS. HEX LOCATION(00002178) IN CSECT(048E8   ) LENGTH(2)
                   657
     143  DATIN    ADDRESS. HEX LOCATION(0000194A) IN CSECT(048E8   ) LENGTH(2)
                   504  534  555  570  583  591  629  661  870
                   875  885  904  919  929  934  939
     884  DATRQ    ADDRESS. HEX LOCATION(0000218C) IN CSECT(048E8   ) LENGTH(2)
                   627
     933  DCBCH    ADDRESS. HEX LOCATION(000021EE) IN CSECT(048E8   ) LENGTH(2)
                   581
    1052  DCBC1    ADDRESS. HEX LOCATION(0000250A) IN CSECT(048E8   ) LENGTH(26)
                   933
     225  DCBLD    ADDRESS. HEX LOCATION(00001A1C) IN CSECT(048E8   ) LENGTH(2)
                   367  494  512  517  538  540  593  599  601
                   603  607  611  621  695  722  727  731  741
                   747  750  758  760  764
      86  DCBPT    ABSOLUTE. HEX VALUE(0000181A)
                   595  689  693  697  723  728
     430  DELAY    ADDRESS. HEX LOCATION(00001C44) IN CSECT(048E8   ) LENGTH(1)
                   245
     217  DELCT    ADDRESS. HEX LOCATION(00001A14) IN CSECT(048E8   ) LENGTH(1)
                   442
      97  DEVC1    ABSOLUTE. HEX VALUE(0000182E)
                   154
     218  DFALT    ADDRESS. HEX LOCATION(00001A15) IN CSECT(048E8   ) LENGTH(1)
                   390  732  742  751  767  772
     898  DFCNT    ADDRESS. HEX LOCATION(000021A8) IN CSECT(048E8   ) LENGTH(2)
                   496
     766  DFLT1    ADDRESS. HEX LOCATION(00002080) IN CSECT(048E8   ) LENGTH(1)
                   239
     771  DFLT2    ADDRESS. HEX LOCATION(00002092) IN CSECT(048E8   ) LENGTH(1)
                   240
    1028  DFMSG    ADDRESS. HEX LOCATION(00002482) IN CSECT(048E8   ) LENGTH(15)
                   898
     804  DHSAV    ADDRESS. HEX LOCATION(000020EC) IN CSECT(048E8   ) LENGTH(2)
                   782  797
    1019  DINNT    ADDRESS. HEX LOCATION(00002422) IN CSECT(048E8   ) LENGTH(45)
                   884
     182  DLADR    ADDRESS. HEX LOCATION(000019CE) IN CSECT(048E8   ) LENGTH(1)
                   450
     441  DLAY1    ADDRESS. HEX LOCATION(00001C62) IN CSECT(048E8   ) LENGTH(1)
                   437
     443  DLAY2    ADDRESS. HEX LOCATION(00001C66) IN CSECT(048E8   ) LENGTH(1)
                   440
     183  DLCNT    ADDRESS. HEX LOCATION(000019D6) IN CSECT(048E8   ) LENGTH(2)
                   178  444  447
     179  DLIST    ADDRESS. HEX LOCATION(000019D0) IN CSECT(048E8   ) LENGTH(2)
                   180
     849  DLMSG    ADDRESS. HEX LOCATION(00002146) IN CSECT(048E8   ) LENGTH(2)
                   431
     178  DLNST    ADDRESS. HEX LOCATION(000019CC) IN CSECT(048E8   ) LENGTH(4)
                   182  446
    1010  DMSGL    ADDRESS. HEX LOCATION(000023D6) IN CSECT(048E8   ) LENGTH(32)
                   849
     226  DRDFR    ADDRESS. HEX LOCATION(00001A1E) IN CSECT(048E8   ) LENGTH(2)
                   498  500  506  509  545  744  899
     204  DTCSS    ADDRESS. HEX LOCATION(00001A00) IN CSECT(048E8   ) LENGTH(2)
                   300
      84  DTENT    ABSOLUTE. HEX VALUE(00001816)
                   291  295  520  521  623  624  633  635  654
                   677  680  735  736
    1016  DTINN    ADDRESS. HEX LOCATION(00002418) IN CSECT(048E8   ) LENGTH(7)
                   874
     780  DTOH     ADDRESS. HEX LOCATION(000020AE) IN CSECT(048E8   ) LENGTH(1)
                   434  466  499  527  556  563  617  651
     201  DVAL1    ADDRESS. HEX LOCATION(000019FA) IN CSECT(048E8   ) LENGTH(2)
                   768
     202  DVAL2    ADDRESS. HEX LOCATION(000019FC) IN CSECT(048E8   ) LENGTH(4)
                   773
      96  DVPNT    ABSOLUTE. HEX VALUE(0000182C)
                   296  375
     108  EIGHT    ABSOLUTE. HEX VALUE(00000008)
                   557  788  791
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
     117  EIGTN      ABSOLUTE. HEX VALUE(00000012)
                     309
      98  EPRNT      ABSOLUTE. HEX VALUE(00001830)
                     189
     186  ERTST      ADDRESS. HEX LOCATION(000019DC) IN CSECT(048E8   ) LENGTH(4)
                     708
     190  ERTS1      ADDRESS. HEX LOCATION(000019E8) IN CSECT(048E8   ) LENGTH(1)
                     188
     219  FIVDF      ADDRESS. HEX LOCATION(00001A16) IN CSECT(048E8   ) LENGTH(1)
                     392
     105  FIVE       ABSOLUTE. HEX VALUE(00000005)
                     161
     227  FORMT      ADDRESS. HEX LOCATION(00001A20) IN CSECT(048E8   ) LENGTH(2)
                     909
     104  FOUR       ABSOLUTE. HEX VALUE(00000004)
                     175   181   313   364   414   476   558   690   785
                     787   792
     746  FRMAT      ADDRESS. HEX LOCATION(0000203C) IN CSECT(048E8   ) LENGTH(1)
                     252
     222  FRMOP      ADDRESS. HEX LOCATION(00001A19) IN CSECT(048E8   ) LENGTH(1)
                     512   603   747
    1034  FRMSG      ADDRESS. HEX LOCATION(000024A4) IN CSECT(048E8   ) LENGTH(11)
                     908
     908  FRWRD      ADDRESS. HEX LOCATION(000021BC) IN CSECT(048E8   ) LENGTH(2)
                     514
     167  GODCC      ADDRESS. HEX LOCATION(000019B6) IN CSECT(048E8   ) LENGTH(1)
                     165   168
    1046  HDMSG      ADDRESS. HEX LOCATION(000024E2) IN CSECT(048E8   ) LENGTH(4)
                     928
     928  HDNUM      ADDRESS. HEX LOCATION(000021E4) IN CSECT(048E8   ) LENGTH(2)
                     568
     229  HDREC      ADDRESS. HEX LOCATION(00001A24) IN CSECT(048E8   ) LENGTH(2)
                     562   564   573   924
      93  HEXFF      ABSOLUTE. HEX VALUE(00001828)
                     491   580   585   698   724   740   763   767   772
      45  HTOE       ABSOLUTE. HEX VALUE(0000001A)
                     308   323   325   484   490
     801  HUN        ADDRESS. HEX LOCATION(000020E8) IN CSECT(048E8   ) LENGTH(1)
                     789
     238  IBIBL      ADDRESS. HEX LOCATION(00001A36) IN CSECT(048E8   ) LENGTH(1)
                     335
     144  IBIDT      ADDRESS. HEX LOCATION(0000198A) IN CSECT(048E8   ) LENGTH(4)
                     638
     208  IBIID      ADDRESS. HEX LOCATION(00001A06) IN CSECT(048E8   ) LENGTH(2)
                     271   319
     289  IBI00      ADDRESS. HEX LOCATION(00001A8E) IN CSECT(048E8   ) LENGTH(1)
                     140
     311  IBI10      ADDRESS. HEX LOCATION(00001ADC) IN CSECT(048E8   ) LENGTH(1)
                     314
     333  IBI12      ADDRESS. HEX LOCATION(00001B26) IN CSECT(048E8   ) LENGTH(1)
                     320   330   770   775
     336  IBI15      ADDRESS. HEX LOCATION(00001B2E) IN CSECT(048E8   ) LENGTH(1)
                     373
     349  IBI20      ADDRESS. HEX LOCATION(00001B54) IN CSECT(048E8   ) LENGTH(1)
                     429   779
     365  IBI23      ADDRESS. HEX LOCATION(00001B8C) IN CSECT(048E8   ) LENGTH(1)
                     415   454   460   486   492   700   720
     374  IBI25      ADDRESS. HEX LOCATION(00001BA6) IN CSECT(048E8   ) LENGTH(1)
                     338
     384  IBI26      ADDRESS. HEX LOCATION(00001BC4) IN CSECT(048E8   ) LENGTH(1)
                     379
      82  IDCPT      ABSOLUTE. HEX VALUE(00001812)
                     346   351   352   364   405   414   684   690
      44  IDLE       ABSOLUTE. HEX VALUE(00000002)
                     157   179
    1069  IDMG1      ADDRESS. HEX LOCATION(0000259C) IN CSECT(048E8   ) LENGTH(17)
                     889
    1070  IDMG2      ADDRESS. HEX LOCATION(000025AD) IN CSECT(048E8   ) LENGTH(12)
                     272
    1071  IDMG3      ADDRESS. HEX LOCATION(000025B9) IN CSECT(048E8   ) LENGTH(18)
                     269
     889  IDMSG      ADDRESS. HEX LOCATION(00002196) IN CSECT(048E8   ) LENGTH(2)
                     326
     968  INCMD      ADDRESS. HEX LOCATION(00002294) IN CSECT(048E8   ) LENGTH(2)
                     777
    1004  INCMG      ADDRESS. HEX LOCATION(000023A0) IN CSECT(048E8   ) LENGTH(29)
                     968
     154  INCOA      ADDRESS. HEX LOCATION(00001992) IN CSECT(048E8   ) LENGTH(4)
                     158   298
     153  INCOM      ADDRESS. HEX LOCATION(0000198E) IN CSECT(048E8   ) LENGTH(4)
                     354   705
     160  INCO1      ADDRESS. HEX LOCATION(000019A2) IN CSECT(048E8   ) LENGTH(2)
                     156   352   686   711
     137  INERR      ABSOLUTE. HEX VALUE(00000002)
                     187
     164  IOADR      ADDRESS. HEX LOCATION(000019AC) IN CSECT(048E8   ) LENGTH(1)
                     162   351   405   685
     163  IONST      ADDRESS. HEX LOCATION(000019AA) IN CSECT(048E8   ) LENGTH(4)
                     164   356   406
     184  JINST      ADDRESS. HEX LOCATION(000019D8) IN CSECT(048E8   ) LENGTH(2)
                     304
      92  LOOPS      ABSOLUTE. HEX VALUE(00001826)
                     262   469   488
     461  LOOP1      ADDRESS. HEX LOCATION(00001C9A) IN CSECT(048E8   ) LENGTH(1)
                     457
     864  LOPMG      ADDRESS. HEX LOCATION(00002164) IN CSECT(048E8   ) LENGTH(2)
                     462
     455  LOPND      ADDRESS. HEX LOCATION(00001C8A) IN CSECT(048E8   ) LENGTH(1)
                     247
     487  LOPST      ADDRESS. HEX LOCATION(00001CF6) IN CSECT(048E8   ) LENGTH(1)
                     246
      99  LOST       ABSOLUTE. HEX VALUE(00001832)
                     159
     177  LPADR      ADDRESS. HEX LOCATION(000019C0) IN CSECT(048E8   ) LENGTH(1)
                     469
     173  LPCNT      ADDRESS. HEX LOCATION(000019C4) IN CSECT(048E8   ) LENGTH(2)
                     176   467
    1059  LPEN       ADDRESS. HEX LOCATION(00002540) IN CSECT(048E8   ) LENGTH(14)
                     896
     199  LPEND      ADDRESS. HEX LOCATION(000019F6) IN CSECT(048E8   ) LENGTH(2)
                     265   481   482
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
     896  LPENM      ADDRESS. HEX LOCATION(000021A4) IN CSECT(048E8   ) LENGTH(2)
                     382
    1060  LPEN1      ADDRESS. HEX LOCATION(0000254E) IN CSECT(048E8   ) LENGTH(4)
                     266
      89  LPIND      ABSOLUTE. HEX VALUE(0000181F)
                     378   456   491
    1022  LPMSG      ADDRESS. HEX LOCATION(00002452) IN CSECT(048E8   ) LENGTH(31)
                     864
     171  LPNST      ADDRESS. HEX LOCATION(000019BE) IN CSECT(048E8   ) LENGTH(4)
                     177
    1055  LPST       ADDRESS. HEX LOCATION(00002528) IN CSECT(048E8   ) LENGTH(16)
                     894
     894  LPSTM      ADDRESS. HEX LOCATION(000021A0) IN CSECT(048E8   ) LENGTH(2)
                     380
    1056  LPST1      ADDRESS. HEX LOCATION(00002538) IN CSECT(048E8   ) LENGTH(4)
                     263
     806  MG8        ADDRESS. HEX LOCATION(000020F0) IN CSECT(048E8   ) LENGTH(2)
                     310
     133  M1         ABSOLUTE. HEX VALUE(FFFFFFFF)
                     169   671
     970  M10        ADDRESS. HEX LOCATION(00002298) IN CSECT(048E8   ) LENGTH(12)
                     826
     973  M10A       ADDRESS. HEX LOCATION(000022A8) IN CSECT(048E8   ) LENGTH(13)
                     828
     976  M10B       ADDRESS. HEX LOCATION(000022B8) IN CSECT(048E8   ) LENGTH(17)
                     830
     979  M10D       ADDRESS. HEX LOCATION(000022CC) IN CSECT(048E8   ) LENGTH(7)
                     832
     982  M10E       ADDRESS. HEX LOCATION(000022D6) IN CSECT(048E8   ) LENGTH(15)
                     834
     985  M10F       ADDRESS. HEX LOCATION(000022E8) IN CSECT(048E8   ) LENGTH(14)
                     836
     994  M10G       ADDRESS. HEX LOCATION(00002320) IN CSECT(048E8   ) LENGTH(54)
                     844
     988  M10H       ADDRESS. HEX LOCATION(000022FA) IN CSECT(048E8   ) LENGTH(14)
                     838
     991  M10J       ADDRESS. HEX LOCATION(0000230C) IN CSECT(048E8   ) LENGTH(17)
                     840
     998  M11        ADDRESS. HEX LOCATION(00002362) IN CSECT(048E8   ) LENGTH(21)
                     808
    1001  M12        ADDRESS. HEX LOCATION(0000237A) IN CSECT(048E8   ) LENGTH(34)
                     810
     134  M4         ABSOLUTE. HEX VALUE(FFFFFFFC)
                     331
     135  M6         ABSOLUTE. HEX VALUE(FFFFFFFA)
                     482
     943  M8         ADDRESS. HEX LOCATION(00002202) IN CSECT(048E8   ) LENGTH(25)
                     806
     944  M8A        ADDRESS. HEX LOCATION(0000221B) IN CSECT(048E8   ) LENGTH(3)
                     260
     947  M9         ADDRESS. HEX LOCATION(00002222) IN CSECT(048E8   ) LENGTH(19)
                     812
     950  M9A        ADDRESS. HEX LOCATION(00002238) IN CSECT(048E8   ) LENGTH(20)
                     814
     953  M9B        ADDRESS. HEX LOCATION(00002250) IN CSECT(048E8   ) LENGTH(10)
                     816
     956  M9C        ADDRESS. HEX LOCATION(0000225E) IN CSECT(048E8   ) LENGTH(8)
                     818
     959  M9D        ADDRESS. HEX LOCATION(0000226A) IN CSECT(048E8   ) LENGTH(8)
                     820
     962  M9E        ADDRESS. HEX LOCATION(00002276) IN CSECT(048E8   ) LENGTH(13)
                     822
     965  M9F        ADDRESS. HEX LOCATION(00002286) IN CSECT(048E8   ) LENGTH(11)
                     824
     223  NEGAT      ADDRESS. HEX LOCATION(00001A1A) IN CSECT(048E8   ) LENGTH(1)
                     509   545
     776  NGOOD      ADDRESS. HEX LOCATION(000020A4) IN CSECT(048E8   ) LENGTH(1)
                     343
     109  NINE       ABSOLUTE. HEX VALUE(00000009)
                     398
    1013  NLOOP      ADDRESS. HEX LOCATION(000023FA) IN CSECT(048E8   ) LENGTH(27)
                     842
     273  NO         ADDRESS. HEX LOCATION(00001A7A) IN CSECT(048E8   ) LENGTH(1)
                     329   504   534   583   591   629
     275  NOCHN      ADDRESS. HEX LOCATION(00001A7C) IN CSECT(048E8   ) LENGTH(1)
                     585   587
     842  NOLOP      ADDRESS. HEX LOCATION(00002138) IN CSECT(048E8   ) LENGTH(2)
                     458
     101  ONE        ABSOLUTE. HEX VALUE(00000001)
                     292   293   294   297   299   339   344   372   438
                     494   512   576   599   601   603   607   607   611
                     611   621   621   636   659   668   673   741   747
                     750
      81  OPTN2      ABSOLUTE. HEX VALUE(00001810)
                     186
      42  OUT        ABSOLUTE. HEX VALUE(00000000)
                     312   381   383   459   778
      43  OUTIN      ABSOLUTE. HEX VALUE(00000001)
                     316   327   396   432   463   497   503   515   525
                     533   554   561   569   582   590   615   628   649
                     658
       3  048E8      CSECT. START(00001900) LENGTH(3276) ESDID(0)
                       3
    1007  PMSGR      ADDRESS. HEX LOCATION(000023C0) IN CSECT(048E8   ) LENGTH(18)
                     859
     394  PREPA      ADDRESS. HEX LOCATION(00001BDE) IN CSECT(048E8   ) LENGTH(1)
                     391
     403  PREPB      ADDRESS. HEX LOCATION(00001BF8) IN CSECT(048E8   ) LENGTH(1)
                     393   420
     386  PREPR      ADDRESS. HEX LOCATION(00001BC8) IN CSECT(048E8   ) LENGTH(1)
                     241
     859  PRMSG      ADDRESS. HEX LOCATION(0000215A) IN CSECT(048E8   ) LENGTH(2)
                     395
     213  PRPCD      ADDRESS. HEX LOCATION(00001A10) IN CSECT(048E8   ) LENGTH(1)
                     387   417
     749  RCALB      ADDRESS. HEX LOCATION(00002046) IN CSECT(048E8   ) LENGTH(1)
                     253
    1043  RCMSG      ADDRESS. HEX LOCATION(000024D2) IN CSECT(048E8   ) LENGTH(13)
                     923
     923  RCNUM      ADDRESS. HEX LOCATION(000021DA) IN CSECT(048E8   ) LENGTH(2)
                     560
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CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
206	RDADR	ADDRESS. HEX LOCATION(00001A03) IN CSECT(048E8) LENGTH(1) 317 388 418 427 688
210	RDATA	ADDRESS. HEX LOCATION(00001A0A) IN CSECT(048E8) LENGTH(2) 621 722
207	RDCOD	ADDRESS. HEX LOCATION(00001A04) IN CSECT(048E8) LENGTH(2) 268 319
205	RDID	ADDRESS. HEX LOCATION(00001A02) IN CSECT(048E8) LENGTH(1) 318
274	RDIND	ADDRESS. HEX LOCATION(00001A7B) IN CSECT(048E8) LENGTH(1) 530 543 609 724 739
284	RDSAV	ADDRESS. HEX LOCATION(00001A86) IN CSECT(048E8) LENGTH(2) 547 550 552
209	RDSID	ADDRESS. HEX LOCATION(00001A08) IN CSECT(048E8) LENGTH(2) 517 731
211	RDVRF	ADDRESS. HEX LOCATION(00001A0C) IN CSECT(048E8) LENGTH(2) 607 760 764
287	RD1SV	ADDRESS. HEX LOCATION(00001A8C) IN CSECT(048E8) LENGTH(2) 536 723
721	READ	ADDRESS. HEX LOCATION(00001FD2) IN CSECT(048E8) LENGTH(1) 248
730	READS	ADDRESS. HEX LOCATION(00001FF8) IN CSECT(048E8) LENGTH(1) 250
754	READV	ADDRESS. HEX LOCATION(00002058) IN CSECT(048E8) LENGTH(1) 254
220	RECAL	ADDRESS. HEX LOCATION(00001A17) IN CSECT(048E8) LENGTH(1) 599 750
421	REDID	ADDRESS. HEX LOCATION(00001C30) IN CSECT(048E8) LENGTH(1) 243
762	REDVF	ADDRESS. HEX LOCATION(00002070) IN CSECT(048E8) LENGTH(1) 756
424	RESET	ADDRESS. HEX LOCATION(00001C36) IN CSECT(048E8) LENGTH(1) 244
176	RESTR	ADDRESS. HEX LOCATION(000019C6) IN CSECT(048E8) LENGTH(6) 476 478
198	RETSV	ADDRESS. HEX LOCATION(000019F4) IN CSECT(048E8) LENGTH(2) 290 332 385
214	RIDCD	ADDRESS. HEX LOCATION(00001A11) IN CSECT(048E8) LENGTH(1) 422
879	RQCNT	ADDRESS. HEX LOCATION(00002182) IN CSECT(048E8) LENGTH(2) 648
215	RSTCD	ADDRESS. HEX LOCATION(00001A12) IN CSECT(048E8) LENGTH(1) 425
803	RTRTN	ADDRESS. HEX LOCATION(000020EA) IN CSECT(048E8) LENGTH(2) 781 799
193	R2SAV	ADDRESS. HEX LOCATION(000019EA) IN CSECT(048E8) LENGTH(2) 340 370
195	R5SAV	ADDRESS. HEX LOCATION(000019EE) IN CSECT(048E8) LENGTH(2) 464 468
196	R6SAV	ADDRESS. HEX LOCATION(000019F0) IN CSECT(048E8) LENGTH(2) 783 798
197	R7SAV	ADDRESS. HEX LOCATION(000019F2) IN CSECT(048E8) LENGTH(2) 321 328 341 371 575
277	SAVHD	ADDRESS. HEX LOCATION(00001A7E) IN CSECT(048E8) LENGTH(1) 571 573
232	SDADR	ADDRESS. HEX LOCATION(00001A2A) IN CSECT(048E8) LENGTH(2) 520 623 634 655 735
903	SDIRT	ADDRESS. HEX LOCATION(000021B2) IN CSECT(048E8) LENGTH(2) 502
1031	SDMSG	ADDRESS. HEX LOCATION(00002494) IN CSECT(048E8) LENGTH(13) 903
738	SEEK	ADDRESS. HEX LOCATION(0000201A) IN CSECT(048E8) LENGTH(1) 251
221	SEKOP	ADDRESS. HEX LOCATION(00001A18) IN CSECT(048E8) LENGTH(1) 494 601 741
107	SEVEN	ABSOLUTE. HEX VALUE(00000007) 165 401
237	SIDBC	ADDRESS. HEX LOCATION(00001A34) IN CSECT(048E8) LENGTH(2) 519 734
216	SIOCD	ADDRESS. HEX LOCATION(00001A13) IN CSECT(048E8) LENGTH(1) 687
493	SIORT	ADDRESS. HEX LOCATION(00001D0C) IN CSECT(048E8) LENGTH(1) 733 743 748
523	SIOR4	ADDRESS. HEX LOCATION(00001D74) IN CSECT(048E8) LENGTH(1) 518
574	SIOR5	ADDRESS. HEX LOCATION(00001E10) IN CSECT(048E8) LENGTH(1) 541 752 761
598	SIOR6	ADDRESS. HEX LOCATION(00001E60) IN CSECT(048E8) LENGTH(1) 577 588 592
647	SIOR7	ADDRESS. HEX LOCATION(00001EF2) IN CSECT(048E8) LENGTH(1) 630
681	SIOR8	ADDRESS. HEX LOCATION(00001F56) IN CSECT(048E8) LENGTH(1) 522 600 602 604 608 612 620 625 646 737 745 753
508	SIRT2	ADDRESS. HEX LOCATION(00001D40) IN CSECT(048E8) LENGTH(1) 505
511	SIRT3	ADDRESS. HEX LOCATION(00001D48) IN CSECT(048E8) LENGTH(1) 495
516	SIRT4	ADDRESS. HEX LOCATION(00001D56) IN CSECT(048E8) LENGTH(1) 513
565	SIRT5	ADDRESS. HEX LOCATION(00001DF6) IN CSECT(048E8) LENGTH(1) 507 510
637	SIR6	ADDRESS. HEX LOCATION(00001EE2) IN CSECT(048E8) LENGTH(1) 644
642	SIR6A	ADDRESS. HEX LOCATION(00001EEC) IN CSECT(048E8) LENGTH(1) 640
645	SIR6B	ADDRESS. HEX LOCATION(00001EF0) IN CSECT(048E8) LENGTH(1) 641
106	SIX	ABSOLUTE. HEX VALUE(00000006) 352 521 686 736
115	SIXTN	ABSOLUTE. HEX VALUE(00000010) 366 537 596 692 757
529	SI4	ADDRESS. HEX LOCATION(00001D86) IN CSECT(048E8) LENGTH(1) 729
544	SI4A	ADDRESS. HEX LOCATION(00001DB2) IN CSECT(048E8) LENGTH(1) 531 725 765
542	SI4AA	ADDRESS. HEX LOCATION(00001DAE) IN CSECT(048E8) LENGTH(1) 535
572	SI5	ADDRESS. HEX LOCATION(00001E0A) IN CSECT(048E8) LENGTH(1) 567
613	SI6	ADDRESS. HEX LOCATION(00001E94) IN CSECT(048E8) LENGTH(1) 606 610

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
626	SI6A	ADDRESS. HEX LOCATION(00001EC2) IN CSECT(048E8) LENGTH(1) 622
656	SI7	ADDRESS. HEX LOCATION(00001F10) IN CSECT(048E8) LENGTH(1) 666
662	SI7A	ADDRESS. HEX LOCATION(00001F20) IN CSECT(048E8) LENGTH(1) 664
675	SI7B	ADDRESS. HEX LOCATION(00001F46) IN CSECT(048E8) LENGTH(1) 679
283	SKSAV	ADDRESS. HEX LOCATION(00001A84) IN CSECT(048E8) LENGTH(2) 501 547 550
918	SSIZE	ADDRESS. HEX LOCATION(000021D0) IN CSECT(048E8) LENGTH(2) 553
1040	SSMSG	ADDRESS. HEX LOCATION(000024C4) IN CSECT(048E8) LENGTH(11) 918
132	STH68	ABSOLUTE. HEX VALUE(00001C00) 153
83	STRTB	ABSOLUTE. HEX VALUE(00001814) 302 303 305 331 350 363 377 404 413 445 453 470 485 488 703 719
116	SVNTN	ABSOLUTE. HEX VALUE(00000011) 342
228	SZCYL	ADDRESS. HEX LOCATION(00001A22) IN CSECT(048E8) LENGTH(2) 526 528 552 559 914
549	S14B	ADDRESS. HEX LOCATION(00001DC2) IN CSECT(048E8) LENGTH(1) 546
551	S14C	ADDRESS. HEX LOCATION(00001DC8) IN CSECT(048E8) LENGTH(1) 548
586	S5	ADDRESS. HEX LOCATION(00001E3A) IN CSECT(048E8) LENGTH(1) 579 584
691	S8	ADDRESS. HEX LOCATION(00001F7A) IN CSECT(048E8) LENGTH(1) 683
110	TEN	ABSOLUTE. HEX VALUE(0000C00A) 170
802	TENS	ADDRESS. HEX LOCATION(000020E9) IN CSECT(048E8) LENGTH(1) 795
800	THOUS	ADDRESS. HEX LOCATION(000020E6) IN CSECT(048E8) LENGTH(2) 786
103	THREE	ABSOLUTE. HEX VALUE(00C00003) 774
844	TMG2	ADDRESS. HEX LOCATION(0000213C) IN CSECT(048E8) LENGTH(2) 315
111	TWELV	ABSOLUTE. HEX VALUE(0000000C) 376 451 707 710 793
118	TWENY	ABSOLUTE. HEX VALUE(00000014) 353 704
119	TWEN2	ABSOLUTE. HEX VALUE(00000016) 479
102	TWO	ABSOLUTE. HEX VALUE(00000002) 164 174 177 182 184 185 298 301 359 409 477 478 715 769
141	UBUFR	ADDRESS. HEX LOCATION(00001906) IN CSECT(048E8) LENGTH(2) 334 768 773 845
416	UNPRP	ADDRESS. HEX LOCATION(00001C24) IN CSECT(048E8) LENGTH(1) 242
281	VRFYS	ADDRESS. HEX LOCATION(00001A82) IN CSECT(048E8) LENGTH(1) 605 619 763
285	WDCNT	ADDRESS. HEX LOCATION(00001A88) IN CSECT(048E8) LENGTH(2) 650 652 660 665 669 880
192	WORKA	ADDRESS. HEX LOCATION(000019E8) IN CSECT(048E8) LENGTH(2) 329 890
142	WORK1	ADDRESS. HEX LOCATION(00001946) IN CSECT(048E8) LENGTH(2) 397 399 400 402 433 850 860
1063	WRDMG	ADDRESS. HEX LOCATION(00002556) IN CSECT(048E8) LENGTH(40) 938
726	WRITE	ADDRESS. HEX LOCATION(00001FE8) IN CSECT(048E8) LENGTH(1) 249
938	WRRDM	ADDRESS. HEX LOCATION(000021F8) IN CSECT(048E8) LENGTH(2) 532
212	WRTDA	ADDRESS. HEX LOCATION(00001A0E) IN CSECT(048E8) LENGTH(2) 540 611 727
286	WRTSV	ADDRESS. HEX LOCATION(00001A8A) IN CSECT(048E8) LENGTH(2) 728 755
100	ZERO	ABSOLUTE. HEX VALUE(00000000) 155 160 594 699
94	ZEROS	ABSOLUTE. HEX VALUE(00001829) 368 506

********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001900                       3 064E8 START X'1900'
                             4 ********************************************************************
                             5 *                                                                  *
                             6 *                    ***       PREREQUISITES        ***           *
                             7 *                                                                  *
                             8 *                                NONE                              *
                             9 *                                                                  *
                            10 ********************************************************************
                            11 *                                                                  *
                            12 *                    ***       MODIFICATIONS        ***           *
                            13 *                                                                  *
                            14 *                    1. MODIFICATIONS FOR PROGRAMMER'S CONSOLE.    *
                            15 *                                                                  *
                            16 ********************************************************************
                            17 *                                                                  *
                            18 *                    ***     REA'S INCORPORATED     ***           *
                            19 *                                                                  *
                            20 *                                NONE                              *
                            21 *                                                                  *
                            22 ********************************************************************
                            23 *                                                                  *
                            24 *                    ***    SPECIAL INSTRUCTIONS    ***           *
                            25 *                                                                  *
                            26 *                                NONE                              *
                            27 *                                                                  *
                            28 ********************************************************************
                            29 *                                                                  *
                            30 *                    ***       E. C. HISTORY        ***           *
                            31 *                                                                  *
                            32 *        DATE 06MAY77  DATE 15SEP77  DATE          DATE            *
                            33 *        E.C. 578756   E.C. 754882   E.C.          E.C.            *
                            34 *                                                                  *
                            35 ********************************************************************
                            37 ********************************************************************
                            38 *                                                                  *
                            39 *     EQUATED NAMES FOR SUPPORTED SVC'S                            *
                            40 *                                                                  *
                            41 ********************************************************************
000000                      42 OUT   EQU   0                     OUT SVC
000001                      43 OUTIN EQU   1                     OUTIN SVC
000002                      44 IDLE  EQU   2                     IDLE SVC
00001A                      45 HTOE  EQU   26                    HEX TO EBCDIC
                            47 ********************************************************************
                            48 *                                                                  *
                            49 *     EQUATES FOR CODED STOPS USED BY THIS UTILITY MONITOR         *
                            50 *           (NORMAL AND ERROR)                                     *
                            51 *                                                                  *
                            52 ********************************************************************
003482                      53 CD2   EQU   X'3482'               COMMANDS FOR 4974
00349B                      54 CD1B  EQU   X'349B'               INVALID COMMAND
0034A0                      55 CD20  EQU   X'34A0'               READ I.D. MISMATCH
0034A1                      56 CD21  EQU   X'34A1'               STANDARD DATA PATTERN TO BE USED
0034A2                      57 CD22  EQU   X'34A2'               LEVEL TO INTERRUPT
0034A3                      58 CD23  EQU   X'34A3'               LENGTH OF DELAY
0034A4                      59 CD24  EQU   X'34A4'               DATA TO BE  USED FOR THIS TEST
0034A5                      60 CD25  EQU   X'34A5'               BYTE COUNT
0034A6                      61 CD26  EQU   X'34A6'               LOOP NOT STARTED
0034A7                      62 CD27  EQU   X'34A7'               NUMBER OF TIMES THRU LOOP
0034AF                      63 CD2F  EQU   X'34AF'               IS THIS DCB TO BE CHAINED
0034B0                      64 CD30  EQU   X'34B0'               FORMS LENGTH AND OVERFLOW LINE
0034B1                      65 CD31  EQU   X'34B1'               SKIP AND SPACE MODIFIER
0034B2                      66 CD32  EQU   X'34B2'               IS FORMS CONTROL NEEDED
0034B3                      67 CD33  EQU   X'34B3'               IS THE RETRY BIT NEEDED
0034BC                      68 CD3C  EQU   X'34BC'               DCB CHAINING
0034BD                      69 CD3D  EQU   X'34BD'               COLUMN
0034BE                      70 CD3E  EQU   X'34BE'               CHARACTER
                            72 ********************************************************************
                            73 *                                                                  *
                            74 *     EQUATE TABLE                                                 *
                            75 *                                                                  *
                            76 ********************************************************************
000232                      77 CPUTP EQU   X'0232'               CPU TYPE
001810                      78 OPTN2 EQU   X'1810'               POINTER TO OPTION WORD 2
001812                      79 IDCPT EQU   X'1812'               POINTER TO IDCB BUILD AREA
001814                      80 STRTB EQU   X'1814'               POINTER TO I STREAM BUILD AREA
001815                      81 DTENT EQU   X'1815'               POINTER TO DATA BUILD AREA
001818                      82 DVCNT EQU   X'1818'               POINTER TO DEVICE UNDER TEST
00181A                      83 DCBPT EQU   X'181A'               POINTER TO DCB BUILD AREA
00181C                      84 BADCC EQU   X'181C'               POINTER TO BAD CODE ROUTINE
00181E                      85 KMODE EQU   X'181E'               POINTER TO DEVICE KEYING IN
00181F                      86 LPIND EQU   X'181F'               LOOP INDICATOR
001820                      87 KEYMD EQU   X'1820'               ADDRESS OF DEVICES KEYING
001824                      88 KYMOD EQU   X'1824'               INDICATOR A DEVICE IS KEYING IN
001826                      89 LOOPS EQU   X'1826'               ADDPESS OF LOOP START
001828                      90 HEXFF EQU   X'1828'
001829                      91 ZEROS EQU   X'1829'
00182A                      92 NUMDV EQU   X'182A'
00182C                      93 DVPNT EQU   X'182C'
00182E                      94 DEVC1 EQU   X'182E'
001830                      95 EPRNT EQU   X'1830'
001832                      96 LOST  EQU   X'1832'
000000                      97 ZERO  EQU   0                     VALUE OF 0
000001                      98 ONE   EQU   1                              1
000002                      99 TWO   EQU   2                              2
000003                     100 THREE EQU   3                              3
000004                     101 FOUR  EQU   4                              4
000005                     102 FIVE  EQU   5                              5
000006                     103 SIX   EQU   6                              6
000007                     104 SEVEN EQU   7                              7
000008                     105 EIGHT EQU   8                              8
000009                     106 NINE  EQU   9                              9
00000A                     107 TEN   EQU   10                            10
00000B                     108 ELEVN EQU   11                            11
00000C                     109 TWELV EQU   12                            12
00000D                     110 THRTN EQU   13                            13
00000E                     111 FORTN EQU   14                            14
00000F                     112 FIFTN EQU   15                            15
000010                     113 SIXTN EQU   16                            16
000012                     114 EIGTN EQU   18                            18
000014                     115 TWENY EQU   20                            20
000016                     116 TWEN2 EQU   22                            22
00001A                     117 TWEN6 EQU   26                            26
00001B                     118 TWEN7 EQU   27                            27
00001C                     119 TWEN8 EQU   28                            28
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
000020                     120 THIR6 EQU   32                            32
000028                     121 FORTY EQU   40                            40
00003C                     122 SIXTY EQU   60                            60
00003F                     123 SIXT3 EQU   63                            63
000040                     124 SIXT4 EQU   64                            64
000041                     125 SIXT5 EQU   65                            65
00007F                     126 ONE27 EQU   127                           127
000080                     127 ONE28 EQU   128                           128
000084                     128 ONE32 EQU   132                           132
000100                     129 TWO56 EQU   256                           256
000400                     130 OTH24 EQU   1024                          1024
001C00                     131 STH68 EQU   7168                          7168
FFFFFF                     132 M1    EQU   -1                          -1
FFFFFC                     133 M4    EQU   -4                          -4
FFFFFA                     134 M6    EQU   -6                          -6
000002                     135 INERR EQU   2
001900 64E8                137 PID   DC    X'64E8'              PROGRAM IDENTIFIER
001902 6802 1AD8           138 OVLST B     HER00                BRANCH TO START OF OVERLAY
001906 00000000000000000   139 UBUFR DC    32A(*-*)
001946 00000000            140 WORK1 DC    2A(*-*)
00194A 00000000000000000   141 DATIN DC    32A(*-*)
00198A C1C2C3C4C5C6C7C8C   142 HERDT DC    C'ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890-=¬;'',./|@#$%¢ß§*()'
0019C0 6D4E5A7A404C6E6F4   143       DC    C' +!: <>?           '
0019CF C1C2C3C4C5C6C7C8C   144       DC    C'ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890-=¬;'',./|@#$%¢ß§*()'
001A05 6D4E5A7A404C6E6F    145       DC    C' +!: <>?'
001A0D 00                  146       DC    X'00'
                           148 ********************************************************************
                           149 *                                                                  *
                           150 *     THE FOLLOWING INSTRUCTIONS WILL BE MODIFIED FOR TESTING.     *
                           151 *     CARE SHOULD BE TAKEN TO ENSURE THE INSTRUCTIONS MAINTAIN     *
                           152 *     THE SAME RELATIVE POSITION IN THE INSTRUCTION STREAM.        *
                           153 *                                                                  *
                           154 ********************************************************************
001A0E 4324 1C00           155 INCOM MVWI  STH68,R3
001A12 4024 182E           156 INCOA MVWI  DEVC1,R0
001A16 4800                157       TBT   (R0,ZERO)
001A18 1004                158       JZ    INCO1
001A1A 6002                159       SVC   IDLE
001A1C BBFA                160       JCT   INCOA,R3
001A1E 6F13 1832           161       BAL   LOST*,R7
001A22 4840                162 INCO1 TBTS  (R0,ZERO)
001A24 0005                163       ABI   FIVE,R0
001A26 4000 1A2C           164       MVA   IOADR,(R0)
001A2A 680C 1A2A           165 IONST IO    *
001A2C                     166 IOADR EQU   IONST+TWO
001A2E 6F04 1A36           167 CCCHK BCC   SEVEN,GODCC
001A32 6F13 181C           168       BAL   BADCC*,R7
001A36                     169 GODCC EQU   *
000008                     170 CCDCP EQU   GODCC-CCCHK
001A36 4029 1A42 FFFF      171 CNTST AWI   M1,CNTWD
001A3C 1004                172       JZ    **+TEN
001A3E 6802 1A3E           173 LPNST B     *
001A42 0000                174 CNTWD DC    A(*-*)
001A44 0000                175 LPCNT DC    A(*-*)
001A38                     176 CNTAD EQU   CNTST+TWO
001A3A                     177 JENST EQU   CNTST+FOUR
001A46 8828 1A44 1A42      178 RESTR MVW   LPCNT,CNTWD
001A40                     179 LPADR EQU   LPNST+TWO
001A4C 6F08 1A56           180 DLNST MVW   DLCNT,R7
001A50 6002                181 DLIST SVC   IDLE
001A52 BFFE                182       JCT   DLIST,R7
001A54 5001                183       J     **FOUR
001A4E                     184 DLADR EQU   DLNST+TWO
001A56 0000                185 DLCNT DC    A(*-*)
001A58 5000                186 JINST J     **+TWO
001A5A 5000                187       J     **+TWO
001A5C 4724 1810           188 ERTST MVWI  OPTN2,R7
001A60 4F02                189       TBT   (R7,INERR)
001A62 1002                190       JZ    ERTS1
001A64 6F13 1830           191       BAL   EPRNT*,R7
001A68                     192 ERTS1 EQU   *
001A68 0000                194 WORKA DC    A(*-*)
001A6A 0000                195 R2SAV DC    A(*-*)
001A6C 0000                196 R3SAV DC    A(*-*)
001A6E 0000                197 R4SAV DC    A(*-*)
001A70 0000                198 R5SAV DC    A(*-*)
001A72 0000                199 R7SAV DC    A(*-*)
001A74 0000                200 RETSV DC    A(*-*)
001A76 0000                201 LPEND DC    A(*-*)
001A78 640E                202 DTCSS DC    X'640E'
001A7A 20                  203 RDID  DC    X'20'
001A7B 00                  204 RDADR DC    X'00'
001A7C 0000                205 EDCOD DC    X'0000'
001A7E 0206                206 HERID DC    X'0206'
001A80 60                  207 PRPCD DC    X'60'
001A81 20                  208 PIDCD DC    X'20'
001A82 6F                  209 RSTCD DC    X'6F'
001A83 70                  210 SIOCD DC    X'70'
001A84 05                  211 DELCT DC    X'05'
001A85 00                  212 DFALT DC    X'00'
001A86 00                  213 DELT1 DC    X'00'
001A87 00                  214 DELT2 DC    X'00'
001A88 05                  215 FIVDF DC    X'05'
001A89 0A                  216 DVALU DC    X'0A'
                           217       ALIGN WORD
001A8A 0081                218 DCBLD DC    X'0081'
001A8C 4200                219 FORMS DC    X'4200'
001A8E 0001                220 SKOVL DC    X'0001'
001A90 0000                221 NOUSE DC    X'0000'
001A92 0000                222 DIADR DC    X'0000'
001A94 0000                223 CHNAD DC    X'0000'
001A96 0084                224 BYCNT DC    X'0084'
001A98 0000                225 SDADR DC    A(*-*)
001A9A                     226 HERBL EQU   *
001A9A 1F82                227       DC    A(DFLT1)
001A9C 1F9A                228       DC    A(DFLT2)
001A9E 1BBE                229       DC    A(PREPR)
001AA0 1C48                230       DC    A(UNPRP)
001AA2 1C52                231       DC    A(REDID)
001AA4 1C58                232       DC    A(RESET)
001AA6 1C64                233       DC    A(DELAY)
001AA8 1D2E                234       DC    A(LOPST)
001AAA 1CBA                235       DC    A(LOPND)
001AAC 1D44                236       DC    A(WRITE)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

001AAE  0000                237 AECVT DC    A(*-*)
001AB0  0000                238 AETCV DC    A(*-*)
001AB2  0000                239 AECTV DC    A(*-*)
001AB4  0001                240 CVADR DC    A(1)
001AB6  182E                241 CVAD1 DC    A(DEVC1)
001AB8  20E7                242 CVAD2 DC    A(M8A)
001ABA  0002                243 CLPST DC    A(2)
001ABC  1826                244       DC    A(LOOPS)
001ABE  237A                245       DC    A(LPST1)
001AC0  0002                246 CLPEN DC    A(2)
001AC2  1A76                247       DC    A(LPEND)
001AC4  2390                248       DC    A(LPEN1)
001AC6  0002                249 CVRID DC    A(2)
001AC8  1A7C                250       DC    A(RDCOD)
001ACA  23B5                251       DC    A(IDMG3)
001ACC  0002                252 CVEXP DC    A(2)
001ACE  1A7E                253       DC    A(HERID)
001AD0  23A9                254       DC    A(IDMG2)
001AD2  D5                  255 NO    DC    C'N'
001AD3  00                  256 NOCHN DC    X'00'
001AD4  00                  257 ASKIT DC    X'00'
001AD5  00                  258 CHIND DC    X'00'
001AD6  40                  259 EBCBK DC    C' '
001AD7  23                  260 ALBRT DC    X'23'
                            261       ALIGN WORD
001AD8                      262 HER00 EQU   *
001AD8  6F0D 1A74           263       MVW   R7,RETSV          SAVE THE RETURN ADDRESS
001ADC  6908 182C           264       MVW   DVPNT,R1          DEVICE PARAMETERS UNDER TEST
001AE0  7921 0001           265       AWI   ONE,R1            BUMP POINTER
001AE4  690D 1A14           266       MVW   R1,INCOA+TWO      PUT IN THE INSTR STREAM
001AE8  7921 0001           267       AWI   ONE,R1            BUMP ADDRESS
001AEC  8860 1A78           268       MVW   DTCSS,(R1)        ENTER DEVICE TYPE
001AF0  7921 0002           269       AWI   TWO,R1            BUMP POINTER
001AF4  8860 1814           270       MVW   STTRB,(R1)        START ADR FOR THIS TEST
001AF8  6808 1814           271       MVW   STRTB,R0          SET R0
001AFC  9024 1A58           272       MVD   JINST,(R0)+       MOVE IN DUMMY INSTR'S
001B00  680D 1814           273       MVW   R0,STRTB          SAVE THE INSTR STREAM POINTER
001B04  6D0D 1AB6           274       MVW   R5,CVAD1          PREPARE TO CONVERT
001B08  4724 1AB4           275       MVA   CVADR,R7          CONTROL BLOCK ADDRESS
001B0C  601A                276       SVC   HTOE              GO CONVERT
001B0E  4424 000A           277       MVWI  TEN,R4            NUM OF POSSIBLE MESSAGES
001B12  4724 1FF6           278       MVA   MG8,R7            START ADR OF MESSAGES
001B16                      279 HER10 EQU   *
001B16  6000                280       SVC   OUT               OUTPUT THE MESSAGE
001B18  7FE1 0004           281       AWI   FOUR,R7           POSITION FOR NEXT MESSAGE
001B1C  BCFC                282       JCT   HER10,R4          TEST THE NEXT BIT
001B1E  4724 2022           283       MVA   HMG2,R7           DUMMY SVC TO GET DATA
001B22  6001                284       SVC   OUTIN            ISSUE THE OUTIN
001B24  8508 1A7B           285       MVB   (R5),RDADF       PUT THE DEVICE ADR IN READ I.D.
001B28  680C 1A7A           286       IO    RDID              DO A READ I.D.
001B2C  982B 1A7C 1A7E      287       CW    RDCOD,HERID       IS IT O.K.
001B32  1012                288       JE    HER12             J-YES
001B34  4724 1AC6           289       MVA   CVRID,R7          CONVERT CONTROL BLOCK
001B38  601A                290       SVC   HTOE
001B3A  4724 1ACC           291       MVA   CVEXP,R7          CONVERT CONTROL BLOCK
001B3E  601A                292       SVC   HTOE
001B40  4724 20AE           293       MVA   IDMSG,R7          ADR OF MSG
001B44  6001                294       SVC   OUTIN
001B46  802B 1A68 1AD2      295       CB    WORKA,NO          WAS THE ANSWER NO
001B4C  1805                296       JNE   HER12             J-NO
001B4E  4029 1814 FFFC      297       AWI   M4,STRTB          RESTORE POINTER
001B54  6812 1A74           298       B     RETSV*            RETURN TO SENDER
001B58                      299 HER12 EQU   *
001B58  4324 1906           300       MVA   UBUFR,R3          INPUT DATA
001B5C  4224 1A9A           301       MVA   HERBL,R2          ADR OF BR TABLE
001B60                      302 HER15 EQU   *
001B60  C4C0                303       MVB   (R3),R4           GET THE COMMAND
001B62  1034                304       JZ    HER25             END
001B64  7C82 0001           305       SWI   ONE,R4            REDUCE BY ONE
001B68  D228 1A6A           306       MVD   R2,R2SAV          SAVE THE REGISTER
001B6C  6F0D 1A72           307       MVW   R7,R7SAV          SAVE THE REGISTER
001B70  7C06 0009           308       CWI   NINE,R4           IS IT A VALID COMMAND
001B74  6D01 1FB2           309       BGT   NGOOD             J-NO--TOO HIGH
001B78  3409                310       SLL   ONE,R4            DOUBLE FOR DISPL INTO COMMAND TABLE
001B7A  7288                311       AW    R2,R4             GET THE COMMAND PROCESSOR ADDRESS
001B7C  6808 1812           312       MVW   IDCPT,R0          ADR TO PUT THE IDCB
001B80  6C88 0000           313       MVW   (R4),R4           GET THE ADDRESS IN THE TABLE
001B84  5400                314       BXS   (R4)             GO COMPLETE THE IDCB
001B86                      315 HER20 EQU   *
001B86  6808 1814           316       MVW   STRTB,R0          ADR TO PUT OIO INSTR
001B8A  8828 1812 1A2C      317       MVW   IDCPT,IOADR       ADR OF THE IDCB
001B90  8828 1812 1A28      318       MVW   IDCPT,INCO1+SIX   ADR OF THE IDCB
001B96  0F14                319       MVBI  TWENY,R7          NUM OF BYTES IN THE INSTR STREAM
001B98  4424 1A0E           320       MVA   INCOM,R4          START ADR OF INSTR STREAM
001B9C  2C04                321       MVFN  4,(R0)            MOVE THE INSTRUCTIONS
001B9E  9024 1A2A           322       MVD   IONST,(R0)+       MOVE THE INSTRUCTION
001BA2  70E4                323       MVW   R0,R7             SAVE R0
001BA4  7FE1 0008           324       AWI   CCDCP,R7          COMPUTE A NEW ADDRESS
001BA8  6F0D 1A30           325       MVW   R7,CCCHK+TWO      INSERT NEW ADDRESS
001BAC  4724 1A2E           326       MVA   CCCHK,R7          ADDRESS OF DATA TO MOVE
001BB0  9714                327       MVD   (R7)+,(R0)+       MOVE THE INSTR'S
001BB2  9714                328       MVD   (R7)+,(R0)+
001BB4  680D 1814           329       MVW   R0,STRTB          BUMP THE INSTR ADR
001BB8  4029 1812 0004      330       AWI   FOUR,IDCPT        BUMP THE IDCB ADR POINTER
001BBE                      331 HER23 EQU   *
001BBE  D220 1A6A           332       MVD   R2SAV,R2          RESTORE R2
001BC2  6F08 1A72           333       MVW   R7SAV,R7          RESTORE R7
001BC6  7B61 0001           334       AWI   ONE,R3            BUMP INPUT POINTER
001BCA  BFCA                335       JCT   HER15,R7          GO SET UP FOR NEXT COMMAND
001BCC                      336 HER25 EQU   *
001BCC  6908 182C           337       MVW   DVPNT,R1          DEVICE PARAMETERS UNDER TEST
001BD0  7921 000C           338       AWI   TWELV,R1          BUMP THE POINTER
001BD4  8860 1814           339       MVW   STRTB,(R1)        SAVE THE END ADR
001BD8  C025 181F           340       MVBZ  LPIND,R0          WAS A LOOP STARTED
001BDC  1006                341       JZ    HER26             J-NO
001BDE  4724 20C2           342       MVA   LPSTM,R7          MSG ADR
001BE2  6000                343       SVC   OUT
001BE4  4724 20C6           344       MVA   LPENM,R7          MSG ADR
001BE8  6000                345       SVC   OUT
001BEA                      346 HER26 EQU   *
001BEA  6812 1A74           347       B     RETSV*            RETURN TO FRIEND
001BEE                      348 PREPR EQU   *
001BEE  8024 1A80           349       MVB   PRPCD,(R0)+       MOVE THE COMMAND TO THE IDCB ADR
001BF2  8504                350       MVB   (R5),(R0)+        MOVE THE DEVICE ADR TO THE IDCB
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

001BF4  C715                351       MVBZ  (R0)+,R7          CLEAR THE BYTE
001BF6  C720 1A85           352       MVB   DFALT,R7          IS THE DEFAULT TO BE USED
001BFA  1003                353       JZ    PREPA             J-NO
001BFC  8020 1A88           354       MVB   FIVDF,(R0)        MOVE IN THE DEFAULT VALUE
001C00  500D                355       J     PREPB
001C02                      356 PREPA EQU   *
001C02  4724 2054           357       MVA   PRMSG,R7          MSG ASKING FOR PREP LEVEL
001C06  6001                358       SVC   OUTIN
001C08  6F08 1946           359       MVW   WORK1,R7          GET THE DATA INPUT
001C0C  3749                360       SLL   NINE,R7           POSITION THE LEVEL
001C0E  6F0D 1946           361       MVW   R7,WORK1          PUT IT BACK IN THE WORK AREA
001C12  4724 1946           362       MVA   WORK1,R7          ADR OF DATA
001C16  4F47                363       TBTS  (R7,SEVEN)        SET THE I BIT
001C18  8020 1946           364       MVB   WORK1,(R0)        MOVE LEVEL & I BIT INTO IDCB
001C1C                      365 PREPB EQU   *
001C1C  6808 1814           366       MVW   STRTB,R0          ADR TO PUT OIO INSTR
001C20  8828 1812 1A2C      367       MVW   IDCPT,IOADR       ADR OF THE IDCB
001C26  9024 1A2A           368       MVD   IONST,(R0)+       MOVE THE I/O INSTR
001C2A  70E4                369       MVW   R0,R7             SAVE R0
001C2C  7FE1 0008           370       AWI   CCDCP,R7          COMPUTE A NEW ADDRESS
001C30  6F0D 1A30           371       MVW   R7,CCCHK+TWO      INSERT NEW ADDRESS
001C34  4724 1A2E           372       MVA   CCCHK,R7          ADDRESS OF DATA TO MOVE
001C38  9714                373       MVD   (R7)+,(R0)+       MOVE THE INSTR'S
001C3A  9714                374       MVD   (R7)+,(R0)+
001C3C  680D 1814           375       MVW   R0,STRTB          BUMP THE INSTR ADR
001C40  4029 1812 0004      376       AWI   FOUR,IDCPT        BUMP THE IDCB ADR POINTER
001C46  50BB                377       J     HER23
001C48                      378 UNPRP EQU   *
001C48  8024 1A80           379       MVB   PRPCD,(R0)+       IDCB COMMAND
001C4C  8504                380       MVB   (R5),(R0)+        ENTER THE DEVICE ADDRESS
001C4E  C805                381       MVWZ  (R0),R0           CLEAR THE DATA AREA
001C50  50E5                382       J     PREPB             GO FINISH THE IDCB
001C52                      383 REDID EQU   *
001C52  8024 1A81           384       MVB   RIDCD,(R0)+       READ ID IDCB COMMAND
001C56  5002                385       J     COMCD             GO FINISH THE IDCB
001C58                      386 RESET EQU   *
001C58  8024 1A82           387       MVB   RSTCD,(R0)+       RESET IDCB COMMAND
001C5C                      388 COMCD EQU   *
001C5C  8504                389       MVB   (R5),(R0)+        ENTER THE DEVICE ADDRESS
001C5E  C805                390       MVWZ  (R0),R0           CLEAR THE DATA AREA
001C60  6802 1B86           391       B     HER20
001C64                      392 DELAY EQU   *
001C64  4724 202C           393       MVA   DLMSG,R7          ASK FOR THE AMOUNT OF DELAY
001C68  6001                394       SVC   OUTIN
001C6A  6D0D 1A70           395       MVW   R5,R5SAV          SAVE R5
001C6E  6D08 1946           396       MVW   WORK1,R5          GET THE DATA
001C72  6F03 1FBC           397       BAL   DTOH,R7           GO CONVERT
001C76  75E4                398       MVW   R5,R7             MOVE TO CONVERT
001C78  802B 1AD7 0232      399       CB    ALBRT,CPUTP       IS THIS A 4953 PROCESSOR
001C7E  1803                400       JNE   DLAY1             J-NO
001C80  370A                401       SRL   ONE,R7            DIVIDE BY 2
001C82  75E8                402       AW    R5,R7             THIS WILL MULTIPLY BY 1 1/2
001C84  5002                403       J     DLAY2
001C86                      404 DLAY1 EQU   *
001C86  EF21 1A84           405       MB    DELCT,R7          MULTIPLY BY THE DELAY FACTOR
001C8A                      406 DLAY2 EQU   *
001C8A  6D08 1A70           407       MVW   R5SAV,R5          RESTORE R5
001C8E  6F0D 1A56           408       MVW   R7,DLCNT          PUT THE DELAY INTO THE INSTRUCTION
001C92  6808 1814           409       MVW   STRTB,R0          ADR TO PUT THE DELAY
001C96  D228 1A6A           410       MVD   R2,R2SAV          SAVE R2 AND R3
001C9A  4224 1A4C           411       MVA   DLNST,R2          GET THE START OF THE INSTRUCTIONS
001C9E  4324 1A56           412       MVA   DLCNT,R3          DELAY COUNT
001CA2  7226                413       SW    R2,R3             COMPUTE THE DIFFERENCE
001CA4  7068                414       AW    R0,R3             ADDRESS FOR THE INSTR
001CA6  6B0D 1A4E           415       MVW   R3,DLADR          MOVE THE ADDRESS INTO THE INSTRUCTION
001CAA  0F0C                416       MVBI  TWELV,R7          NUMBER OF BYTES TO MOVE
001CAC  2A04                417       MVFN  (R2),(R0)         MOVE THE INSTRUCTIONS
001CAE  D220 1A6A           418       MVD   R2SAV,R2          RESTORE THE REGISTERS
001CB2  680D 1814           419       MVW   R0,STRTB          BUMP ADR FOR THE NEXT INSTR
001CB6  6802 1BBE           420       B     HER23
001CBA                      421 LOPND EQU   *
001CBA  C020 181F           422       MVB   LPIND,R0          WAS A LOOP STARTED
001CBE  1805                423       JNZ   LOOP1             J-YES
001CC0  4724 201E           424       MVA   NOLOP,R7          MSG-NO LOOP STARTED
001CC4  6000                425       SVC   OUT
001CC6  6802 1BBE           426       B     HER23
001CCA                      427 LOOP1 EQU   *
001CCA  4724 205E           428       MVA   LOPMG,R7          MESSAGE ADDRESS
001CCE  6001                429       SVC   OUTIN
001CD0  6D0D 1A70           430       MVW   R5,R5SAV          SAVE THE REG
001CD4  6D08 1A42           431       MVW   CNTWD,R5          GET THE DATA
001CD8  6F03 1FBC           432       BAL   DTOH,R7           GO CONVERT
001CDC  6D0D 1A44           433       MVW   R5,LPCNT
001CE0  6D08 1A70           434       MVW   R5SAV,R5          RESTORE R5
001CE4  8828 1826 1A40      435       MVW   LOOPS,LPADR       MOVE THE START ADR OF THE LOOP
001CEA  6808 1814           436       MVW   STRTB,R0          ADR TO PUT THE BRANCH INSTR
001CEE  D228 1A6A           437       MVD   R2,R2SAV          SAVE THE REGISTERS
001CF2  4224 1A36           438       MVA   CNTST,R2          INSTR START ADDRESS
001CF6  4324 1A42           439       MVA   CNTWD,R3          LOOP COUNT ADDRESS
001CFA  726A                440       SW    R2,R3             COMPUTE THE DIFFERENCE
001CFC  7068                441       AW    R0,R3             ADD TO THE STARTING ADDRESS
001CFE  6B0D 1A38           442       MVW   R3,CNTAD          PUT THE ADDRESS INTO THE INSTR
001D02  6B0D 1A4A           443       MVW   R3,RESTR+FOUR     ADR INTO THE INSTR
001D06  7B61 0002           444       AWI   TWO,R3            BUMP THE ADR
001D0A  6B0D 1A48           445       MVW   R3,RESTR+TWO      NEXT ADR INTO INSTR
001D0E  0F16                446       MVBI  TWEN2,R7          NUMBER OF BYTES TO MOVE
001D10  2A04                447       MVFN  (R2),(R0)         MOVE THE INSTRUCTIONS
001D12  680D 1A76           448       MVW   R0,LPEND          SET UP
001D16  4029 1A76 FFFA      449       AWI   M6,LPEND              LOOP END
001D1C  4724 1AC0           450       MVA   CLPEN,R7                ADDRESS
001D20  601A                451       SVC   HTOE
001D22  D220 1A6A           452       MVD   R2SAV,R2          RESTORE THE REGISTERS
001D26  680D 1814           453       MVW   R0,STRTB          UPDATE THE INSTR STREAM ADR
001D2A  6802 1BBE           454       B     HER23
001D2E                      455 LOPST EQU   *
001D2E  8828 1814 1826      456       MVW   STRTB,LOOPS       SAVE THE LOOP START ADR
001D34  4724 1ABA           457       MVA   CLPST,R7          CONTROL BLOCK
001D38  601A                458       SVC   HTOE
001D3A  8028 1828 181F      459       MVB   HEXFF,LPIND       SET THE LOOP IND
001D40  6802 1BBE           460       B     HER23
001D44                      461 WRITE EQU   *
001D44  D228 1A6A           462       MVD   R2,R2SAV           SAVE THE
001D48  6C0D 1A6E           463       MVW   R4,R4SAV           REGISTER VALUES
001D4C                      464 SIOR0 EQU   *
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001D4C  4624 1A8A         465        MVA   DCBLD,R6              ADR OF DCB CONTROL WORD
001D50  C720 1A85         466        MVB   DFALT,R7              IS THE DEFAULT TO BE USED
001D54  1878              467        JNZ   SI7                   J-YES
001D56  4724 207C         468        MVA   FREQ,R7               MSG CONTROL BLOCK
001D5A  6001              469        SVC   OUTIN
001D5C  802B 194A 1AD2    470        CB    DATIN,NO              WAS THE ANSWER NO
001D62  1016              471        JE    SIOR1                 J-YES
001D64  4E48              472        TBTS  (R6,EIGHT)            SET THE FORMS BIT
001D66  4724 2036         473        MVA   FLLMS,R7              ADR OF THE CONTROL BLOCK
001D6A  6001              474        SVC   OUTIN
001D6C  6D0D 1A70         475        MVW   R5,R5SAV              SAVE R5
001D70  6C08 1946         476        MVW   WORK1,R4              GET THE DATA
001D74  3446              477        SRLD  EIGHT,R4              POSITION THE DATA
001D76  3542              478        SRL   EIGHT,R5                    ' '
001D78  6F03 1FBC         479        BAL   DTOH,R7               GO CONVERT
001D7C  6D0D 1A8C         480        MVW   R5,FORMS              SAVE THE FORMS LENGTH
001D80  3446              481        SRLD  EIGHT,R4              POSITION THE DATA
001D82  3542              482        SRL   EIGHT,R5                    ' '
001D84  6F03 1FBC         483        BAL   DTOH,R7               GO CONVERT
001D88  C528 1A8C         484        MVB   R5,FORMS
001D8C  6D08 1A70         485        MVW   P5SAV,R5              RESTORE R5
001D90                    486 SIOR1  EQU   *
001D90  4724 20B8         487        MVA   RETRY,R7              MSG CONTROL BLOCK
001D94  6001              488        SVC   OUTIN
001D96  802B 194A 1AD2    489        CB    DATIN,NO              IS THE ANSWER NO
001D9C  1001              490        JE    SIOR3                 J-AFFIRMATIVE
001D9E  4E4F              491        TBTS  (R6,FIFTN)            T/ON THE RETRY BIT IN THE DCB
001DA0                    492 SIOR3  EQU   *
001DA0  4724 2040         493        MVA   FRMSG,R7              ADR OF THE CONTROL BLOCK
001DA4  6001              494        SVC   OUTIN
001DA6  6D0D 1A70         495        MVW   R5,R5SAV              SAVE R5
001DAA  6C08 1946         496        MVW   WORK1,R4              GET THE DATA
001DAE  3446              497        SRLD  EIGHT,R4              POSITION THE DATA
001DB0  3542              498        SRL   EIGHT,R5                    ' '
001DB2  6F03 1FBC         499        BAL   DTOH,R7               GO CONVERT
001DB6  6D0D 1A8E         500        MVW   R5,SKOVL              SAVE THE FORMS LENGTH
001DBA  3446              501        SRLD  EIGHT,R4              POSITION THE DATA
001DBC  3542              502        SRL   EIGHT,R5                    ' '
001DBE  6F03 1FBC         503        BAL   DTOH,R7               GO CONVERT
001DC2  C528 1A8E         504        MVB   R5,SKOVL
001DC6  6D08 1A70         505        MVW   R5SAV,R5              RESTORE R5
001DCA  6F08 1A72         506        MVW   R7SAV,R7              RESTORE R7
001DCE  7F06 0001         507        CWI   ONE,R7                IS THIS THE LAST COMMAND
001DD2  1010              508        JE    S5                    J-YES
001DD4  C720 1AD4         509        MVB   ASKIT,R7              HAS THE QUESTION BEEN ASKED
001DD8  180D              510        JNZ   S5                    J-YES
001DDA  8028 1828 1AD4    511        MVB   HEXFF,ASKIT           T/ON THE IND
001DE0  4724 2068         512        MVA   DCBCH,R7              CONTROL BLOCK
001DE4  6001              513        SVC   OUTIN
001DE6  802B 194A 1AD2    514        CB    DATIN,NO              WAS IT A NEGATIVE RESPONSE
001DEC  1803              515        JNE   S5                    J-NO
001DEE  8028 1828 1AD3    516        MVB   HEXFF,NOCHN           T/ON THE IND
001DF4                    517 S5     EQU   *
001DF4  C720 1AD3         518        MVB   NOCHN,R7              IS THE IND ON
001DF8  1810              519        JNZ   SIOR6                 J-YES
001DFA  4724 2072         520        MVA   CHBIT,R7              MSG CONTROL BLOCK
001DFE  6001              521        SVC   OUTIN
001E00  802B 194A 1AD2    522        CB    DATIN,NO              WAS THE ANSWER NEGATIVE
001E06  1009              523        JE    SIOR6                 J-YES
001E08  4624 1A8A         524        MVA   DCBLD,R6              ADR OF BUILD AREA
001E0C  4E40              525        TBTS  (R6,ZERO)             T/ON THE CHAIN BIT
001E0E  6E08 181A         526        MVW   DCBPT,R6              ADR OF DCB
001E12  7EC1 0010         527        AWI   SIXTN,R6              BUMP TO NEXT ADR
001E16  6E0D 1A94         528        MVW   R6,CHNAD              MOVE IN THE CHAIN ADR
001E1A                    529 SIOR6  EQU   *
001E1A  4724 204A         530        MVA   BYCTM,R7              CONTROL BLOCK
001E1E  6001              531        SVC   OUTIN
001E20  6D0D 1A70         532        MVW   R5,R5SAV              SAVE R5
001E24  6D08 1A96         533        MVW   BYCNT,R5              GET THE DATA
001E28  7DA1 FFFF         534        AWI   M1,R5                 REDUCE BY ONE
001E2C  6F03 1FBC         535        BAL   DDMTH,R7              GO CONVERT
001E30  6D0D 1A96         536        MVW   R5,BYCNT              MOVE TO CONVERT
001E34  6D08 1A70         537        MVW   R5SAV,R5              RESTORE R5
001E38  4724 20A4         538        MVA   DATRQ,R7              CONTROL BLOCK
001E3C  6001              539        SVC   OUTIN
001E3E  802B 194A 1AD2    540        CB    DATIN,NO              WAS THE ANSWER NO
001E44  103C              541        JE    SIOR7                 J-YES
001E46                    542 SI7    EQU   *
001E46  4724 0084         543        MVWI  ONE32,R7              NUMBER OF BYTES TO MOVE
001E4A  C320 1A86         544        MVB   DELT1,R3              IS THIS THE 1ST DEFAULT
001E4E  101B              545        JZ    SI7A                  J-NO
001E50  6A08 1816         546        MVW   DTENT,R2              GET THE DATA AREA
001E54  6A0D 1A98         547        MVW   R2,SDADR              PUT THE ADR IN THE DCB
001E58  7284              548        MVW   R2,R4                 SAVE R2
001E5A  C320 1AD6         549        MVB   EBCBK,R3              BLANK CHARACTER
001E5E  2B4C              550        FFN   R3,(R2)               FILL THE DATA AREA WITH BLANKS
001E60  6A0D 1816         551        MVW   R2,DTENT              SAVE THE NEW POINTER
001E64  4724 2086         552        MVA   COLNM,R7              MSG CONTROL BLOCK
001E68  6001              553        SVC   OUTIN
001E6A  6D08 1946         554        MVW   WORK1,R5              GET THE DATA TO CONVERT
001E6E  6F03 1FBC         555        BAL   DTOH,R7               GO CONVERT
001E72  4724 2090         556        MVA   SPCHR,R7              MSG CONTROL BLOCK
001E76  6001              557        SVC   OUTIN
001E78  7544              558        MVW   R5,R2                 SAVE R5
001E7A  7A42 0001         559        SWI   ONE,R2                REDUCE BY ONE
001E7E  7448              560        AW    R4,R2                 THIS IS THE COLUMN FOR THE CHAR
001E80  80A0 1946         561        MVB   WORK1,(R2)            MOVE IN THE CHARACTER
001E84  5031              562        J     SIOR8
001E86                    563 SI7A   EQU   *
001E86  C320 1A87         564        MVB   DELT2,R3              IS THE 2ND DEFAULT SELECTED
001E8A  100F              565        JZ    SI7B                  J-NO
001E8C  4724 2090         566        MVA   SPCHR,R7              ASK FOR THE CHARACTER
001E90  6001              567        SVC   OUTIN
001E92  6A08 1816         568        MVW   DTENT,R2              GET THE DATA AREA
001E96  6A0D 1A98         569        MVW   R2,SDADR              PUT THE ADR IN THE DCB
001E9A  4724 0084         570        MVWI  ONE32,R7              BYTE COUNT
001E9E  C320 1946         571        MVB   WORK1,R3              CHARACTER TO PRINT
001EA2  2B4C              572        FFN   R3,(R2)               PUT THE CHAR IN THE DATA AREA
001EA4  6A0D 1816         573        MVW   R2,DTENT              SAVE THE NEW POINTER
001EA8  501F              574        J     SIOR8
001EAA                    575 SI7B   EQU   *
001EAA  4324 198A         576        MVA   HERDT,R3              ADR OF DATA
001EAE  6A08 1816         577        MVW   DTENT,R2              DATA FIELD ADR
001EB2  6A0D 1A98         578        MVW   R2,SDADR              PUT DATA ADR IN DCB
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYFIGHT IBM CORP 1976
001EB6  2B44              579        MVFN  (R3),(R2)             MOVE THE DATA
001EB8  6A0D 1816         580        MVW   R2,DTENT              BUMP THE DATA FIELD ADR
001EBC  5015              581        J     SIOR8
001EBE                    582 SIOR7  EQU   *
001EBE  4724 209A         583        MVA   DATER,R7              CONTROL BLOCK
001EC2  6001              584        SVC   OUTIN
001EC4  4724 0084         585        MVWI  ONE32,R7              MAX NUM OF BYTES
001EC8  7744              586        MVW   R7,R2                 SAVE THE NUMBER
001ECA  4324 194A         587        MVA   DATIN,R3              ADR OF DATA
001ECE  0800              588        MVBI  ZERO,R0               END CHARACTER
001ED0  286F              589        SFEN  R0,(R3)               LOOK FOR THE END CHAR
001ED2  774A              590        SW    R7,R2                 COMPUTE THE MESSAGE LENGTH
001ED4  7284              591        MVW   R2,R7                 MAKE THE COUNT USEABLE
001ED6  4324 194A         592        MVA   DATIN,R3              ADDRESS OF THE DATA
001EDA  6A08 1816         593        MVW   DTENT,R2              DCB DATA ADDRESS
001EDE  6A0D 1A98         594        MVW   R2,SDADR              PUT THE ADDRESS IN THE DCB
001EE2  2B44              595        MVFN  (R3),(R2)             MOVE THE DATA
001EE4  6A0D 1816         596        MVW   R2,DTENT              NEW DATA POINTER
001EE8                    597 SIOR8  EQU   *
001EE8  C720 1AD5         598        MVB   CHIND,R7              IS THE IND ON
001EEC  180F              599        JNZ   S8                    J-YES
001EEE  6808 1812         600        MVW   IDCPT,R0              GET THE POINTER
001EF2  680D 1A2C         601        MVW   R0,IOADR              MOVE IN THE IDCB POINTER
001EF6  680D 1A28         602        MVW   R0,INCO1+SIX          MOVE IN THE IDCB POINTER
001EFA  8024 1A83         603        MVB   SIOCD,(R0)+           IDCB COMMAND
001EFE  8024 1A7B         604        MVB   RDADR,(R0)+           DEVICE ADDRESS
001F02  8820 181A         605        MVW   DCBPT,(R0)            ADDRESS OF DCB BUILD AREA
001F06  4029 1812 0004    606        AWI   FOUR,IDCPT            BUMP THE POINTER
001F0A                    607 S8     EQU   *
001F0C  0F10              608        MVBI  SIXTN,R7              LENGTH OF THE DCB
001F0E  6A08 181A         609        MVW   DCBPT,R2              WHERE TO PUT THE DCB
001F12  72C4              610        MVW   R2,R6                 SAVE THE POINTER
001F14  4324 1A8A         611        MVA   DCBLD,R3              ADR OF DCB JUST BUILT
001F18  4B00              612        TBT   (R3,ZERO)             IS THE CHAIN BIT ON
001F1A  1202              613        JON   S9                    J-YES
001F1C  CD25 1A94         614        MVWZ  CHNAD,R5              CLEAR THE CHAIN ADR
001F20                    615 S9     EQU   *
001F20  2B44              616        MVFN  (R3),(R2)             MOVE IN THE DCB
001F22  0F10              617        MVBI  SIXTN,R7              NUMBER OF BYTES TO CLEAR
001F24  4324 1A8A         618        MVA   DCBLD,R3              ADR OF AREA TO CLEAR
001F28  C120 1829         619        MVB   ZEROS,R1              DATA TO CLEAR WITH
001F2C  296C              620        FFN   R1,(R3)               CLEAR THE AREA
001F2E  6A0D 181A         621        MVW   R2,DCBPT              NEW POINTER
001F32  8028 1828 1AD5    622        MVB   HEXFF,CHIND           T/ON THE IND
001F38  6F08 1A72         623        MVW   R7SAV,R7              RESTORE R7
001F3C  7F06 0001         624        CWI   ONE,R7                IS THIS THE LAST OP
001F40  1003              625        JE    SIOR9                 J-YES
001F42  4E00              626        TBT   (R6,ZERO)             IS THE CHAIN BIT ON
001F44  6A00 1BBE         627        BON   HER23                 B-YES GO AGAIN
001F48                    628 SIOR9  EQU   *
001F48  C725 1AD5         629        MVBZ  CHIND,R7              CLEAR THE IND
001F4C  6808 1814         630        MVW   STRTB,R0            GET THE INSTR STREAM
001F50  0F14              631        MVBI  TWENY,R7            NUM OF BYTES IN THE INSTR STREAM
001F52  4424 1A0E         632        MVA   INCOM,R4            START ADR OF INSTR STREAM
001F56  2C04              633        MVFN  (R4),(R0)           MOVE THE INSTRUCTIONS
001F58  0F0C              634        MVBI  TWELV,R7            NUM OF BYTES IN THE INSTR STREAM
001F5A  4424 1A5C         635        MVA   ERTST,R4            START ADR OF INSTR STREAM
001F5E  2C04              636        MVFN  (R4),(R0)           MOVE THE INSTRUCTIONS
001F60  0F0C              637        MVBI  TWELV,R7            NUM OF BYTES IN THE INSTR STREAM
001F62  4424 1A22         638        MVA   INCO1,R4            START ADR OF INSTR STREAM
001F66  2C04              639        MVFN  (R4),(R0)           MOVE THF INSTRUCTIONS
001F68  70E4              640        MVW   R0,R7               SAVE R0
001F6A  7FE1 0008         641        AWI   CCDCP,R7            COMPUTE A NEW ADDRESS
001F6E  6F0D 1A30         642        MVW   R7,CCCHK+TWO        INSERT NEW ADDRESS
001F72  4724 1A2E         643        MVA   CCCHK,R7            ADDRESS OF DATA TO MOVE
001F76  9714              644        MVD   (R7)+,(R0)+         MOVE THE INSTR'S
001F78  9714              645        MVD   (R7)+,(R0)+
001F7A  680D 1814         646        MVW   R0,STRTB            BUMP THE POINTER FOR THE NEXT INSTR
001F7E  6802 1BBE         647        B     HER23
001F82                    648 DFLT1  EQU   *
001F82  8028 1828 1A85    649        MVB   HEXFF,DFALT         IND DEFAULT IS TO BE USED
001F88  8026 1828 1A86    650        MVB   HEXFF,DELT1         IND DEFAULT 1 IS TO BE USED
001F8E  8028 1A89 1906    651        MVB   DVALU,UBUFR         PUT THE VALUE IN THE BUFFER
001F94  0F01              652        MVBI  ONE,R7              IND TWO COMMANDS
001F96  6802 1B58         653        B     HER12
001F9A                    654 DFLT2  EQU   *
001F9A  8028 1828 1A85    655        MVB   HEXFF,DFALT         IND DEFAULT IS TO BE USED
001FA0  8028 1828 1A87    656        MVB   HEXFF,DELT2         IND DEFAULT 2 IS TO BE USED
001FA6  8028 1A89 1906    657        MVB   DVALU,UBUFR         PUT THE VALUE IN THE BUFFER
001FAC  0F01              658        MVBI  ONE,R7              IND TWO COMMANDS
001FAE  6802 1B58         659        B     HER12
001FB2                    660 NGOOD  EQU   *
001FB2  4724 20CA         661        MVA   INCMD,R7            ADR OF INVALID COMMAND MSG
001FB6  6000              662        SVC   OUT                 OUTPUT THE MESSAGE
001FB8  6802 1B86         663        B     HER20
001FBC                    664 DTOH   EQU   *
001FBC  6F0D 1FF0         665        MVW   R7,RTRTN
001FC0  6C0D 1FF2         666        MVW   R4,DHSAV            SAVE R4
001FC4  748A              667        SW    R4,R4               CLEAR THE REG
001FC6  3425              668        SLLD  FOUR,R4             MOVE THOUSAND INTO R4
001FC8  EC25 1FEC         669        MW    THOUS,R4            MULTIPLY THOUSANDS
001FCC  3522              670        SRL   FOUR,R5             POSITION THE HUNS,TENS
001FCE  3546              671        SRLD  EIGHT,R5            MOVE TENS AND UNITS INTO R6
001FD0  ED21 1FEE         672        MB    HUN,R5              MULTIPLY HUNDREDS
001FD4  74A8              673        AW    R4,R5               ADD THOUS AND HUNS
001FD6  3642              674        SRL   EIGHT,R6
001FD8  3626              675        SRLD  FOUR,R6             MOVE UNITS INTO R7
001FDA  3762              676        SRL   TWELV,R7            POSITION THE UNITS
001FDC  77A8              677        AW    R7,R5               ADD UNITS TO THOUS AND HUNS
001FDE  ED21 1FEF         678        MB    TENS,R6             MULTIPLY TENS
001FE2  76A8              679        AW    R6,R5               GET THE GRAND TOTAL
001FE4  6C08 1FF2         680        MVW   DHSAV,R4            RESTORE R4
001FE8  6812 1FF0         681        B     RTRTN*
001FEC  03E8              682 THOUS  DC    A(1000)
001FEE  64                683 HUN    DC    H'100'
001FEF  0A                684 TENS   DC    H'10'
001FF0  0000              685 RTRTN  DC    A(*-*)
001FF2  0000              686 DHSAV  DC    A(*-*)
001FF4  0080              687        DC    X'0080'
001FF6  20CE              688 MG8    DC    A(M8)
001FF8  0080              689        DC    X'0080'
001FFA  216C              690        DC    A(M11)
001FFC  0080              691        DC    X'0080'
001FFE  219A              692        DC    A(M12)
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LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT
002000 0080                693        DC    X'0080'
002002 20EE                694        DC    A(M9)
002004 0080                695        DC    X'0080'
002006 2104                696        DC    A(M9A)
002008 0080                697        DC    X'0080'
00200A 211C                698        DC    A(M9B)
00200C 0080                699        DC    X'0080'
00200E 212A                700        DC    A(M9C)
002010 0080                701        DC    X'0080'
002012 2136                702        DC    A(M9D)
002014 0080                703        DC    X'0080'
002016 2102                704        DC    A(M9E)
002018 0080                705        DC    X'0080'
00201A 2152                706        DC    A(M9F)
00201C 00C0                707        DC    X'00C0'
00201E 2226                708 NOLOP  DC    A(NLOOP)
002020 00C0                709        DC    X'00C0'
002022 2160                710 HMG2   DC    A(M10)
002024 1906                711        DC    A(UBUFR)
002026 0040                712        DC    A(64)
002028 0001                713        DC    A(1)
00202A 00C0                714        DC    X'00C0'
00202C 2202                715 DLMSG  DC    A(DMSGL)
00202E 1946                716        DC    A(WORK1)
002030 0002                717        DC    A(2)
002032 0001                718        DC    A(1)
002034 00C0                719        DC    X'00C0'
002036 22A2                720 FLLMS  DC    A(FMSG)
002038 1946                721        DC    A(WORK1)
00203A 0002                722        DC    A(2)
00203C 0001                723        DC    A(1)
00203E 00C0                724        DC    X'00C0'
002040 22C4                725 FRMSG  DC    A(FRMG1)
002042 1946                726        DC    A(WORK1)
002044 0002                727        DC    A(2)
002046 0001                728        DC    A(1)
002048 00C0                729        DC    X'00C0'
00204A 22E6                730 BYCTM  DC    A(BYTEC)
00204C 1A96                731        DC    A(BYCNT)
00204E 0002                732        DC    A(2)
002050 0001                733        DC    A(1)
002052 00C0                734        DC    X'00C0'
002054 21EC                735 PRMSG  DC    A(PMSGR)
002056 1946                736        DC    A(WORK1)
002058 0002                737        DC    A(2)
00205A 0001                738        DC    A(1)
00205C 00C0                739        DC    X'00C0'
00205E 2280                740 LOPMG  DC    A(LPMSG)
002060 1A42                741        DC    A(CNTWD)
002062 0002                742        DC    A(2)
002064 0001                743        DC    A(1)
002066 00C0                744        DC    X'00C0'
002068 2314                745 DCBCH  DC    A(DCBC1)
00206A 194A                746        DC    A(DATIN)
00206C 0001                747        DC    A(1)
00206E 0000                748        DC    A(0)
002070 00C0                749        DC    X'00C0'
002072 22F4                750 CHBIT  DC    A(CHBT)
002074 194A                751        DC    A(DATIN)
002076 0001                752        DC    A(1)
002078 0000                753        DC    A(0)
00207A 00C0                754        DC    X'00C0'
00207C 2332                755 FREQ   DC    A(FREQ1)
00207E 194A                756        DC    A(DATIN)
002080 0001                757        DC    A(1)
002082 0000                758        DC    A(0)
002084 00C0                759        DC    X'00C0'
002086 23CA                760 COLNM  DC    A(COLMN)
002088 1946                761        DC    A(WORK1)
00208A 0002                762        DC    A(2)
00208C 0001                763        DC    A(1)
00208E 00C0                764        DC    X'00C0'
002090 23F8                765 SPCHR  DC    A(SPECR)
002092 1946                766        DC    A(WORK1)
002094 0001                767        DC    A(1)
002096 0000                768        DC    A(0)
002098 00C0                769        DC    X'00C0'
00209A 2246                770 DATER  DC    A(DTINN)
00209C 194A                771        DC    A(DATIN)
00209E 0040                772        DC    A(64)
0020A0 0000                773        DC    A(0)
0020A2 00C0                774        DC    X'00C0'
0020A4 2250                775 DATRQ  DC    A(DINNT)
0020A6 194A                776        DC    A(DATIN)
0020A8 0001                777        DC    A(1)
0020AA 0000                778        DC    A(0)
0020AC 00C0                779        DC    X'00C0'
0020AE 2398                780 IDMSG  DC    A(IDMG1)
0020B0 1A68                781        DC    A(WORKA)
0020B2 0001                782        DC    A(1)
0020B4 0000                783        DC    A(0)
0020B6 00C0                784        DC    X'00C0'
0020B8 234E                785 RETRY  DC    A(RETR1)
0020BA 194A                786        DC    A(DATIN)
0020BC 0001                787        DC    A(1)
0020BE 0000                788        DC    A(0)
0020C0 0080                789        DC    X'0080'
0020C2 236A                790 LPSTM  DC    A(LPST)
0020C4 0080                791        DC    X'0080'
0020C6 2382                792 LPENM  DC    A(LPEN)
0020C8 00C0                793        DC    X'00C0'
0020CA 21CC                794 INCMD  DC    A(INCMG)
0020CC 0000                795        DC    A(0)
0020CE E2C5D3C5C3E340C3D   796 M8     DC    C'SELECT COMMAND(S)  FOR DA '
0020E7 404040              797 M8A    DC    C'   '
0020EA 00                  798        DC    X'00'
0020EC 0000                799        DC    A(0)
0020EE F0F340D7D9C5D7C1D   800 M9     DC    C'03 PREPARE I BIT ON'
002101 00                  801        DC    X'00'
002102 0000                802        DC    A(0)
002104 F0F440D7D9C5D7C1D   803 M9A    DC    C'04 PREPARE I BIT OFF'
002118 00                  804        DC    X'00'
00211A 0000                805        DC    A(0)
00211C F0F540D9C5C1C440C   806 M9B    DC    C'05 READ ID'
```



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LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT
002126 00                  807        DC    X'00'
002128 0000                808        DC    A(0)
00212A F0F640D9C5E2C5E3    809 M9C    DC    C'06 RESET'
002132 00                  810        DC    X'00'
002134 0000                811        DC    A(0)
002136 F0F740C4C5D3C1E8    812 M9D    DC    C'07 DELAY'
00213E 00                  813        DC    X'00'
002140 0000                814        DC    A(0)
002142 F0F840D3D6D6D740E   815 M9E    DC    C'08 LOOP START'
00214F 00                  816        DC    X'00'
002150 0000                817        DC    A(0)
002152 F0F940D3D6D6D740C   818 M9F    DC    C'09 LOOP END'
00215D 00                  819        DC    X'00'
00215E 3482                820        DC    A(CD2)
002160 F0C140E6D9C9E3C5    821 M10    DC    C'0A WRITE'
002168 00                  822        DC    X'00'
00216A 0000                823        DC    A(0)
00216C F0F140C4C5C6C1E4D   824 M11    DC    C'01 DEFAULT=PRINT A CHARACTER IN ONE COLUMN'
002196 00                  825        DC    X'00'
002198 0000                826        DC    A(0)
00219A F0F240C4C5C6C1E4D   827 M12    DC    C'02 DEFAULT=PRINT ONE CHARACTER IN EVERY COLUMN'
0021C8 00                  828        DC    X'00'
0021CA 349B                829        DC    A(CD1B)
0021CC E6D9D6D5C740C9C4C   830 INCMG  DC    C'WRONG IDCB COMMAND,START OVER'
0021E9 00                  831        DC    X'00'
0021EA 34A2                832        DC    A(CD22)
0021EC D3C5E5C5D340E3D64   833 PMSGR  DC    C'LEVEL TO INTERRUPT'
0021FE 00                  834        DC    X'00'
002200 34A3                835        DC    A(CD23)
002202 D3C5D5C7E3C840D6C   836 DMSGL  DC    C'LENGTH OF DELAY(IN MILLISECONDS)'
002222 00                  837        DC    X'00'
002224 34A6                838        DC    A(CD26)
002226 D3D6D6D740D5D6E34   839 NLOOP  DC    C'LOOP NOT STARTED(START OVER)'
002242 00                  840        DC    X'00'
002244 34A4                841        DC    A(CD24)
002246 C4C1E3C140C9E2      842 DTINN  DC    C'DATA IS'
00224D 00                  843        DC    X'00'
00224E 34A1                844        DC    A(CD21)
002250 C4D640E8D6E440E6C   845 DINNT  DC    C'DO YOU WANT TO USE THE STANDARD DATA PATTERN?'
00227D 00                  846        DC    X'00'
00227E 34A7                847        DC    A(CD27)
002280 C8D6E640D4C1D5E84   848 LPMSG  DC    C'HOW MANY TIMES THROUGH THE LOOP'
00229F 00                  849        DC    X'00'
0022A0 34B0                850        DC    A(CD30)
0022A2 C6D6D9D4E240D3C5D   851 FLMSG  DC    C'FORMS LENGTH AND OVERFLOW LINE'
0022C0 00                  852        DC    X'00'
0022C2 34B1                853        DC    A(CD31)
0022C4 E2D2C9D740D4D6C4C   854 FRMG1  DC    C'SKIP MODIFIER OR SPACE MODIFIER'
0022E3 00                  855        DC    X'00'
0022E4 34A5                856        DC    A(CD25)
0022E6 C2E8E3C540C3D6E4D   857 BYTEC  DC    C'BYTE COUNT'
0022F0 00                  858        DC    X'00'
0022F2 34AF                859        DC    A(CD2F)
0022F4 C4D640E8D6E440E6C   860 CHBT   DC    C'DO YOU WANT THIS DCB CHAINED?'
002311 00                  861        DC    X'00'
002312 34BC                862        DC    A(CD3C)
002314 E6C9D3D340C1D5E84   863 DCBC1  DC    C'WILL ANY DCB''S BE CHAINED?'
00232E 00                  864        DC    X'00'
002330 34B2                865        DC    A(CD32)
002332 C9E240C6D6D9D4E24   866 FREQ1  DC    C'IS FORMS CONTROL NEEDED?'
00234A 00                  867        DC    X'00'
00234C 34B3                868        DC    A(CD33)
00234E C9E240E3C8C540D9C   869 RETR1  DC    C'IS THE RETRY BIT NEEDED?'
002366 00                  870        DC    X'00'
002368 0000                871        DC    A(0)
00236A D3D6D6D740E2E3C1D   872 LPST   DC    C'LOOP STARTED AT '
00237A F0F0F0F0            873 LPST1  DC    C'0000'
00237E 00                  874        DC    X'00'
002380 0000                875        DC    A(0)
002382 D3D6D6D740C5D5C4C   876 LPEN   DC    C'LOOP ENDED AT '
002390 F0F0F0F0            877 LPEN1  DC    C'0000'
002394 00                  878        DC    X'00'
002396 34A0                879        DC    A(CD20)
002398 D9C5C1C440C9C440C   880 IDMG1  DC    C'READ ID EXPECTED '
0023A9 E7E7E7E740C9C440E   881 IDMG2  DC    C'XXXX ID WAS '
0023B5 E7E7E7E740C9E240E   882 IDMG3  DC    C'XXXX IS THIS O.K.?'
0023C7 00                  883        DC    X'00'
0023C8 34BD                884        DC    A(CD3D)
0023CA E6C8C9C3C840C3D6D   885 COLMN  DC    C'WHICH COLUMN IS THE CHARACTER TO BE PRINTED'
0023F5 00                  886        DC    X'00'
0023F6 34BE                887        DC    A(CD3E)
0023F8 E6C8C9C3C840C3C8C   888 SPECR  DC    C'WHICH CHARACTER'
002407 00                  889        DC    X'00'
000000                     890        END
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R0.     ABSOLUTE. HEX VALUE(00000000)
                   156  157  162  163  164  271  272  273  312
                   316  321  322  323  327  328  329  340  349
                   350  351  354  364  366  368  369  373  374
                   375  379  380  381  381  384  387  389  390
                   390  409  414  417  419  422  436  441  447
                   448  453  588  589  600  601  602  603  604
                   605  605  630  633  636  639  640  644  645
                   646
       0  .R1.     ABSOLUTE. HEX VALUE(00000001)
                   264  265  266  267  268  268  269  270  270
                   337  338  339  339  619  620
       0  .R2.     ABSOLUTE. HEX VALUE(00000002)
                   301  306  311  332  410  411  413  417  418
                   437  438  440  447  452  462  546  547  548
                   550  551  558  559  560  561  568  569  572
                   573  577  578  579  580  586  590  591  593
                   594  595  596  609  610  616  621
       0  .R3.     ABSOLUTE. HEX VALUE(00000003)
                   155  160  300  303  334  412  413  414  415
                   439  440  441  442  443  444  445  544  549
                   550  564  571  572  576  579  587  589  592
                   595  611  612  616  618  620
       0  .R4.     ABSOLUTE. HEX VALUE(00000004)
                   277  282  303  305  308  310  311  313  313
                   313  313  314  320  321  463  476  477  481
                   496  497  501  548  560  632  633  635  636
                   638  639  666  667  667  668  669  673  680
       0  .R5.     ABSOLUTE. HEX VALUE(00000005)
                   274  285  350  380  389  395  396  398  402
                   407  430  431  433  434  475  478  480  482
                   484  485  495  498  500  502  504  505  532
                   533  534  536  537  554  558  614  670  671
                   672  673  677  679
       0  .R6.     ABSOLUTE. HEX VALUE(00000006)
                   465  472  491  524  525  526  527  528  610
                   626  674  675  678  679
       0  .R7.     ABSOLUTE. HEX VALUE(00000007)
                   161  168  180  182  188  189  191  263  275
                   278  281  283  289  291  293  307  319  323
                   324  325  326  327  328  333  335  342  344
                   351  352  357  359  360  361  362  363  369
                   370  371  372  373  374  393  397  398  401
                   402  405  408  416  424  428  432  446  450
                   457  466  468  473  479  483  487  493  499
                   503  506  507  509  512  518  520  530  535
                   538  543  552  555  556  566  570  583  585
                   586  590  591  598  608  617  623  624  629
                   631  634  637  640  641  642  643  644  645
                   652  658  661  665  676  677
     260  ALBRT    ADDRESS. HEX LOCATION(00001AD7) IN CSECT(064E8   ) LENGTH(1)
                   399
     257  ASKIT    ADDRESS. HEX LOCATION(00001AD4) IN CSECT(064E8   ) LENGTH(1)
                   509  511
      84  BADCC    ABSOLUTE. HEX VALUE(0000181C)
                   168
     224  BYCNT    ADDRESS. HEX LOCATION(00001A96) IN CSECT(064E8   ) LENGTH(2)
                   533  536  731
     730  BYCTM    ADDRESS. HEX LOCATION(0000204A) IN CSECT(064E8   ) LENGTH(2)
                   530
     857  BYTEC    ADDRESS. HEX LOCATION(000022E6) IN CSECT(064E8   ) LENGTH(10)
                   730
     167  CCCHK    ADDRESS. HEX LOCATION(00001A2E) IN CSECT(064E8   ) LENGTH(4)
                   170  325  326  371  372  642  643
     170  CCDCP    ABSOLUTE. HEX VALUE(00000008)
                   324  370  641
      54  CD1B     ABSOLUTE. HEX VALUE(0000349B)
                   829
      53  CD2      ABSOLUTE. HEX VALUE(00003482)
                   820
      63  CD2F     ABSOLUTE. HEX VALUE(000034AF)
                   859
      55  CD20     ABSOLUTE. HEX VALUE(000034A0)
                   879
      56  CD21     ABSOLUTE. HEX VALUE(000034A1)
                   844
      57  CD22     ABSOLUTE. HEX VALUE(000034A2)
                   832
      58  CD23     ABSOLUTE. HEX VALUE(000034A3)
                   835
      59  CD24     ABSOLUTE. HEX VALUE(000034A4)
                   841
      60  CD25     ABSOLUTE. HEX VALUE(000034A5)
                   856
      61  CD26     ABSOLUTE. HEX VALUE(000034A6)
                   838
      62  CD27     ABSOLUTE. HEX VALUE(000034A7)
                   847
      68  CD3C     ABSOLUTE. HEX VALUE(000034BC)
                   862
      69  CD3D     ABSOLUTE. HEX VALUE(000034BD)
                   884
      70  CD3E     ABSOLUTE. HEX VALUE(000034BE)
                   887
      64  CD30     ABSOLUTE. HEX VALUE(000034B0)
                   850
      65  CD31     ABSOLUTE. HEX VALUE(000034B1)
                   853
      66  CD32     ABSOLUTE. HEX VALUE(000034B2)
                   865
      67  CD33     ABSOLUTE. HEX VALUE(000034B3)
                   868
     750  CHBIT    ADDRESS. HEX LOCATION(00002072) IN CSECT(064E8   ) LENGTH(2)
                   520
     860  CHBT     ADDRESS. HEX LOCATION(000022F4) IN CSECT(064E8   ) LENGTH(29)
                   750
     258  CHIND    ADDRESS. HEX LOCATION(00001AD5) IN CSECT(064E8   ) LENGTH(1)
                   598  622  629
     223  CHNAD    ADDRESS. HEX LOCATION(00001A94) IN CSECT(064E8   ) LENGTH(2)
                   528  614
     246  CLPEN    ADDRESS. HEX LOCATION(00001AC0) IN CSECT(064E8   ) LENGTH(2)
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
                   450
     243  CLPST    ADDRESS. HEX LOCATION(00001ABA) IN CSECT(064E8   ) LENGTH(2)
                   457
     176  CNTAD    ADDRESS. HEX LOCATION(00001A38) IN CSECT(064E8   ) LENGTH(1)
                   442
     171  CNTST    ADDRESS. HEX LOCATION(00001A36) IN CSECT(064E8   ) LENGTH(6)
                   176  177  438
     174  CNTWD    ADDRESS. HEX LOCATION(00001A42) IN CSECT(064E8   ) LENGTH(2)
                   171  178  431  439  741
     885  COLMN    ADDRESS. HEX LOCATION(000023CA) IN CSECT(064E8   ) LENGTH(43)
                   760
     760  COLNM    ADDRESS. HEX LOCATION(00002086) IN CSECT(064E8   ) LENGTH(2)
                   552
     388  COMCD    ADDRESS. HEX LOCATION(00001C5C) IN CSECT(064E8   ) LENGTH(1)
                   385
      77  CPUTP    ABSOLUTE. HEX VALUE(00000232)
                   399
     240  CVADR    ADDRESS. HEX LOCATION(00001AB4) IN CSECT(064E8   ) LENGTH(2)
                   275
     241  CVAD1    ADDRESS. HEX LOCATION(00001AB6) IN CSECT(064E8   ) LENGTH(2)
                   274
     252  CVEXP    ADDRESS. HEX LOCATION(00001ACC) IN CSECT(064E8   ) LENGTH(2)
                   291
     249  CVRID    ADDRESS. HEX LOCATION(00001AC6) IN CSECT(064E8   ) LENGTH(2)
                   289
     770  DATER    ADDRESS. HEX LOCATION(0000209A) IN CSECT(064E8   ) LENGTH(2)
                   583
     141  DATIN    ADDRESS. HEX LOCATION(0000194A) IN CSECT(064E8   ) LENGTH(2)
                   470  489  514  522  540  587  592  746  751
                   756  771  776  786
     775  DATRQ    ADDRESS. HEX LOCATION(000020A4) IN CSECT(064E8   ) LENGTH(2)
                   538
     745  DCBCH    ADDRESS. HEX LOCATION(00002068) IN CSECT(064E8   ) LENGTH(2)
                   512
     863  DCBC1    ADDRESS. HEX LOCATION(00002314) IN CSECT(064E8   ) LENGTH(26)
                   745
     218  DCBLD    ADDRESS. HEX LOCATION(00001A8A) IN CSECT(064E8   ) LENGTH(2)
                   465  524  611  618
      83  DCBPT    ABSOLUTE. HEX VALUE(0000181A)
                   526  605  609  621
     392  DELAY    ADDRESS. HEX LOCATION(00001C64) IN CSECT(064E8   ) LENGTH(1)
                   233
     211  DELCT    ADDRESS. HEX LOCATION(00001A84) IN CSECT(064E8   ) LENGTH(1)
                   405
     213  DELT1    ADDRESS. HEX LOCATION(00001A86) IN CSECT(064E8   ) LENGTH(1)
                   544  650
     214  DELT2    ADDRESS. HEX LOCATION(00001A87) IN CSECT(064E8   ) LENGTH(1)
                   564  656
      94  DEVC1    ABSOLUTE. HEX VALUE(0000182E)
                   156  241
     212  DFALT    ADDRESS. HEX LOCATION(00001A85) IN CSECT(064E8   ) LENGTH(1)
                   352  466  649  655
     648  DFLT1    ADDRESS. HEX LOCATION(00001F82) IN CSECT(064E8   ) LENGTH(1)
                   227
     654  DFLT2    ADDRESS. HEX LOCATION(00001F9A) IN CSECT(064E8   ) LENGTH(1)
                   228
     686  DHSAV    ADDRESS. HEX LOCATION(00001FF2) IN CSECT(064E8   ) LENGTH(2)
                   666  680
     845  DINNT    ADDRESS. HEX LOCATION(00002250) IN CSECT(064E8   ) LENGTH(45)
                   775
     184  DLADR    ADDRESS. HEX LOCATION(00001A4E) IN CSECT(064E8   ) LENGTH(1)
                   415
     404  DLAY1    ADDRESS. HEX LOCATION(00001C86) IN CSECT(064E8   ) LENGTH(1)
                   400
     406  DLAY2    ADDRESS. HEX LOCATION(00001C8A) IN CSECT(064E8   ) LENGTH(1)
                   403
     185  DLCNT    ADDRESS. HEX LOCATION(00001A56) IN CSECT(064E8   ) LENGTH(2)
                   180  408  412
     181  DLIST    ADDRESS. HEX LOCATION(00001A50) IN CSECT(064E8   ) LENGTH(2)
                   182
     715  DLMSG    ADDRESS. HEX LOCATION(0000202C) IN CSECT(064E8   ) LENGTH(2)
                   393
     180  DLNST    ADDRESS. HEX LOCATION(00001A4C) IN CSECT(064E8   ) LENGTH(4)
                   184  411
     836  DMSGL    ADDRESS. HEX LOCATION(00002202) IN CSECT(064E8   ) LENGTH(32)
                   715
     202  DTCSS    ADDRESS. HEX LOCATION(00001A78) IN CSECT(064E8   ) LENGTH(2)
                   268
      81  DTENT    ABSOLUTE. HEX VALUE(00001816)
                   546  551  568  573  577  580  593  596
     842  DTINN    ADDRESS. HEX LOCATION(00002246) IN CSECT(064E8   ) LENGTH(7)
                   770
     664  DTOH     ADDRESS. HEX LOCATION(00001FBC) IN CSECT(064E8   ) LENGTH(1)
                   397  432  479  483  499  503  535  555
     216  DVALU    ADDRESS. HEX LOCATION(00001A89) IN CSECT(064E8   ) LENGTH(1)
                   651  657
      93  DVPNT    ABSOLUTE. HEX VALUE(0000182C)
                   264  337
     259  EBCBK    ADDRESS. HEX LOCATION(00001AD6) IN CSECT(064E8   ) LENGTH(1)
                   549
     105  EIGHT    ABSOLUTE. HEX VALUE(00000008)
                   472  477  478  481  482  497  498  501  502
                   671  674
      95  EPRNT    ABSOLUTE. HEX VALUE(00001830)
                   191
     188  ERTST    ADDRESS. HEX LOCATION(00001A5C) IN CSECT(064E8   ) LENGTH(4)
                   635
     192  ERTS1    ADDRESS. HEX LOCATION(00001A68) IN CSECT(064E8   ) LENGTH(1)
                   190
     112  FIFTN    ABSOLUTE. HEX VALUE(0000000F)
                   491
     215  FIVDF    ADDRESS. HEX LOCATION(00001A88) IN CSECT(064E8   ) LENGTH(1)
                   354
     102  FIVE     ABSOLUTE. HEX VALUE(00000005)
                   163
     720  FLLMS    ADDRESS. HEX LOCATION(00002036) IN CSECT(064E8   ) LENGTH(2)
                   473
     851  FLMSG    ADDRESS. HEX LOCATION(000022A2) IN CSECT(064E8   ) LENGTH(30)
                   720
     219  FORMS    ADDRESS. HEX LOCATION(00001A8C) IN CSECT(064E8   ) LENGTH(2)
                   480  484
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
     101  FOUR       ABSOLUTE. HEX VALUE(00000004)
                     177   183   281   330   376   443   606   668   670
                     675
     755  FREQ       ADDRESS. HEX LOCATION(0000207C) IN CSECT(064E8   ) LENGTH(2)
                     468
     866  FREQ1      ADDRESS. HEX LOCATION(00002332) IN CSECT(064E8   ) LENGTH(24)
                     755
     854  FRMG1      ADDRESS. HEX LOCATION(000022C4) IN CSECT(064E8   ) LENGTH(31)
                     725
     725  FRMSG      ADDRESS. HEX LOCATION(00002040) IN CSECT(064E8   ) LENGTH(2)
                     493
     169  GODCC      ADDRESS. HEX LOCATION(00001A36) IN CSECT(064E8   ) LENGTH(1)
                     167   170
     226  HERBL      ADDRESS. HEX LOCATION(00001A9A) IN CSECT(064E8   ) LENGTH(1)
                     301
     142  HERDT      ADDRESS. HEX LOCATION(0000198A) IN CSECT(064E8   ) LENGTH(54)
                     576
     206  HERID      ADDRESS. HEX LOCATION(00001A7E) IN CSECT(064E8   ) LENGTH(2)
                     253   287
     262  HER00      ADDRESS. HEX LOCATION(00001AD8) IN CSECT(064E8   ) LENGTH(1)
                     138
     279  HER10      ADDRESS. HEX LOCATION(00001B16) IN CSECT(064E8   ) LENGTH(1)
                     282
     299  HER12      ADDRESS. HEX LOCATION(00001B58) IN CSECT(064E8   ) LENGTH(1)
                     288   296   653   659
     302  HER15      ADDRESS. HEX LOCATION(00001B60) IN CSECT(064E8   ) LENGTH(1)
                     335
     315  HER20      ADDRESS. HEX LOCATION(00001B86) IN CSECT(064E8   ) LENGTH(1)
                     391   663
     331  HER23      ADDRESS. HEX LOCATION(00001BBE) IN CSECT(064E8   ) LENGTH(1)
                     377   420   426   454   460   627   647
     336  HER25      ADDRESS. HEX LOCATION(00001BCC) IN CSECT(064E8   ) LENGTH(1)
                     304
     346  HER26      ADDRESS. HEX LOCATION(00001BEA) IN CSECT(064E8   ) LENGTH(1)
                     341
      90  HEXFF      ABSOLUTE. HEX VALUE(00001828)
                     459   511   516   622   649   650   655   656
     710  HMG2       ADDRESS. HEX LOCATION(00002022) IN CSECT(064E8   ) LENGTH(2)
                     283
      45  HTOE       ABSOLUTE. HEX VALUE(0000001A)
                     276   290   292   451   458
     683  HUN        ADDRESS. HEX LOCATION(00001FEE) IN CSECT(064E8   ) LENGTH(1)
                     672
      79  IDCPT      ABSOLUTE. HEX VALUE(00001812)
                     312   317   318   330   367   376   600   606
      44  IDLE       ABSOLUTE. HEX VALUE(00000002)
                     159   181
     880  IDMG1      ADDRESS. HEX LOCATION(00002398) IN CSECT(064E8   ) LENGTH(17)
                     780
     881  IDMG2      ADDRESS. HEX LOCATION(000023A9) IN CSECT(064E8   ) LENGTH(12)
                     254
     882  IDMG3      ADDRESS. HEX LOCATION(000023B5) IN CSECT(064E8   ) LENGTH(18)
                     251
     780  IDMSG      ADDRESS. HEX LOCATION(000020AE) IN CSECT(064E8   ) LENGTH(2)
                     293
     794  INCMD      ADDRESS. HEX LOCATION(000020CA) IN CSECT(064E8   ) LENGTH(2)
                     661
     830  INCMG      ADDRESS. HEX LOCATION(000021CC) IN CSECT(064E8   ) LENGTH(29)
                     794
     156  INCOA      ADDRESS. HEX LOCATION(00001A12) IN CSECT(064E8   ) LENGTH(4)
                     160   266
     155  INCOM      ADDRESS. HEX LOCATION(00001A0E) IN CSECT(064E8   ) LENGTH(4)
                     320   632
     162  INCO1      ADDRESS. HEX LOCATION(00001A22) IN CSECT(064E8   ) LENGTH(2)
                     158   318   602   638
     135  INERR      ABSOLUTE. HEX VALUE(00000002)
                     189
     166  IOADR      ADDRESS. HEX LOCATION(00001A2C) IN CSECT(064E8   ) LENGTH(1)
                     164   317   367   601
     165  IONST      ADDRESS. HEX LOCATION(00001A2A) IN CSECT(064E8   ) LENGTH(4)
                     166   322   368
     186  JINST      ADDRESS. HEX LOCATION(00001A58) IN CSECT(064E8   ) LENGTH(2)
                     272
      89  LOOPS      ABSOLUTE. HEX VALUE(00001826)
                     244   435   456
     427  LOOP1      ADDRESS. HEX LOCATION(00001CCA) IN CSECT(064E8   ) LENGTH(1)
                     423
     740  LOPMG      ADDRESS. HEX LOCATION(0000205E) IN CSECT(064E8   ) LENGTH(2)
                     428
     421  LOPND      ADDRESS. HEX LOCATION(00001CBA) IN CSECT(064E8   ) LENGTH(1)
                     235
     455  LOPST      ADDRESS. HEX LOCATION(00001D2E) IN CSECT(064E8   ) LENGTH(1)
                     234
      96  LOST       ABSOLUTE. HEX VALUE(00001832)
                     161
     179  LPADR      ADDRESS. HEX LOCATION(00001A40) IN CSECT(064E8   ) LENGTH(1)
                     435
     175  LPCNT      ADDRESS. HEX LOCATION(00001A44) IN CSECT(064E8   ) LENGTH(2)
                     178   433
     876  LPEN       ADDRESS. HEX LOCATION(00002382) IN CSECT(064E8   ) LENGTH(14)
                     792
     201  LPEND      ADDRESS. HEX LOCATION(00001A76) IN CSECT(064E8   ) LENGTH(2)
                     247   448   449
     792  LPENM      ADDRESS. HEX LOCATION(000020C6) IN CSECT(064E8   ) LENGTH(2)
                     344
     877  LPEN1      ADDRESS. HEX LOCATION(00002390) IN CSECT(064E8   ) LENGTH(4)
                     248
      86  LPIND      ABSOLUTE. HEX VALUE(0000181F)
                     340   422   459
     848  LPMSG      ADDRESS. HEX LOCATION(00002280) IN CSECT(064E8   ) LENGTH(31)
                     740
     173  LPNST      ADDRESS. HEX LOCATION(00001A3E) IN CSECT(064E8   ) LENGTH(4)
                     179
     872  LPST       ADDRESS. HEX LOCATION(0000236A) IN CSECT(064E8   ) LENGTH(16)
                     790
     790  LPSTM      ADDRESS. HEX LOCATION(000020C2) IN CSECT(064E8   ) LENGTH(2)
                     342
     873  LPST1      ADDRESS. HEX LOCATION(0000237A) IN CSECT(064E8   ) LENGTH(4)
                     245
     688  MG8        ADDRESS. HEX LOCATION(00001FF6) IN CSECT(064E8   ) LENGTH(2)
                     278
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
     132  M1         ABSOLUTE. HEX VALUE(FFFFFFFF)
                     171   534
     821  M10        ADDRESS. HEX LOCATION(00002160) IN CSECT(064E8   ) LENGTH(8)
                     710
     824  M11        ADDRESS. HEX LOCATION(0000216C) IN CSECT(064E8   ) LENGTH(42)
                     690
     827  M12        ADDRESS. HEX LOCATION(0000219A) IN CSECT(064E8   ) LENGTH(46)
                     692
     133  M4         ABSOLUTE. HEX VALUE(FFFFFFFC)
                     297
     134  M6         ABSOLUTE. HEX VALUE(FFFFFFFA)
                     449
     796  M8         ADDRESS. HEX LOCATION(000020CE) IN CSECT(064E8   ) LENGTH(25)
                     688
     797  M8A        ADDRESS. HEX LOCATION(000020E7) IN CSECT(064E8   ) LENGTH(3)
                     242
     800  M9         ADDRESS. HEX LOCATION(000020EE) IN CSECT(064E8   ) LENGTH(19)
                     694
     803  M9A        ADDRESS. HEX LOCATION(00002104) IN CSECT(064E8   ) LENGTH(20)
                     696
     806  M9B        ADDRESS. HEX LOCATION(0000211C) IN CSECT(064E8   ) LENGTH(10)
                     698
     809  M9C        ADDRESS. HEX LOCATION(0000212A) IN CSECT(064E8   ) LENGTH(8)
                     700
     812  M9D        ADDRESS. HEX LOCATION(00002136) IN CSECT(064E8   ) LENGTH(8)
                     702
     815  M9E        ADDRESS. HEX LOCATION(00002142) IN CSECT(064E8   ) LENGTH(13)
                     704
     818  M9F        ADDRESS. HEX LOCATION(00002152) IN CSECT(064E8   ) LENGTH(11)
                     706
     660  NGOOD      ADDRESS. HEX LOCATION(00001FB2) IN CSECT(064E8   ) LENGTH(1)
                     309
     106  NINE       ABSOLUTE. HEX VALUE(00000009)
                     308   360
     839  NLOOP      ADDRESS. HEX LOCATION(00002226) IN CSECT(064E8   ) LENGTH(28)
                     708
     255  NO         ADDRESS. HEX LOCATION(00001AD2) IN CSECT(064E8   ) LENGTH(1)
                     295   470   489   514   522   540
     256  NOCHN      ADDRESS. HEX LOCATION(00001AD3) IN CSECT(064E8   ) LENGTH(1)
                     516   518
     708  NOLOP      ADDRESS. HEX LOCATION(0000201E) IN CSECT(064E8   ) LENGTH(2)
                     424
      98  ONE        ABSOLUTE. HEX VALUE(00000001)
                     265   267   305   310   334   401   507   559   624
                     652   658
     128  ONE32      ABSOLUTE. HEX VALUE(00000084)
                     543   570   585
      78  OPTN2      ABSOLUTE. HEX VALUE(00001810)
                     188
      42  OUT        ABSOLUTE. HEX VALUE(00000000)
                     280   343   345   425   662
      43  OUTIN      ABSOLUTE. HEX VALUE(00000001)
                     284   294   358   394   429   469   474   488   494
                     513   521   531   539   553   557   567   584
       3  064E8      CSECT. START(00001900) LENGTH(2824) ESDID(0)
                       3
     833  PMSGR      ADDRESS. HEX LOCATION(000021EC) IN CSECT(064E8   ) LENGTH(18)
                     735
     356  PREPA      ADDRESS. HEX LOCATION(00001C02) IN CSECT(064E8   ) LENGTH(1)
                     353
     365  PREPB      ADDRESS. HEX LOCATION(00001C1C) IN CSECT(064E8   ) LENGTH(1)
                     355   382
     348  PREPR      ADDRESS. HEX LOCATION(00001BEE) IN CSECT(064E8   ) LENGTH(1)
                     229
     735  PRMSG      ADDRESS. HEX LOCATION(00002054) IN CSECT(064E8   ) LENGTH(2)
                     357
     207  PRPCD      ADDRESS. HEX LOCATION(00001A80) IN CSECT(064E8   ) LENGTH(1)
                     349   379
     204  RDADR      ADDRESS. HEX LOCATION(00001A7B) IN CSECT(064E8   ) LENGTH(1)
                     285   604
     205  RDCOD      ADDRESS. HEX LOCATION(00001A7C) IN CSECT(064E8   ) LENGTH(2)
                     250   287
     203  RDID       ADDRESS. HEX LOCATION(00001A7A) IN CSECT(064E8   ) LENGTH(1)
                     286
     383  REDID      ADDRESS. HEX LOCATION(00001C52) IN CSECT(064E8   ) LENGTH(1)
                     231
     386  RESET      ADDRESS. HEX LOCATION(00001C58) IN CSECT(064E8   ) LENGTH(1)
                     232
     178  RESTR      ADDRESS. HEX LOCATION(00001A46) IN CSECT(064E8   ) LENGTH(6)
                     443   445
     785  RETRY      ADDRESS. HEX LOCATION(000020B8) IN CSECT(064E8   ) LENGTH(2)
                     487
     869  RETR1      ADDRESS. HEX LOCATION(0000234E) IN CSECT(064E8   ) LENGTH(24)
                     785
     200  RETSV      ADDRESS. HEX LOCATION(00001A74) IN CSECT(064E8   ) LENGTH(2)
                     263   298   347
     208  RIDCD      ADDRESS. HEX LOCATION(00001A81) IN CSECT(064E8   ) LENGTH(1)
                     384
     209  RSTCD      ADDRESS. HEX LOCATION(00001A82) IN CSECT(064E8   ) LENGTH(1)
                     387
     685  RTRTN      ADDRESS. HEX LOCATION(00001FF0) IN CSECT(064E8   ) LENGTH(2)
                     665   681
     195  R2SAV      ADDRESS. HEX LOCATION(00001A6A) IN CSECT(064E8   ) LENGTH(2)
                     306   332   410   418   437   452   462
     197  R4SAV      ADDRESS. HEX LOCATION(00001A6E) IN CSECT(064E8   ) LENGTH(2)
                     463
     198  R5SAV      ADDRESS. HEX LOCATION(00001A70) IN CSECT(064E8   ) LENGTH(2)
                     395   407   430   434   475   485   495   505   532
                     537
     199  R7SAV      ADDRESS. HEX LOCATION(00001A72) IN CSECT(064E8   ) LENGTH(2)
                     307   333   506   623
     225  SDADR      ADDRESS. HEX LOCATION(00001A98) IN CSECT(064E8   ) LENGTH(2)
                     547   569   578   594
     104  SEVEN      ABSOLUTE. HEX VALUE(00000007)
                     167   363
     210  SIOCD      ADDRESS. HEX LOCATION(00001A83) IN CSECT(064E8   ) LENGTH(1)
                     603
     486  SIOR1      ADDRESS. HEX LOCATION(00001D90) IN CSECT(064E8   ) LENGTH(1)
                     471
     492  SIOR3      ADDRESS. HEX LOCATION(00001DA0) IN CSECT(064E8   ) LENGTH(1)
                     490
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CROSS-REFERENCE LISTING

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DECLARED  NAME     ATTRIBUTES AND REFERENCES
   529    SIOR6      ADDRESS. HEX LOCATION(00001E1A) IN CSECT(064E8   ) LENGTH(1)
                     519   523
   582    SIOR7      ADDRESS. HEX LOCATION(00001EBE) IN CSECT(064E8   ) LENGTH(1)
                     541
   597    SIOR8      ADDRESS. HEX LOCATION(00001EE8) IN CSECT(064E8   ) LENGTH(1)
                     562   574   581
   628    SIOR9      ADDRESS. HEX LOCATION(00001F48) IN CSECT(064E8   ) LENGTH(1)
                     625
   103    SIX        ABSOLUTE. HEX VALUE(00000006)
                     318   602
   113    SIXTN      ABSOLUTE. HEX VALUE(00000010)
                     527   608   617
   542    SI7        ADDRESS. HEX LOCATION(00001E46) IN CSECT(064E8   ) LENGTH(1)
                     467
   563    SI7A       ADDRESS. HEX LOCATION(00001E86) IN CSECT(064E8   ) LENGTH(1)
                     545
   575    SI7B       ADDRESS. HEX LOCATION(00001EAA) IN CSECT(064E8   ) LENGTH(1)
                     565
   220    SKOVL      ADDRESS. HEX LOCATION(00001A8E) IN CSECT(064E8   ) LENGTH(2)
                     500   504
   765    SPCHR      ADDRESS. HEX LOCATION(00002090) IN CSECT(064E8   ) LENGTH(2)
                     556   566
   888    SPECR      ADDRESS. HEX LOCATION(000023F8) IN CSECT(064E8   ) LENGTH(15)
                     765
   131    STH68      ABSOLUTE. HEX VALUE(00001C00)
                     155
    80    STRTB      ABSOLUTE. HEX VALUE(00001814)
                     270   271   273   297   316   329   339   366   375
                     409   419   436   453   456   630   646
   517    S5         ADDRESS. HEX LOCATION(00001DF4) IN CSECT(064E8   ) LENGTH(1)
                     508   510   515
   607    S8         ADDRESS. HEX LOCATION(00001F0C) IN CSECT(064E8   ) LENGTH(1)
                     599
   615    S9         ADDRESS. HEX LOCATION(00001F20) IN CSECT(064E8   ) LENGTH(1)
                     613
   107    TEN        ABSOLUTE. HEX VALUE(0000000A)
                     172   277
   684    TENS       ADDRESS. HEX LOCATION(00001FEF) IN CSECT(064E8   ) LENGTH(1)
                     678
   682    THOUS      ADDRESS. HEX LOCATION(00001FEC) IN CSECT(064E8   ) LENGTH(2)
                     669
   109    TWELV      ABSOLUTE. HEX VALUE(0000000C)
                     338   416   634   637   676
   115    TWENY      ABSOLUTE. HEX VALUE(00000014)
                     319   631
   116    TWEN2      ABSOLUTE. HEX VALUE(00000016)
                     446
    99    TWO        ABSOLUTE. HEX VALUE(00000002)
                     166   176   179   184   186   187   266   269   325
                     371   444   445   642
   139    UBUFR      ADDRESS. HEX LOCATION(00001906) IN CSECT(064E8   ) LENGTH(2)
                     300   651   657   711
   378    UNPRP      ADDRESS. HEX LOCATION(00001C48) IN CSECT(064E8   ) LENGTH(1)
                     230
   194    WORKA      ADDRESS. HEX LOCATION(00001A68) IN CSECT(064E8   ) LENGTH(2)
                     295   781
   140    WORK1      ADDRESS. HEX LOCATION(00001946) IN CSECT(064E8   ) LENGTH(2)
                     359   361   362   364   396   476   496   554   561
                     571   716   721   726   736   761   766
   461    WRITE      ADDRESS. HEX LOCATION(00001D44) IN CSECT(064E8   ) LENGTH(1)
                     236
    97    ZERO       ABSOLUTE. HEX VALUE(00000000)
                     157   162   525   588   612   626
    91    ZEROS      ABSOLUTE. HEX VALUE(00001829)
                     619
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
001900                       3 068E8 START X'1900'
                             4 ********************************************************************************
                             5 *                                                                              *
                             6 *                    ***       PREREQUISITES        ***                        *
                             7 *                                                                              *
                             8 *                              NONE                                            *
                             9 *                                                                              *
                            10 ********************************************************************************
                            11 *                                                                              *
                            12 *                    ***       MODIFICATIONS        ***                        *
                            13 *                                                                              *
                            14 *                    1. INCLUDE 8 LINES PER INCH.                              *
                            15 *                                                                              *
                            16 ********************************************************************************
                            17 *                                                                              *
                            18 *                    ***     REA'S INCORPORATED     ***                        *
                            19 *                                                                              *
                            20 *                              NONE                                            *
                            21 *                                                                              *
                            22 ********************************************************************************
                            23 *                                                                              *
                            24 *                    ***    SPECIAL INSTRUCTIONS    ***                        *
                            25 *                                                                              *
                            26 *                              NONE                                            *
                            27 *                                                                              *
                            28 ********************************************************************************
                            29 *                                                                              *
                            30 *                    ***       E. C. HISTORY        ***                        *
                            31 *                                                                              *
                            32 *        DATE 06MAY77  DATE 15SEP77  DATE 09DEC77  DATE                        *
                            33 *        E.C. 578756   E.C. 754882   E.C. 755104   E.C.                         *
                            34 *                                                                              *
                            35 ********************************************************************************
                            37 ********************************************************************************
                            38 *                                                                              *
                            39 *     EQUATED NAMES FOR SUPPORTED SVC'S                                        *
                            40 *                                                                              *
                            41 ********************************************************************************
000000                      42 OUT    EQU   0                    OUT SVC
000001                      43 OUTIN  EQU   1                    OUTIN SVC
000002                      44 IDLE   EQU   2                    IDLE SVC
00001A                      45 HTOE   EQU   26                   HEX TO EBCDIC
                            47 ********************************************************************************
                            48 *                                                                              *
                            49 *     EQUATES FOR CODED STOPS USED BY THIS UTILITY MONITOR                     *
                            50 *          (NORMAL AND ERROR)                                                  *
                            51 *                                                                              *
                            52 ********************************************************************************
003486                      53 CD6    EQU   X'3486'              COMMANDS FOR 4973
00349B                      54 CD1B   EQU   X'349B'              INVALID COMMAND
0034A0                      55 CD20   EQU   X'34A0'              READ I.D. MISMATCH
0034A1                      56 CD21   EQU   X'34A1'              STANDARD DATA PATTERN TO BE USED
0034A2                      57 CD22   EQU   X'34A2'              LEVEL TO INTERRUPT
0034A3                      58 CD23   EQU   X'34A3'              LENGTH OF DELAY
0034A4                      59 CD24   EQU   X'34A4'              DATA TO BE USED FOR THIS TEST
0034A5                      60 CD25   EQU   X'34A5'              BYTE COUNT
0034A6                      61 CD26   EQU   X'34A6'              LOOP NOT STARTED
0034A7                      62 CD27   EQU   X'34A7'              NUMBER OF TIMES THRU LOOP
0034AF                      63 CD2F   EQU   X'34AF'              IS THIS DCB TO BE CHAINED
0034B0                      64 CD30   EQU   X'34B0'              FORMS LENGTH AND OVERFLOW LINE
0034E1                      65 CD31   EQU   X'34B1'              SKIP AND SPACE MODIFIER
0034B2                      66 CD32   EQU   X'34B2'              IS FORMS CONTROL NEEDED
0034B3                      67 CD33   EQU   X'34B3'              IS THE RETRY BIT NEEDED
0034BC                      68 CD3C   EQU   X'34BC'              DCB CHAINING
0034BD                      69 CD3D   EQU   X'34BD'              COLUMN
0034BE                      70 CD3E   EQU   X'34BE'              CHARACTER
0034CC                      71 CD3F   EQU   X'34CC'              8 LINES PER INCH
                            73 ********************************************************************************
                            74 *                                                                              *
                            75 *     EQUATE TABLE                                                             *
                            76 *                                                                              *
                            77 ********************************************************************************
000232                      78 CPUTP  EQU   X'0232'              CPU TYPE
001810                      79 OPTN2  EQU   X'1810'              OPTION WORD 2 ADR
001812                      80 IDCPT  EQU   X'1812'              POINTER TO IDCB BUILD AREA
001814                      81 STRTB  EQU   X'1814'              POINTER TO I STREAM BUILD AREA
001816                      82 DTENT  EQU   X'1816'              POINTER TO DATA BUILD AREA
001818                      83 DVCNT  EQU   X'1818'              POINTER TO DEVICE UNDER TEST
00181A                      84 DCBPT  EQU   X'181A'              POINTER TO DCB BUILD AREA
00181C                      85 BADCC  EQU   X'181C'              POINTER TO BAD CODE ROUTINE
00181E                      86 KMODE  EQU   X'181E'              POINTER TO DEVICE KEYING IN
00181F                      87 LFIND  EQU   X'181F'              LOOP INDICATOR
001820                      88 KEYMD  EQU   X'1820'              ADDRESS OF DEVICES KEYING
001824                      89 KYMOD  EQU   X'1824'              INDICATOR A DEVICE IS KEYING IN
001826                      90 LOOPS  EQU   X'1826'              ADDRESS OF LOOP START
001828                      91 HEXFF  EQU   X'1828'
001829                      92 ZEROS  EQU   X'1829'
00182A                      93 NUMDV  EQU   X'182A'
00182C                      94 DVPNT  EQU   X'182C'
00182E                      95 DEVC1  EQU   X'182E'
001830                      96 EPRNT  EQU   X'1830'
001832                      97 LCST   EQU   X'1832'
000000                      98 ZERO   EQU   0                    VALUE OF 0
000001                      99 ONE    EQU   1                           1
000002                     100 TWO    EQU   2                           2
000003                     101 THREE  EQU   3                           3
000004                     102 FOUR   EQU   4                           4
000005                     103 FIVE   EQU   5                           5
000006                     104 SIX    EQU   6                           6
000007                     105 SEVEN  EQU   7                           7
000008                     106 EIGHT  EQU   8                           8
000009                     107 NINE   EQU   9                           9
00000A                     108 TEN    EQU   10                          10
00000B                     109 ELEVN  EQU   11                          11
00000C                     110 TWELV  EQU   12                          12
00000D                     111 THFTN  EQU   13                          13
00000E                     112 FOFTN  EQU   14                          14
00000F                     113 FIFTN  EQU   15                          15
000010                     114 SIXTN  EQU   16                          16
000012                     115 EIGTN  EQU   18                          18
000014                     116 TWENY  EQU   20                          20
000016                     117 TWEN2  EQU   22                          22
00001A                     118 TWEN6  EQU   26                          26
00001B                     119 TWEN7  EQU   27                          27
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                COPYRIGHT IBM CORP 1976
00001C                     120 TWEN8  EQU   28                          28
000020                     121 THIR6  EQU   32                          32
000028                     122 FORTY  EQU   40                          40
00003C                     123 SIXTY  EQU   60                          60
00003F                     124 SIXT3  EQU   63                          63
000040                     125 SIXT4  EQU   64                          64
00007F                     126 ONE27  EQU   127                         127
000080                     127 ONE28  EQU   128                         128
000084                     128 ONE32  EQU   132                         132
000100                     129 TWO56  EQU   256                         256
000400                     130 OTH24  EQU   1024                        1024
001C00                     131 STH68  EQU   7168                        7168
FFFFFF                     132 M1     EQU   -1                          -1
FFFFFC                     133 M4     EQU   -4                          -4
FFFFFA                     134 M6     EQU   -6                          -6
000002                     135 INERR  EQU   2
001900 68E8                137 PID    DC    X'68E8'              PROGRAM IDENTIFIER
001902 6802 1ADA           138 OVLST  B     BIT00                BRANCH TO START OF OVERLAY
001906 00000000000000000000139 UBUFR  DC    32A(*-*)
001946 00000000            140 WORK1  DC    2A(*-*)
00194A 00000000000000000000141 DATIN  DC    32A(*-*)
001968 C1C2C3C4C5C6C7C8C   142 BITDT  DC    C'ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890-=¬;'',./|@#$%¢£&*()'
0019C0 6D4B5A7A404C6E6F4   143        DC    C' .+!: <>?  '
0019CF C1C2C3C4C5C6C7C8C   144        DC    C'ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890-=¬;'',./|@#$%¢£&*()'
001A05 6D4B5A7A404C6E6F    145        DC    C' .+!: <>?'
001A0D 00                  146        DC    X'00'
                           148 ********************************************************************************
                           149 *                                                                              *
                           150 *     THE FOLLOWING INSTRUCTIONS WILL BE MODIFIED FOR TESTING.                 *
                           151 *     CARE SHOULD BE TAKEN TO ENSURE THE INSTRUCTIONS MAINTAIN                 *
                           152 *     THE SAME RELATIVE POSITION IN THE INSTRUCTION STREAM.                    *
                           153 *                                                                              *
                           154 ********************************************************************************
001A0E 4324 1C00           155 INCOM  MVWI  STH68,R3
001A12 4024 182E           156 INCOA  MVWI  DEVC1,R0
001A16 4800                157        TBT   (R0,ZERO)
001A18 1004                158        JZ    INCO1
001A1A 6002                159        SVC   IDLE
001A1C BBFA                160        JCT   INCOA,R3
001A1E 6F13 1832           161        BAL   IOST*,R7
001A22 4840                162 INCO1  TBTS  (R0,ZERO)
001A24 0005                163        ABI   FIVE,R0
001A26 4000 1A2C           164        MVA   IOADR,(R0)
001A2A 680C 1A2A           165 IONST  IO    *
001A2C                     166 IOADR  EQU   IONST+TWO
001A2E 6F04 1A36           167 CCCHK  BCC   SEVEN,GODCC
001A32 6F13 181C           168        BAL   BADCC*,R7
001A36                     169 GODCC  EQU   *
000008                     170 CCDCP  EQU   GODCC-CCCHK
001A36 4029 1A42 FFFF      171 CNTST  AWI   M1,CNTWD
001A3C 1004                172        JZ    *+TEN
001A3E 6802 1A3E           173 LPNST  B     *
001A42 0000                174 CNTWD  DC    A(*-*)
001A44 0000                175 IPCNT  DC    A(*-*)
001A38                     176 CNTAD  EQU   CNTST+TWO
001A3A                     177 JBNST  EQU   CNTST+FOUR
001A46 8828 1A44 1A42      178 RESTR  MVW   IPCNT,CNTWD
001A40                     179 LPADR  EQU   LPNST+TWO
001A4C 6F08 1A56           180 DLNST  MVW   DLCNT,R7
001A50 6002                181 DIIST  SVC   IDLE
001A52 BFFE                182        JCT   DLIST,R7
001A54 5001                183        J     **+FOUR
001A4E                     184 DLADR  EQU   DLNST+TWO
001A56 0000                185 DICNT  DC    A(*-*)
001A58 5000                186 JINST  J     *+TWO
001A5A 5000                187        J     *+TWO
001A5C 4724 1810           188 ERTST  MVWI  OPTN2,R7
001A60 4F02                189        TBT   (R7,INERR)
001A62 1002                190        JZ    ERTS1
001A64 6F13 1830           191        BAL   EPRNT*,R7
001A68                     192 ERTS1  EQU   *
001A68 0000                194 WORKA  DC    A(*-*)
001A6A 0000                195 R2SAV  DC    A(*-*)
001A6C 0000                196 R3SAV  DC    A(*-*)
001A6E 0000                197 R4SAV  DC    A(*-*)
001A70 0000                198 R5SAV  DC    A(*-*)
001A72 0000                199 R6SAV  DC    A(*-*)
001A74 0000                200 R7SAV  DC    A(*-*)
001A76 0000                201 RETSV  DC    A(*-*)
001A78 0000                202 IPEND  DC    A(*-*)
001A7A 680E                203 DICSS  DC    X'680E'
001A7C 20                  204 RDID   DC    X'20'
001A7D 00                  205 RDADR  DC    X'00'
001A7E 0000                206 RDCOD  DC    X'0000'
001A80 0306                207 BITID  DC    X'0306'
001A82 60                  208 PRPCD  DC    X'60'
001A83 20                  209 RIDCD  DC    X'20'
001A84 6F                  210 RSTCD  DC    X'6F'
001A85 70                  211 SIOCD  DC    X'70'
001A86 05                  212 DELCT  DC    X'05'
001A87 00                  213 DFALT  DC    X'00'
001A88 05                  214 FIVDF  DC    X'05'
001A89 00                  215 DELT1  DC    X'00'
001A8A 00                  216 DELT2  DC    X'00'
001A8B 0A                  217 DVALU  DC    X'0A'
                           218        ALIGN WORD
001A8C 0081                219 DCBLD  DC    X'0081'
001A8E 4200                220 FORMS  DC    X'4200'
001A90 0001                221 SKCVL  DC    X'0001'
001A92 0000                222 NOUSE  DC    X'0000'
001A94 0000                223 DIADR  DC    X'0000'
001A96 0000                224 CHNAD  DC    X'0000'
001A98 0084                225 BYCNT  DC    X'0084'
001A9A 0000                226 SDADR  DC    A(*-*)
001A9C                     227 BITBL  EQU   *
001A9C 1F88                228        DC    A(DFLT1)
001A9E 1FA0                229        DC    A(DFLT2)
001AA0 1C04                230        DC    A(PREPR)
001AA2 1C5E                231        DC    A(UNPRP)
001AA4 1C68                232        DC    A(REDID)
001AA6 1C6E                233        DC    A(RESET)
001AA8 1C7A                234        DC    A(DELAY)
001AAA 1D44                235        DC    A(LOPST)
001AAC 1CD0                236        DC    A(LOFND)
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 LOCTR  OBJECT TEXT          STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001AAE  1D5A                  237         DC    A(WRITE)
001AB0  0000                  238 AECVT   DC    A(*-*)
001AB2  0000                  239 AETCV   DC    A(*-*)
001AB4  0000                  240 AECTV   DC    A(*-*)
001AB6  0001                  241 CVADR   DC    A(1)
001AB8  1AB8                  242 CVAD1   DC    A(*)
001ABA  2103                  243 CVAD2   DC    A(X8A)
001ABC  0002                  244 CLFST   DC    A(2)
001ABE  1826                  245         DC    A(LOOPS)
001AC0  23AC                  246         DC    A(LPST1)
001AC2  0002                  247 CLFEN   DC    A(2)
001AC4  1A78                  248         DC    A(LPEND)
001AC6  23C2                  249         DC    A(LPEN1)
001AC8  0002                  250 CVRID   DC    A(2)
001ACA  1A7E                  251         DC    A(RDCOD)
001ACC  23E7                  252         DC    A(IDMG3)
001ACE  0002                  253 CVEXP   DC A(2)
001AD0  1A80                  254         DC    A(BITID)
001AD2  23DB                  255         DC    A(IDMG2)
001AD4  D5                    256 NO      DC    C'N'
001AD5  00                    257 NOCHN   DC    X'00'
001AD6  00                    258 ASKIT   DC    X'00'
001AD7  00                    259 CHIND   DC    X'00'
001AD8  40                    260 EBCBK   DC    C' '
001AD9  23                    261 ALBRT   DC    X'23'
                              262         ALIGN WORD
001ADA                        263 BIT00   EQU   *
001ADA  6F0D 1A76             264         MVW   R7,RETSV          SAVE THE RETURN ADDRESS
001ADE  6908 182C             265         MVW   DVENT,R1          DEVICE PARAMETERS UNDER TEST
001AE2  7921 0001             266         AWI   CNE,R1            BUMP POINTER
001AE6  690D 1A14             267         MVW   R1,INCCA+TWO      PUT IN THE INSTR STREAM
001AEA  7921 0001             268         AWI   ONE,R1            BUMP ADDRESS
001AEE  8860 1A7A             269         MVW   DTCSS,(R1)        ENTER DEVICE TYPE
001AF2  7921 0002             270         AWI   TWO,R1            BUMP POINTER
001AF6  8860 1814             271         MVW   STRTB,(R1)        START ADR FOR THIS TEST
001AFA  6808 1814             272         MVW   STRTB,R0          SET R0
001AFE  9024 1A58             273         MVD   JINST,(R0)+       MOVE IN DUMMY INSTR'S
001B02  680D 1814             274         MVW   R0,STRTB          SAVE THE INSTR STREAM POINTER
001B06  6D0D 1AB8             275         MVW   R5,CVAD1          PREPARE TO CONVEPT
001B0A  4724 1AB6             276         MVA   CVADR,R7          CONTROL BLOCK ADDRESS
001B0E  601A                  277         SVC   HTOE              GO CONVERT
001B10  4424 000A             278         MVWI  TEN,R4            NUMBER OF MESSAGES TO PRINT
001B14  4724 2004             279         MVA   MG8,R7            ADR OF FIRST MESSAGE
001B18                        280 BIT10   EQU   *
001B18  6000                  281         SVC   OUT               SVC TO PRINT THE MESSAGES
001B1A  7FE1 0004             282         AWI   FCUR,R7           BUMP POINTER TO THE NEXT MESSAGE
001B1E  BCFC                  283         JCT   BIT10,R4          OUTPUT THEM ALL
001B20  4724 2034             284         MVA   VMG2,R7           DUMMY SVC TO GET DATA
001B24  6001                  285         SVC   OUTIN             ISSUE THE OUTIN
001B26  8508 1A7D             286         MVB   (R5),RDADR        PUT THE DEVICE ADR IN READ I.D.
001B2A  680C 1A7C             287         IO    PDID              DO A READ I.D.
001B2E  882B 1A7E 1A80        288         CW    RDCCD,BITID       IS IT O.K.
001B34  1016                  289         JE    BIT12             J-YES
001B36  6F0D 1A74             290         MVW   R7,R7SAV          SAVE R7
001B3A  4724 1AC8             291         MVA   CVRID,R7          CONVERT CONTROL BLOCK
001B3E  601A                  292         SVC   HTOE
001B40  4724 1ACE             293         MVA   CVEXP,R7          CONVEPT CONTROL BLOCK
001B44  601A                  294         SVC   HTOE
001B46  4724 20C0             295         MVA   IDMSG,R7          ADR OF MSG
001B4A  6001                  296         SVC   OUTIN
001B4C  6F08 1A74             297         MVW   R7SAV,R7          RESTORE R7
001B50  802B 1A68 1AD4        298         CB    WORKA,NO          WAS THE ANSWER NO
001B56  1805                  299         JNE   BIT12             J-NO
001B58  4029 1814 FFFC        300         AWI   M4,STRTB          RESTORE POINTER
001B5E  6812 1A76             301         B     RETSV*            RETURN TO SENDER
001B62                        302 BIT12   EQU   *
001B62  4324 1906             303         MVA   UBUFF,R3          INPUT DATA
001B66  4224 1A9C             304         MVA   BITBL,R2          ADR OF BP TAELF
001B6A                        305 BIT15   EQU   *
001B6A  C4C0                  306         MVB   (R3),R4           GET THE COMMAND
001B6C  103A                  307         JZ    BIT25             END
001B6E  7C82 0001             308         SWI   ONE,R4            REDUCE BY ONE
001B72  D228 1A6A             309         MVD   R2,R2SAV          SAVE THE REGISTEP
001B76  6F0D 1A74             310         MVW   R7,R7SAV          SAVE THE REGISTER
001B7A  7C06 0009             311         CWI   NINE,R4           IS IT A VALID COMMAND
001B7E  6D01 1FB8             312         BGT   NGOOD             J-NO--TOO HIGH
001B82  3409                  313         SLI   CNE,R4           DOUBLE FOR DISPL INTO COMMAND TABLE
001B84  7288                  314         AW    R2,R4             GET THE COMMAND PROCESSOR ADDRESS
001B86  6808 1812             315         MVW   IDCPT,R0          ADR TO PUT THE IDCB
001B8A  6C88 0000             316         MVW   (R4),R4           GET THE ADDPESS IN THE TABLE
001B8E  5400                  317         BXS   (R4)              GO COMPLETE THE IDCP
001B90                        318 BIT20   EQU   *
001B90  6808 1814             319         MVW   STRTB,R0          ADR TO PUT OIO INSTP
001B94  8828 1812 1A2C        320         MVW   IDCPT,IOADR       ADR OF THE IDCB
001B9A  8828 1812 1A28        321         MVW   IDCPT,INCO1+SIX   ADR OF THE IDCB
001BA0  0F14                  322         MVBI  TWENY,R7          NUM OF BYTES IN THE INSTR STPEAM
001BA2  4424 1A0E             323         MVA   INCOM,R4          START ADR OF INSTR STREAM
001BA6  2C04                  324         MVFN  (R4),(R0)         MOVE THE INSTRUCTIONS
001BA8  9024 1A2A             325         MVD   IONST,(P0)+       MOVE THE INSTPUCTION
001BAC  70E4                  326         MVW   R0,R7             SAVE R0
001BAE  7FE1 0008             327         AWI   CCDCP,R7          COMPUTE A NEW ADDPESS
001BB2  6F0D 1A30             328         MVW   R7,CCCHK+TWO      INSEPT NEW ADDPESS
001BB6  4724 1A2E             329         MVA   CCCHK,R7          ADDRESS OF DATA TO MOVE
001BBA  9714                  330         MVD   (R7)+,(P0)+       MOVE THE INSTP'S
001BBC  9714                  331         MVD   (R7)+,(R0)+
001BBE  680D 1814             332         MVW   R0,STRTB          BUMP THE INSTP ADR
001BC2  4029 1812 0004        333         AWI   FOUP,IDCPT        BUMP THE IDCP ADR POINTEP
001BC8                        334 BIT23   EQU   *
001BC8  0F10                  335         MVBI  SIXTN,R7          BYTECOUNT
001BCA  4224 0000             336         MVWI  ZERO,R2           FILL CHAPACTEP
001BCE  4324 1A8C             337         MVA   LCBLD,R3          APEA TO CLEAR
001BD2  2A6C                  338         FFN   R2,(R3)           CLEAR
001BD4  D220 1A6A             339         MVD   R2SAV,R2          RESTOPE P2
001BD8  6F08 1A74             340         MVW   R7SAV,R7          RESTOPE R7
001BDC  7B61 0001             341         AWI   CNE,R3            BUMP INPUT POINTER
001BE0  BFC4                  342         JCT   BIT15,R7          GO SET UP FOP NEXT COMMAND
001BE2                        343 BIT25   EQU   *
001BE2  6908 182C             344         MVW   DVENT,R1          DEVICE PARAMETERS UNDER TEST
001BE6  7921 000C             345         AWI   TWELV,R1          BUMP THE POINTEP
001BEA  8860 1814             346         MVW   STRTB,(R1)        SAVE THE END ADR
001BEE  C025 181F             347         MVBZ  LPIND,R0          WAS A LOOP STAPTED
001BF2  1006                  348         JZ    BIT26             J-NO
001BF4  4724 20DE             349         MVA   LFSTM,R7          MSG ADR
001BF8  6000                  350         SVC   OUT
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 LOCTR  OBJECT TEXT          STMT SOURCE STATEMENT                    COPYRIGHT IPM CORP 1976
001BFA  4724 20E2             351         MVA   LFENM,R7           MSG ADP
001BFE  6000                  352         SVC   OUT
001C00                        353 BIT26   EQU   *
001C00  6812 1A76             354         B     RETSV*            RETURN TO FRIEND
001C04                        355 PREPR   EQU   *
001C04  8024 1A82             356         MVB   PRPCD,(R0)+       MOVE THE COMMAND TO THE IDCE ADP
001C08  8504                  357         MVB   (R5),(P0)+        MOVE THE DEVICE ADP TO THE IDCB
001C0A  C715                  358         MVBZ  (P0)+,R7          CLEAR THE BYTE
001C0C  C720 1A87             359         MVB   DPALT,R7          IS THE DEFAULT TO BE USED
001C10  1003                  360         JZ    PREPA             J-NO
001C12  8020 1A88             361         MVB   FIVDF,(R0)        MOVE IN THE DEFAULT VALUE
001C16  500D                  362         J     PREPE
001C18                        363 PREPA   EQU   *
001C18  4724 2066             364         MVA   PPMSG,R7          MSG ASKING FOR PPEP LEVEL
001C1C  6001                  365         SVC   OUTIN
001C1E  6F08 1946             366         MVW   WORK1,R7          GET THE DATA INPUT
001C22  3749                  367         SLL   NINE,R7           POSITION THE LEVEL
001C24  6F0D 1946             368         MVW   R7,WORK1          PUT IT BACK IN THE WORK AREA
001C28  4724 1946             369         MVA   WORK1,R7          ADR OF DATA
001C2C  4F47                  370         TBTS  (R7,SEVEN)        SET THE I BIT
001C2E  8020 1946             371         MVB   WORK1,(P0)        MOVE LEVEL & I BIT INTO IDCB
001C32                        372 PREPE   EQU   *
001C32  6808 1814             373         MVW   STRTE,R0          ADR TO PUT OIO INSTP
001C36  8828 1812 1A2C        374         MVW   IDCPT,IOADR       ADR OF THE IDCP
001C3C  9024 1A2A             375         MVD   IONST,(P0)+       MOVE THE I/O INSTP
001C40  70E4                  376         MVW   R0,R7             SAVE P0
001C42  7FE1 0008             377         AWI   CCDCF,R7          COMPUTE A NEW ADDRESS
001C46  6F0D 1A30             378         MVW   R7,CCCHK+TWO      INSEPT NEW ADDPESS
001C4A  4724 1A2E             379         MVA   CCCHK,R7          ADDRESS OF DATA TO MOVE
001C4E  9714                  380         MVD   (R7)+,(R0)+       MOVE THE INSTP'S
001C50  9714                  381         MVD   (R7)+,(R0)+
001C52  680D 1814             382         MVW   R0,STRTB          BUMP THE INSTP ADP
001C56  4029 1812 0004        383         AWI   FCUR,IDCPT        BUMP THE IDCE ADP POINTEP
001C5C  50B5                  384         J     BIT23
001C5E                        385 UNPRF   EQU   *
001C5E  8024 1A82             386         MVB   PRPCD,(R0)+       IDCB COMMAND
001C62  8504                  387         MVB   (R5),(R0)+        ENTER THE DEVICE ADDPESS
001C64  C805                  388         MVWZ  (P0),R0           CLEAR THE DATA APEA
001C66  50E5                  389         J     PREPE             GO FINISH THE IDCB
001C68                        390 REDID   EQU   *
001C68  8024 1A83             391         MVB   RIDCD,(R0)+       READ ID IDCE COMMAND
001C6C  5002                  392         J     COMCD             GO FINISH THE IDCB
001C6E                        393 RESET   EQU   *
001C6E  8024 1A84             394         MVB   FSTCD,(R0)+       RESET IDCB COMMAND
001C72                        395 COMCD   EQU   *
001C72  8504                  396         MVB   (R5),(R0)+        ENTER THE DEVICE ADDPESS
001C74  C805                  397         MVWZ  (P0),R0           CLEAP THE DATA APEA
001C76  6802 1B90             398         B     BIT20
001C7A                        399 DELAY   EQU   *
001C7A  4724 203E             400         MVA   DLMSG,R7          ASK FOR THE AMOUNT OF DELAY
001C7E  6001                  401         SVC   OUTIN
001C80  6D0D 1A70             402         MVW   F5,F5SAV          SAVE R5
001C84  6D08 1946             403         MVW   WORK1,R5          GET THE DATA
001C88  6F03 1FC2             404         BAL   DTOH,R7           GO CONVERT
001C8C  75E4                  405         MVW   P5,R7             MOVE TO CONVEPT
001C8E  802B 1AD9 0232        406         CB    ALBPT,CPUTP       IS THIS A 4953 PPOCESSOP
001C94  1803                  407         JNE   DLAY1             J-NO
001C96  370A                  408         SRI   ONE,R7            DIVIDE BY 2
001C98  75E8                  409         AW    R5,R7             THIS WILL MULTIPLY BY 1 1/2
001C9A  5002                  410         J     DLAY2
001C9C                        411 DLAY1   EQU   *
001C9C  EF21 1A86             412         MB    DELCT,R7          MULTIPLY BY THE DELAY FACTOP
001CA0                        413 DLAY2   EQU   *
001CA0  6D08 1A70             414         MVW   F5SAV,R5          PESTOPE P5
001CA4  6F0D 1A56             415         MVW   R7,DLCNT          PUT THE DELAY INTO THE INSTPUCTION
001CA8  6808 1814             416         MVW   STRTE,R0          ADR TO PUT THE DELAY
001CAC  D228 1A6A             417         MVD   R2,R2SAV          SAVE REG 3 AND 4
001CB0  4224 1A4C             418         MVA   DINST,R2          GET THE STAPT OF THE INSTF'S
001CB4  4324 1A56             419         MVA   DICNT,R3          DELAY COUNT
001CB8  726A                  420         SW    R2,R3             COMPUTE THE DIFFERENCE
001CBA  7068                  421         AW    R0,R3             ADDRESS FOR DELAY COUNT
001CBC  6B0D 1A4E             422         MVW   R3,DIADR          MOVE THE ADR INTO THE INSTR
001CC0  0F0C                  423         MVBI  TWELV,R7          NUMBER OF BYTES TO MOVE
001CC2  2A04                  424         MVFN  (R2),(R0)         MOVE THE INSTR'S
001CC4  D220 1A6A             425         MVD   R2SAV,R2          RESTORE THE REG'S
001CC8  680D 1814             426         MVW   R0,STRTB          BUMP THE INSTP STPEAM ADP
001CCC  6802 1BC8             427         B     BIT23
001CD0                        428 LCEND   EQU   *
001CD0  C020 181F             429         MVB   IPIND,R0          WAS A LOOP STAPTED
001CD4  1805                  430         JNZ   LCOF1             J-YES
001CD6  4724 2030             431         MVA   NCLOF,R7          MSG-NO LOOP STARTED
001CDA  6000                  432         SVC   OUT
001CDC  6802 1BC8             433         B     BIT23
001CE0                        434 LOCF1   EQU   *
001CE0  4724 2070             435         MVA   LOPMG,R7          MESSAGE ADDPESS
001CE4  6001                  436         SVC   OUTIN
001CE6  6D0D 1A70             437         MVW   F5,F5SAV          SAVE THE REG
001CEA  6D08 1A42             438         MVW   CNTWD,F5          GET THE DATA
001CEE  6F03 1FC2             439         BAL   DTOH,R7           GC CONVERT
001CF2  6D0D 1A44             440         MVW   P5,LFCNT
001CF6  6D08 1A70             441         MVW   F5SAV,F5          PESTORE F5
001CFA  9828 1826 1A40        442         MVW   LCOPS,LFADR       MOVE THE START ADR OF THE LOOP
001D00  6808 1814             443         MVW   STPTE,P0          ADR TO PUT THE BRANCH INSTP
001D04  D228 1A6A             444         MVD   R2,R2SAV          SAVE THE REGISTERS
001D08  4224 1A36             445         MVA   CNTST,R2          INSTP START ADDRESS
001D0C  4324 1A42             446         MVA   CNTWD,R3          LOOP CCUNT ADDPESS
001D10  726A                  447         SW    R2,R3             COMPUTE THE DIFFERENCE
001D12  7068                  448         AW    R0,R3             ADD TO THE STARTING ADDRESS
001D14  6B0D 1A38             449         MVW   R3,CNTAD          PUT THE ADDPESS INTO THE INSTP
001D18  6B0D 1A4A             450         MVW   R3,RESTP+FOUP     ADR INTO THE INSTR
001D1C  7B61 0002             451         AWI   TWO,R3            PUMP THE ADR
001D20  6B0D 1A48             452         MVW   R3,RESTP+TWO      NEXT ADR INTO INSTF
001D24  0F16                  453         MVBI  TWEN2,R7          NUMBER OF BYIES TO MOVE
001D26  2A04                  454         MVFN  (R2),(R0)         MOVE THE INSTRUCTIONS
001D28  680D 1A78             455         MVW   P0,LFEND          SET UP
001D2C  4029 1A78 FFFA        456         AWI   M6,LFEND              LOOP END
001D32  4724 1AC2             457         MVA   CLFEN,R7              ADDPESS
001D36  601A                  458         SVC   HTOE
001D38  D220 1A6A             459         MVD   R2SAV,R2          RESTORE THE PEGISTEPS
001D3C  680D 1814             460         MVW   P0,STRTE          UPDATE THE INSTR STPEAM ADR
001D40  6802 1BC8             461         B     BIT23
001D44                        462 LOPST   EQU   *
001D44  8828 1814 1826        463         MVW   STPTP,LOOPS       SAVE THE LOOP START ADR
001D4A  4724 1ABC             464         MVA   CLPST,R7          CONTPOL BLOCK
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001D4E  601A                465        SVC   HTOE
001D50  8028 1828 181F      466        MVB   HEXFF,LPIND          SET THE LOOP IND
001D56  6802 1BC8           467        B     BIT23
001D5A                      468 WRITE  EQU   *
001D5A  D228 1A6A           469        MVD   R2,R2SAV             SAVE THE
001D5E  6C0D 1A6E           470        MVW   R4,R4SAV             REGISTER VALUES
001D62                      471 SIOR0  EQU   *
001D62  4624 1A8C           472        MVA   DCBLD,R6             ADR OF DCB CONTROL WORD
001D66  C720 1A87           473        MVB   DFALT,R7             IS THE DEFAULT TO BE USED
001D6A  187B                474        JNZ   SI7                  J-YES
001D6C  4724 20D4           475        MVA   LINS8,R7             MSG CONTROL BLOCK
001D70  6001                476        SVC   OUTIN
001D72  802B 194A 1AD4      477        CB    DATIN,NO             IS THE ANSWER NO
001D78  1001                478        JE    SIORA                J-AFFIRMATIVE
001D7A  4E4C                479        TBTS  (R6,TWELV)           T/ON THE 8 LINES PER INCH BIT
001D7C                      480 SIORA  EQU   *
001D7C  4724 208E           481        MVA   FREQ,R7              MSG CONTROL BLOCK
001D80  6001                482        SVC   OUTIN
001D82  802B 194A 1AD4      483        CB    DATIN,NO             WAS THE ANSWER NO
001D88  1014                484        JE    SIOR1                J-YES
001D8A  4E48                485        TBTS  (R6,EIGHT)           SET THE FORMS BIT
001D8C  4724 2048           486        MVA   FLLMS,R7             ADR OF THE CONTROL BLOCK
001D90  6001                487        SVC   OUTIN
001D92  6D0D 1A70           488        MVW   R5,R5SAV             SAVE R5
001D96  6C0D 1946           489        MVW   WORK1,R4             GET THE DATA
001D9A  3446                490        SRLD  EIGHT,R4             POSITION THE DATA
001D9C  3542                491        SRL   EIGHT,R5                    '  '
001D9E  6F03 1FC2           492        BAL   DTOH,R7              GO CONVERT
001DA2  6D0D 1A8E           493        MVW   R5,FORMS             SAVE THE FORMS LENGTH
001DA6  3446                494        SRLD  EIGHT,R4             POSITION THE DATA
001DA8  3542                495        SRL   EIGHT,R5                    '  '
001DAA  6F03 1FC2           496        BAL   DTOH,R7              GO CONVERT
001DAE  C528 1A8E           497        MVB   R5,FORMS
001DB2                      498 SIOR1  EQU   *
001DB2  4724 20CA           499        MVA   RETRY,R7             MSG CONTROL BLOCK
001DB6  6001                500        SVC   OUTIN
001DB8  802B 194A 1AD4      501        CB    DATIN,NO             IS THE ANSWER NO
001DBE  1001                502        JE    SIOR3                J-AFFIRMATIVE
001DC0  4E4F                503        TBTS  (R6,FIFTN)           T/ON THE RETRY BIT IN THE DCB
001DC2                      504 SIOR3  EQU   *
001DC2  4724 2052           505        MVA   FRMSG,R7             ADR OF THE CONTROL BLOCK
001DC6  6001                506        SVC   OUTIN
001DC8  6D0D 1A70           507        MVW   R5,R5SAV             SAVE R5
001DCC  6C08 1946           508        MVW   WORK1,R4             GET THE DATA
001DD0  3446                509        SRLD  EIGHT,R4             POSITION THE DATA
001DD2  3542                510        SRL   EIGHT,R5                    '  '
001DD4  6F03 1FC2           511        BAL   DTOH,R7              GO CONVERT
001DD8  6D0D 1A90           512        MVW   R5,SKOVL             SAVE THE FORMS LENGTH
001DDC  3446                513        SRLD  EIGHT,R4             POSITION THE DATA
001DDE  3542                514        SRL   EIGHT,R5                    '  '
001DE0  6F03 1FC2           515        BAL   DTOH,R7              GO CONVERT
001DE4  C528 1A90           516        MVB   R5,SKOVL
001DE8  6D08 1A70           517        MVW   R5SAV,R5             RESTORE R5
001DEC  6F08 1A74           518        MVW   R7SAV,R7             GET THE COMMAND COUNTER
001DF0  7F06 0001           519        CWI   ONE,R7               IS THIS THE LAST COMMAND
001DF4  1022                520        JE    SIOR6                J-YES
001DF6  C720 1AD6           521        MVB   ASKIT,R7             IS THE IND ON
001DFA  180C                522        JNZ   S5                   J-YES
001DFC  C720 1AD6           523        MVB   ASKIT,R7             T/ON THE IND
001E00  4724 207A           524        MVA   DCBCH,R7             CONTROL BLOCK
001E04  6001                525        SVC   OUTIN
001E06  802B 194A 1AD4      526        CB    DATIN,NO             WAS IT A NEGATIVE RESPONSE
001E0C  1803                527        JNE   S5                   J-NO
001E0E  8028 1828 1AD5      528        MVB   HEXFF,NOCHN          T/ON THE IND
001E14                      529 S5     EQU   *
001E14  C720 1AD5           530        MVB   NOCHN,R7             IS THE INDICATOR ON
001E18  1810                531        JNZ   SIOR6                J-YES
001E1A  4724 2084           532        MVA   CHBIT,R7             MSG CONTROI BLOCK
001E1E  6001                533        SVC   OUTIN
001E20  802B 194A 1AD4      534        CB    DATIN,NO             WAS THE ANSWER NEGATIVE
001E26  1009                535        JE    SIOR6                J-YES
001E28  4624 1A8C           536        MVA   DCBLD,R6             ADR OF BUILD AREA
001E2C  4E40                537        TBTS  (R6,ZERO)            T/ON THE CHAIN BIT
001E2E  6E08 181A           538        MVW   DCBPT,R6             GET THE DCB START
001E32  7EC1 0010           539        AWI   SIXTN,R6             BUMP TO NEXT DCB
001E36  6E0D 1A96           540        MVW   R6,CHNAD             MOVE IN THE CHAIN ADR
001E3A                      541 SIOR6  EQU   *
001E3A  4724 205C           542        MVA   BYCTM,R7             CONTROL BLOCK
001E3E  6001                543        SVC   OUTIN
001E40  6D0D 1A70           544        MVW   R5,R5SAV             SAVE R5
001E44  6D08 1A98           545        MVW   BYCNT,R5             GET THE DATA
001E48  6F03 1FC2           546        BAL   DTOH,R7              GO CONVERT
001E4C  6D0D 1A98           547        MVW   R5,BYCNT             MOVE TO CONVERT
001E50  6D08 1A70           548        MVW   R5SAV,R5             RESTORE R5
001E54  4724 20B6           549        MVA   DATRQ,R7             CONTROL BLOCK
001E58  6001                550        SVC   OUTIN
001E5A  802B 194A 1AD4      551        CB    DATIN,NO             WAS THE ANSWEP NO
001E60  103C                552        JE    SIOR7                J-YES
001E62                      553 SI7    EQU   *
001E62  4724 0084           554        MVWI  ONE32,R7             NUMBEER OF BYTES TO MOVE
001E66  C320 1A89           555        MVB   DELT1,R3             IS THIS THE 1ST DEFAULT
001E6A  101B                556        JZ    SI7A                 J-NO
001E6C  6A08 1816           557        MVW   DTENT,R2             GET THE DATA AREA
001E70  6A0D 1A9A           558        MVW   R2,SDADR             PUT THE ADR IN THE DCB
001E74  7284                559        MVW   R2,R4                SAVE R2
001E76  C320 1AD8           560        MVB   EBCBK,R3             BLANK CHARACTER
001E7A  2B4C                561        FFN   R3,(R2)              FILL THE DATA AREA WITH 3 LANKS
001E7C  6A0D 1816           562        MVW   R2,DTENT             SAVE THE NEW POINTER
001E80  4724 2098           563        MVA   COLNM,R7             MSG CONTROL BLOCK
001E84  6001                564        SVC   OUTIN
001E86  6D08 1946           565        MVW   WORK1,R5             GET THE DATA TO CONVERT
001E8A  6F03 1FC2           566        BAL   DTOH,R7              GO CONVERT
001E8E  4724 20A2           567        MVA   SPCHF,R7             MSG CONTROL BLOCK
001E92  6001                568        SVC   OUTIN
001E94  7544                569        MVW   R5,R2                SAVE R5
001E96  7A42 0001           570        SWI   ONE,R2               REDUCE BY ONE
001E9A  7448                571        AW    R4,R2                THIS IS THE COLUMN FOR THE CHAR
001E9C  80A0 1946           572        MVB   WORK1,(R2)           MOVE IN THE CHARACTER
001EA0  5031                573        J     SIOR8
001EA2                      574 SI7A   EQU   *
001EA2  C320 1A8A           575        MVB   DELT2,R3             IS THE 2ND DEFAULT SELECTED
001EA6  100F                576        JZ    SI7B                 J-NO
001EA8  4724 20A2           577        MVA   SPCHR,R7             ASK FOR THE CHARACTER
001EAC  6001                578        SVC   OUTIN
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001EAE  6A08 1816           579        MVW   DTENT,R2             GET THE DATA AREA
001EB2  6A0D 1A9A           580        MVW   R2,SDADR             PUT THE ADR IN THE DCB
001EB6  4724 0084           581        MVWI  ONE32,R7             BYTE COUNT
001EBA  C320 1946           582        MVB   WORK1,R3             CHARACTER TO PRINT
001EBE  2B4C                583        FFN   R3,(R2)              PUT THE CHAR IN THE DATA AREA
001EC0  6A0D 1816           584        MVW   R2,DTENT             SAVE THE NEW POINTER
001EC4  501F                585        J     SIOR8
001EC6                      586 SI7B   EQU   *
001EC6  4324 198A           587        MVA   BITDT,R3             ADR OF DATA
001ECA  6A08 1816           588        MVW   DTENT,R2             DATA FIELD ADR
001ECE  6A0D 1A9A           589        MVW   R2,SDADR             PUT DATA ADR IN DCB
001ED2  2B44                590        MVFN  (R3),(R2)            HOVE THE DATA
001ED4  6A0D 1816           591        MVW   R2,DTENT             BUHP THE DATA FIELD ADR
001ED8  5015                592        J     SIOR8
001EDA                      593 SIOR7  EQU   *
001EDA  4724 20AC           594        MVA   DATER,R7             CONTROL BLOCK
001EDE  6001                595        SVC   OUTIN
001EE0  4724 0084           596        MVWI  ONE32,R7             HAX NUH OF BYTES
001EE4  7744                597        MVW   R7,R2                SAVE THE NUHBER
001EE6  4324 194A           598        MVA   DATIN,R3             ADR OF DATA
001EEA  0800                599        MVBI  ZERO,R0              END CHARACTER
001EEC  286F                600        SFEN  R0,(R3)              LOOK FOR THE END CHAR
001EEE  774A                601        SW    R7,R2                COMPUTE THE HESSAGE LENGTH
001EF0  72E4                602        MVW   R2,R7                HAKE THE NUHBER USEABLE
001EF2  4324 194A           603        MVA   DATIN,R3             POINT TO THE DATA
001EF6  6A08 1816           604        MVW   DTENT,R2             DATA ADR FOR THE DCB
001EFA  6A0D 1A9A           605        MVW   R2,SDADR             PUT THE ADR IN THE DCB
001EFE  2B44                606        MVFN  (R3),(R2)            MOVE THE DATA
001F00  CA2E 1816           607        AW    R2,DTENT             NEW DATA POINTER
001F04                      608 SIOR8  EQU   *
001F04  C720 1AD7           609        MVB   CHIND,R7             IS THE IND ON
001F08  180F                610        JNZ   S8                   J-YES
001F0A  6808 1812           611        MVW   IDCPT,R0             GET THE IDCB POINTER
001F0E  680D 1A2C           612        MVW   R0,ICADR             IDCB ADDRESS
001F12  680D 1A28           613        MVW   R0,INCO1+SIX         IDCB ADDRESS
001F16  8024 1A85           614        MVB   SIOCD,(R0)+          IDCB COMMAND
001F1A  8024 1A7D           615        MVB   RDADR,(R0)+          DEVICE ADDRESS
001F1E  8824 181A           616        MVW   DCBPT,(R0)+          ADDRESS OF DCB BUILD AREA
001F22  4029 1812 0004      617        AWI   FOUR,IDCPT           UPDATE THE POINTER
001F28                      618 S8     EQU   *
001F28  0F10                619        MVBI  SIXTN,R7             LENGTH OF THE DCB
001F2A  6A08 181A           620        MVW   DCBPT,R2             WHERE TO PUT THE DCB
001F2E  72C4                621        MVW   R2,R6                SAVE THE POINTER
001F30  4324 1A8C           622        MVA   DCBLD,R3             ADR OF DCB JUST BUILT
001F34  2B44                623        MVFN  (R3),(R2)            HOVE IN THE DCB
001F36  6A0D 181A           624        MVW   R2,DCBPT             NEW POINTER
001F3A  8028 1828 1AD7      625        MVB   HEXFF,CHIND          T/ON THE IND
001F40  4E00                626        TBT   (R6,ZERO)            IS THE CHAIN BIT ON
001F42  6A00 1BC8           627        BON   BIT23                B-YES GO AGAIN
001F46                      628 SIOR9  EQU   *
001F46  C725 1AD7           629        MVBZ  CHIND,R7              CLEAR THE IND
001F4A  6808 1814           630        MVW   STRTB,R0           GET THE INSTR STREAM
001F4E  0F14                631        MVBI  TWENY,R7           NUM OF BYTES IN THE INSTR STREAM
001F50  4424 1A0E           632        MVA   INCOM,R4           START ADR OF INSTR STREAM
001F54  2C04                633        MVFN  (R4),(R0)          MOVE THE INSTRUCTIONS
001F56  0F0C                634        MVBI  TWELV,R7           NUM OF BYTES IN THE INSTR STREAM
001F58  4424 1A5C           635        MVA   ERTST,R4           START ADR OF INSTR STREAM
001F5C  2C04                636        MVFN  (R4),(R0)          MOVE THE INSTRUCTIONS
001F5E  0F0C                637        MVBI  TWELV,R7           NUM OF BYTES IN THE INSTR STREAM
001F60  4424 1A22           638        MVA   INCO1,R4           START ADR OF INSTR STREAM
001F64  2C04                639        MVFN  (R4),(R0)          MOVE THE INSTRUCTIONS
001F66  70E4                640        MVW   R0,R7              SAVE R0
001F68  7FE1 0008           641        AWI   CCDCP,R7           COMPUTE A NEW ADDRESS
001F6C  6F0D 1A30           642        MVW   R7,CCCHK+TWO       INSERT NEW ADDRESS
001F70  4724 1A2E           643        MVA   CCCHK,R7           ADDRESS OF DATA TO MOVE
001F74  9714                644        MVD   (R7)+,(R0)+        MOVE THE INSTR'S
001F76  9714                645        MVD   (R7)+,(R0)+
001F78  680D 1814           646        MVW   R0,STRTB           BUMP THE POINTER FOR THE NEXT INSTR
001F7C  D220 1A6A           647        MVD   R2SAV,R2            RESTORE REGISTERS
001F80  6C08 1A6E           648        MVW   R4SAV,R4            ALSO R4,R5
001F84  6802 1BC8           649        B     BIT23
001F88                      650 DFLT1  EQU   *
001F88  8028 1828 1A87      651        MVB   HEXFF,DFALT        IND DEFAULT IS TO BE USED
001F8E  8028 1828 1A89      652        MVB   HEXFF,DELT1        IND DEFAULT 1 IS TO BE USED
001F94  8028 1A8B 1906      653        MVB   DVALU,UBUFR        PUT THE VALUE IN THE BUFFER
001F9A  0F01                654        MVBI  CNE,R7             IND TWO COMMANDS
001F9C  6802 1B62           655        B     BIT12
001FA0                      656 DFLT2  EQU   *
001FA0  8028 1828 1A87      657        MVB   HEXFF,DFALT        IND DEFAULT IS TO BE USED
001FA6  8028 1828 1A8A      658        MVB   HEXFF,DELT2        IND DEFAULT 2 IS TO BE USED
001FAC  8028 1A8B 1906      659        MVB   DVALU,UBUFR        PUT THE VALUE IN THE BUFFER
001FB2  0F01                660        MVBI  CNE,R7             IND TWO COMMANDS
001FB4  6802 1B62           661        B     BIT12
001FB8                      662 NGCOD  EQU   *
001FB8  4724 20E6           663        MVA   INCMD,R7            ADR OF INVALID COMMAND MSG
001FBC  6000                664        SVC   OUT                 OUTPUT THE MESSAGE
001FBE  6802 1B90           665        B     BIT20
001FC2                      666 DTOH   EQU   *
001FC2  6F0D 1FFE           667        MVW   R7,RTRTN
001FC6  6C0D 2000           668        MVW   R4,DHSAV           SAVE R4
001FCA  6E0D 1A72           669        MVW   R6,R6SAV           SAVE R6
001FCE  748A                670        SW    R4,R4              CLEAR THE REG
001FD0  3425                671        SLLD  FOUR,R4            MOVE THOUSAND INTO R4
001FD2  EC25 1FFA           672        MW    THOUS,R4           MULTIPLY THOUSANDS
001FD6  3522                673        SRL   FOUR,R5            POSITION THE HUNS,TENS
001FD8  3546                674        SRLD  EIGHT,R5           MOVE TENS AND UNITS INTO R6
001FDA  ED21 1FFC           675        MB    HUN,R5             MULTIPLY HUNDREDS
001FDE  74A8                676        AW    R4,R5              ADD THOUS AND HUNS
001FE0  3642                677        SRL   EIGHT,R6
001FE2  3626                678        SRLD  FOUR,R6            MOVE UNITS INTO R7
001FE4  3722                679        SRL   TWELV,R7           POSITION THE UNITS
001FE6  77A8                680        AW    R7,R5              ADD UNITS TO THOUS AND HUNS
001FE8  EE21 1FFD           681        MB    TENS,R6            MULTIPLY TENS
001FEC  76A8                682        AW    R6,R5              GET THE GRAND TOTAL
001FEE  6C08 2000           683        MVW   DHSAV,R4           RESTORE R4
001FF2  6E08 1A72           684        MVW   R6SAV,R6           RESTORE R6
001FF6  6812 1FFE           685        B     RTRTN*
001FFA  03E8                686 THOUS  DC    A(1000)
001FFC  64                  687 HUN    DC    H'100'
001FFD  0A                  688 TENS   DC    H'10'
001FFE  0000                689 RTRTN  DC    A(*-*)
002000  0000                690 DHSAV  DC    A(*-*)
002002  0080                691        DC    X'0080'
002004  20EA                692 MG8    DC    A(M8)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002006  0080                693        DC    X'0080'
002008  2188                694        DC    A(M11)
00200A  0080                695        DC    X'0080'
00200C  21B6                696        DC    A(M12)
00200E  0080                697        DC    X'0080'
002010  210A                698        DC    A(M9)
002012  0080                699        DC    X'0080'
002014  2120                700        DC    A(M9A)
002016  0080                701        DC    X'0080'
002018  2138                702        DC    A(M9B)
00201A  0080                703        DC    X'0080'
00201C  2146                704        DC    A(M9C)
00201E  0080                705        DC    X'0080'
002020  2152                706        DC    A(M9D)
002022  0080                707        DC    X'0080'
002024  215E                708        DC    A(M9E)
002026  0080                709        DC    X'0080'
002028  216E                710        DC    A(M9F)
00202A  0080                711        DC    X'0080'
00202C  217C                712 VMG1   DC    A(M10)
00202E  00C0                713        DC    X'00C0'
002030  2244                714 NOLOP  DC    A(NLOOP)
002032  00C0                715        DC    X'00C0'
002034  217C                716 VMG2   DC    A(M10)
002036  1906                717        DC    A(UBUFP)
002038  0040                718        DC    A(64)
00203A  0001                719        DC    A(1)
00203C  00C0                720        DC    X'00C0'
00203E  2220                721 DLMSG  DC    A(DMSGL)
002040  1946                722        DC    A(WORK1)
002042  0002                723        DC    A(2)
002044  0001                724        DC    A(1)
002046  00C0                725        DC    X'00C0'
002048  22C0                726 FLLMS  DC    A(FLMSG)
00204A  1946                727        DC    A(WORK1)
00204C  0002                728        DC    A(2)
00204E  0001                729        DC    A(1)
002050  00C0                730        DC    X'00C0'
002052  22B2                731 FRMSG  DC    A(FMSG1)
002054  1946                732        DC    A(WORK1)
002056  0002                733        DC    A(2)
002058  0001                734        DC    A(1)
00205A  00C0                735        DC    X'00C0'
00205C  2304                736 BYCTM  DC    A(BYTEC)
00205E  1A98                737        DC    A(BYCNT)
002060  0002                738        DC    A(2)
002062  0001                739        DC    A(1)
002064  00C0                740        DC    X'00C0'
002066  220A                741 FRMSG  DC    A(FMSGF)
002068  1946                742        DC    A(WORK1)
00206A  0002                743        DC    A(2)
00206C  0001                744        DC    A(1)
00206E  00C0                745        DC    X'00C0'
002070  229E                746 LOPMG  DC    A(LPMSG)
002072  1A42                747        DC    A(CNTWD)
002074  0002                748        DC    A(2)
002076  0001                749        DC    A(1)
002078  00C0                750        DC    X'00C0'
00207A  2332                751 DCBCH  DC    A(DCBC1)
00207C  194A                752        DC    A(DATIN)
00207E  0001                753        DC    A(1)
002080  0000                754        DC    A(0)
002082  00C0                755        DC    X'00C0'
002084  2312                756 CHBIT  DC    A(CHBT)
002086  194A                757        DC    A(DATIN)
002088  0001                758        DC    A(1)
00208A  0000                759        DC    A(0)
00208C  00C0                760        DC    X'00C0'
00208E  2350                761 FREQ   DC    A(FREQ1)
002090  194A                762        DC    A(DATIN)
002092  0001                763        DC    A(1)
002094  0000                764        DC    A(0)
002096  00C0                765        DC    X'00C0'
002098  23FC                766 COLNM  DC    A(COLMN)
00209A  1946                767        DC    A(WORK1)
00209C  0002                768        DC    A(2)
00209E  0001                769        DC    A(1)
0020A0  00C0                770        DC    X'00C0'
0020A2  242A                771 SPCHR  DC    A(SPECR)
0020A4  1946                772        DC    A(WORK1)
0020A6  0001                773        DC    A(1)
0020A8  0000                774        DC    A(0)
0020AA  00C0                775        DC    X'00C0'
0020AC  2264                776 DATEP  DC    A(DTINN)
0020AE  194A                777        DC    A(DATIN)
0020B0  0040                778        DC    A(64)
0020B2  0000                779        DC    A(0)
0020B4  00C0                780        DC    X'00C0'
0020B6  226E                781 DATRQ  DC    A(DINNT)
0020B8  194A                782        DC    A(DATIN)
0020BA  0001                783        DC    A(1)
0020BC  0000                784        DC    A(0)
0020BE  00C0                785        DC    X'00C0'
0020C0  23CA                786 IDMSG  DC    A(IDMG1)
0020C2  1A68                787        DC    A(WORKA)
0020C4  0001                788        DC    A(1)
0020C6  0000                789        DC    A(0)
0020C8  00C0                790        DC    X'00C0'
0020CA  236C                791 RETRY  DC    A(RETF1)
0020CC  194A                792        DC    A(DATIN)
0020CE  0001                793        DC    A(1)
0020D0  0000                794        DC    A(0)
0020D2  00C0                795        DC    X'00C0'
0020D4  2388                796 LINSB  DC    A(LINE8)
0020D6  194A                797        DC    A(DATIN)
0020D8  0001                798        DC    A(1)
0020DA  0000                799        DC    A(0)
0020DC  0080                800        DC    X'0080'
0020DE  239C                801 LPSTM  DC    A(LPST)
0020E0  0080                802        DC    X'0080'
0020E2  23B4                803 LPENM  DC    A(LPEN)
0020E4  00C0                804        DC    X'00C0'
0020E6  21EA                805 INCMD  DC    A(INCMG)
0020E8  0000                806        DC    A(0)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0020EA  E2C5D3C5C3E340C3D  807 M8     DC    C'SELECT COMMAND(S) FOR DA '
002103  404040             808 M8A    DC    C'   '
002106  00                 809        DC    X'00'
002108  0000               810        DC    A(0)
00210A  F0F340D7D9C5D7C1D  811 M9     DC    C'03 PREPARE I PIT ON'
00211D  00                 812        DC    X'00'
00211E  0000               813        DC    A(0)
002120  F0F440D7D9C5D7C1D  814 M9A    DC    C'04 PREPARE I PIT OFF'
002134  00                 815        DC    X'00'
002136  0000               816        DC    A(0)
002138  F0F540D9C5C1C440C  817 M9B    DC    C'05 READ ID'
002142  00                 818        DC    X'00'
002144  0000               819        DC    A(0)
002146  F0F640D9C5E2C5E3   820 M9C    DC    C'06 RESET'
00214E  00                 821        DC    X'00'
002150  0000               822        DC    A(0)
002152  F0F740C4C5D3C1E8   823 M9D    DC    C'07 DELAY'
00215A  00                 824        DC    X'00'
00215C  0000               825        DC    A(0)
00215E  F0F840D3D6D6D740E  826 M9E    DC    C'08 LOOP START'
00216B  00                 827        DC    X'00'
00216C  0000               828        DC    A(0)
00216E  F0F940D3D6D6D740C  829 M9F    DC    C'09 LOOP END'
00217B  00                 830        DC    X'00'
00217A  3486               831        DC    A(CD6)
00217C  F0C140E6D9C9E3C5   832 M10    DC    C'0A WRITE'
002184  00                 833        DC    X'00'
002186  0000               834        DC    A(0)
002188  F0F140C4C5C6C1E4D  835 M11    DC    C'01 DEFAULT=PRINT A CHARACTER IN ONE COLUMN'
0021E2  00                 836        DC    X'00'
0021E4  0000               837        DC    A(0)
0021B6  F0F240C4C5C6C1E4D  838 M12    DC    C'02 DEFAULT=PRINT ONE CHARACTER IN EVERY COLUMN'
0021E4  00                 839        DC    X'00'
0021E6  349B               840        DC    A(CD1B)
0021E8  E6D9D6D5C740C9C4C  841 INCMG  DC    C'WRONG IDCB COMMAND(START OVER)'
002206  00                 842        DC    X'00'
002208  34A2               843        DC    A(CD22)
00220A  D3C5E5C5D340E3D64  844 PMSGP  DC    C'LEVEL TO INTERRUPT'
00221C  00                 845        DC    X'00'
00221E  34A3               846        DC    A(CD23)
002220  D3C5D5C7E3C840D6C  847 DMSGL  DC    C'LENGTH OF DELAY(IN MILLISECONDS)'
002240  00                 848        DC    X'00'
002242  34A6               849        DC    A(CD26)
002244  D3D6D6D740D5D6E34  850 NLOOP  DC    C'LOOP NOT STARTED(START OVER)'
002260  00                 851        DC    X'00'
002262  34A4               852        DC    A(CD24)
002264  C4C1E3C140C9E2     853 DTINN  DC    C'DATA IS'
00226B  00                 854        DC    X'00'
00226C  34A1               855        DC    A(CD21)
00226E  C4D640E8D6E440E6C  856 DINNT  DC    C'DO YOU WANT TO USE THE STANDARD DATA PATTERN?'
00229B  00                 857        DC    X'00'
00229C  34A7               858        DC    A(CD27)
00229E  C8D6E640D4C1D5E84  859 LPMSG  DC    C'HOW MANY TIMES THROUGH THE LOOP'
0022BD  00                 860        DC    X'00'
0022BE  34B0               861        DC    A(CD30)
0022C0  C6D6D9D4E240D3C5D  862 FLMSG  DC    C'FORMS LENGTH AND OVERFLOW LINE'
0022DE  00                 863        DC    X'00'
0022E0  34B1               864        DC    A(CD31)
0022E2  E2D2C9D740D4D6C4C  865 FRMG1  DC    C'SKIP MODIFIER OR SPACE MODIFIER'
002301  00                 866        DC    X'00'
002302  34A5               867        DC    A(CD25)
002304  C2E8E3C540C3D6E4D  868 BYTEC  DC    C'BYTE COUNT'
00230E  00                 869        DC    X'00'
002310  34AF               870        DC    A(CD2F)
002312  C4D640E8D6E440E6C  871 CHBT   DC    C'DO YOU WANT THE CHAIN BIT ON?'
00232F  00                 872        DC    X'00'
002330  34BC               873        DC    A(CD3C)
002332  E6C9D3D340C1D5E84  874 DCBC1  DC    C'WILL ANY DCB''S BE CHAINED?'
00234C  00                 875        DC    X'00'
00234E  34B2               876        DC    A(CD32)
002350  C9E240C6D6D9D4E24  877 FREQ1  DC    C'IS FORMS CONTROL NEEDED?'
002368  00                 878        DC    X'00'
00236A  34B3               879        DC    A(CD33)
00236C  C9E240E3C8C540D9C  880 RETF1  DC    C'IS THE RETRY BIT NEEDED?'
002384  00                 881        DC    X'00'
002386  34CC               882        DC    A(CD3F)
002388  F840D3C9D5C5E240D  883 LINE8  DC    C'8 LINES PER INCH?'
002399  00                 884        DC    X'00'
00239A  0000               885        DC    A(0)
00239C  D3D6D6D740E2E3C1D  886 LPST   DC    C'LOOP STARTED AT '
0023AC  F0F0F0F0           887 LPST1  DC    C'0000'
0023B0  00                 888        DC    X'00'
0023B2  0000               889        DC    A(0)
0023B4  D3D6D6D740C5D5C4C  890 LPEN   DC    C'LOOP ENDED AT '
0023C2  F0F0F0F0           891 LPEN1  DC    C'0000'
0023C6  00                 892        DC    X'00'
0023C8  34A0               893        DC    A(CD20)
0023CA  D9C5C1C440C9C440C  894 IDMG1  DC    C'READ ID EXPECTED '
0023DB  E7E7E7E740C9C440E  895 IDMG2  DC    C'XXXX ID WAS '
0023E7  E7E7E7E740C9E240E  896 IDMG3  DC    C'XXXX IS THIS O.K.?'
0023F9  00                 897        DC    X'00'
0023FA  34BD               898        DC    A(CD3D)
0023FC  E6C8C9C3C840C3D6D  899 COLMN  DC    C'WHICH COLUMN IS THE CHARACTER TO BE PRINTED'
002427  00                 900        DC    X'00'
002428  34BE               901        DC    A(CD3E)
00242A  E6C8C9C3C840C3C8C  902 SPECR  DC    C'WHICH CHARACTER'
002439  00                 903        DC    X'00'
000000                     904        END
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CROSS-REFERENCE LISTING

DECLARED NAME ATTRIBUTES AND REFERENCES

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    0   .R0.    ABSOLUTE. HEX VALUE(00000000)
                156  157  162  163  164  272  273  274  315
                319  324  325  326  330  331  332  347  356
                357  358  361  371  373  375  376  380  381
                382  386  387  388  388  391  394  396  397
                397  416  421  424  426  429  433  448  454
                455  460  599  600  611  612  613  614  615
                616  616  630  633  636  639  640  644  645
                646
    0   .R1.    ABSOLUTE. HEX VALUE(00000001)
                265  266  267  268  269  269  270  271  271
                344  345  346  346
    0   .R2.    ABSOLUTE. HEX VALUE(00000002)
                304  309  314  336  338  339  417  418  420
                424  425  444  445  447  454  459  469  557
                558  559  561  562  569  570  571  572  579
                580  583  584  588  589  590  591  597  601
                602  604  605  606  607  620  621  623  624
                647
    0   .R3.    ABSOLUTE. HEX VALUE(00000003)
                155  160  303  306  337  338  341  419  420
                421  422  446  447  448  449  450  451  452
                555  560  561  575  582  583  587  590  598
                600  603  606  622  623
    0   .R4.    ABSOLUTE. HEX VALUE(00000004)
                278  283  306  308  311  313  314  316  316
                316  316  317  323  324  470  489  490  494
                508  509  513  559  571  632  633  635  636
                638  639  648  668  670  670  671  672  676
                683
    0   .R5.    ABSOLUTE. HEX VALUE(00000005)
                275  286  357  387  396  402  403  405  409
                414  437  438  440  441  488  491  493  495
                497  507  510  512  514  516  517  544  545
                547  548  565  569  673  674  675  676  680
                682
    0   .R6.    ABSOLUTE. HEX VALUE(00000006)
                472  479  485  503  536  537  538  539  540
                621  626  669  677  678  681  682  684
    0   .R7.    ABSOLUTE. HEX VALUE(00000007)
                161  168  180  182  188  189  191  264  276
                279  282  284  290  291  293  295  297  310
                322  326  327  328  329  330  331  335  340
                342  349  351  358  359  364  366  367  368
                369  370  376  377  378  379  380  381  400
                404  405  408  409  412  415  423  431  435
                439  453  457  464  473  475  481  486  492
                496  499  505  511  515  518  519  521  523
                524  530  532  542  546  549  554  563  566
                567  577  581  594  596  597  601  602  609
                619  629  631  634  637  640  641  642  643
                644  645  654  660  663  667  679  680
  261   ALBRT   ADDRESS. HEX LOCATION(00001AD9) IN CSECT(068E8   ) LENGTH(1)
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  258   ASKIT   ADDRESS. HEX LOCATION(00001AD6) IN CSECT(068E8   ) LENGTH(1)
                521  523
   85   BADCC   ABSOLUTE. HEX VALUE(0000181C)
                168
  227   BITBL   ADDRESS. HEX LOCATION(00001A9C) IN CSECT(068E8   ) LENGTH(1)
                304
  142   BITDI   ADDRESS. HEX LOCATION(000019EA) IN CSECT(068E8   ) LENGTH(54)
                587
  207   BITID   ADDRESS. HEX LOCATION(00001A80) IN CSECT(068E8   ) LENGTH(2)
                254  288
  263   BIT00   ADDRESS. HEX LOCATION(00001ADA) IN CSECT(068E8   ) LENGTH(1)
                138
  280   BIT10   ADDRESS. HEX LOCATION(00001B18) IN CSECT(068E8   ) LENGTH(1)
                283
  302   BIT12   ADDRESS. HEX LOCATION(00001B62) IN CSECT(068E8   ) LENGTH(1)
                289  299  655  661
  305   BIT15   ADDRESS. HEX LOCATION(00001B6A) IN CSECT(068E8   ) LENGTH(1)
                342
  318   BIT20   ADDRESS. HEX LOCATION(00001B90) IN CSECT(068E8   ) LENGTH(1)
                398  665
  334   BIT23   ADDRESS. HEX LOCATION(00001BC8) IN CSECT(068E8   ) LENGTH(1)
                384  427  433  461  467  627  649
  343   BIT25   ADDRESS. HEX LOCATION(00001BE2) IN CSECT(068E8   ) LENGTH(1)
                307
  353   BIT26   ADDRESS. HEX LOCATION(00001C00) IN CSECT(068E8   ) LENGTH(1)
                348
  225   BYCNT   ADDRESS. HEX LOCATION(00001A98) IN CSECT(068E8   ) LENGTH(2)
                545  547  737
  736   BYCTM   ADDRESS. HEX LOCATION(0000205C) IN CSECT(068E8   ) LENGTH(2)
                542
  868   BYTEC   ADDRESS. HEX LOCATION(00002304) IN CSECT(068E8   ) LENGTH(10)
                736
  167   CCCHK   ADDRESS. HEX LOCATION(00001A2E) IN CSECT(068E8   ) LENGTH(4)
                170  328  329  378  379  642  643
  170   CCDCP   ABSOLUTE. HEX VALUE(00000008)
                327  377  641
   54   CD1E    ABSOLUTE. HEX VALUE(0000349B)
                840
   63   CD2F    ABSOLUTE. HEX VALUE(000034AF)
                870
   55   CD20    ABSOLUTE. HEX VALUE(000034A0)
                893
   56   CD21    ABSOLUTE. HEX VALUE(000034A1)
                855
   57   CD22    ABSOLUTE. HEX VALUE(000034A2)
                843
   58   CD23    ABSOLUTE. HEX VALUE(000034A3)
                846
   59   CD24    ABSOLUTE. HEX VALUE(000034A4)
                852
   60   CD25    ABSOLUTE. HEX VALUE(000034A5)
                867
   61   CD26    ABSOLUTE. HEX VALUE(000034A6)
                849
   62   CD27    ABSOLUTE. HEX VALUE(000034A7)
                858
   68   CD3C    ABSOLUTE. HEX VALUE(000034BC)
```


CROSS-REFERENCE LISTING

DECLARED NAME ATTRIBUTES AND REFERENCES

```
                873
   69   CD3D    ABSOLUTE. HEX VALUE(000034BD)
                898
   70   CD3E    ABSOLUTE. HEX VALUE(000034BE)
                901
   71   CD3F    ABSOLUTE. HEX VALUE(000034CC)
                882
   64   CD30    ABSOLUTE. HEX VALUE(000034B0)
                861
   65   CD31    ABSOLUTE. HEX VALUE(000034B1)
                864
   66   CD32    ABSOLUTE. HEX VALUE(000034B2)
                876
   67   CD33    ABSOLUTE. HEX VALUE(000034B3)
                879
   53   CD6     ABSOLUTE. HEX VALUE(00003486)
                831
  756   CHBIT   ADDRESS. HEX LOCATION(00002084) IN CSECT(068E8   ) LENGTH(2)
                532
  871   CHBT    ADDRESS. HEX LOCATION(00002312) IN CSECT(068E8   ) LENGTH(29)
                756
  259   CHIND   ADDRESS. HEX LOCATION(00001AD7) IN CSECT(068E8   ) LENGTH(1)
                609  625  629
  224   CHNAD   ADDRESS. HEX LOCATION(00001A96) IN CSECT(068E8   ) LENGTH(2)
                540
  247   CLPEN   ADDRESS. HEX LOCATION(00001AC2) IN CSECT(068E8   ) LENGTH(2)
                457
  244   CLPST   ADDRESS. HEX LOCATION(00001ABC) IN CSECT(068E8   ) LENGTH(2)
                464
  176   CNTAD   ADDRESS. HEX LOCATION(00001A38) IN CSECT(068E8   ) LENGTH(1)
                449
  171   CNTST   ADDRESS. HEX LOCATION(00001A36) IN CSECT(068E8   ) LENGTH(6)
                176  177  445
  174   CNTWD   ADDRESS. HEX LOCATION(00001A42) IN CSECT(068E8   ) LENGTH(2)
                171  178  438  446  747
  899   COLMN   ADDRESS. HEX LOCATION(000023FC) IN CSECT(068E8   ) LENGTH(43)
                766
  766   COLNM   ADDRESS. HEX LOCATION(00002098) IN CSECT(068E8   ) LENGTH(2)
                563
  395   COMCD   ADDRESS. HEX LOCATION(00001C72) IN CSECT(068E8   ) LENGTH(1)
                392
   78   CPUIP   ABSOLUTE. HEX VALUE(00000232)
                406
  241   CVADR   ADDRESS. HEX LOCATION(00001AB6) IN CSECT(068E8   ) LENGTH(2)
                276
  242   CVAD1   ADDRESS. HEX LOCATION(00001AB8) IN CSECT(068E8   ) LENGTH(2)
                275
  253   CVEXP   ADDRESS. HEX LOCATION(00001ACE) IN CSECT(068E8   ) LENGTH(2)
                293
  250   CVRID   ADDRESS. HEX LOCATION(00001AC8) IN CSECT(068E8   ) LENGTH(2)
                291
  776   DATER   ADDRESS. HEX LOCATION(000020AC) IN CSECT(068E8   ) LENGTH(2)
                594
  141   DATIN   ADDRESS. HEX LOCATION(0000194A) IN CSECT(068E8   ) LENGTH(2)
                477  483  501  526  534  551  598  603  752
                757  762  777  782  792  797
  781   DATRQ   ADDRESS. HEX LOCATION(000020B6) IN CSECT(068E8   ) LENGTH(2)
                549
  751   DCBCH   ADDRESS. HEX LOCATION(0000207A) IN CSECT(068E8   ) LENGTH(2)
                524
  874   DCBC1   ADDRESS. HEX LOCATION(00002332) IN CSECT(068E8   ) LENGTH(26)
                751
  219   DCBLD   ADDRESS. HEX LOCATION(00001A8C) IN CSECT(068E8   ) LENGTH(2)
                337  472  536  622
   84   DCBPT   ABSOLUTE. HEX VALUE(0000181A)
                538  616  620  624
  399   DELAY   ADDRESS. HEX LOCATION(00001C7A) IN CSECT(068E8   ) LENGTH(1)
                234
  212   DELCT   ADDRESS. HEX LOCATION(00001A86) IN CSECT(068E8   ) LENGTH(1)
                412
  215   DELT1   ADDRESS. HEX LOCATION(00001A89) IN CSECT(068E8   ) LENGTH(1)
                555  652
  216   DELT2   ADDRESS. HEX LOCATION(00001A8A) IN CSECT(068E8   ) LENGTH(1)
                575  658
   95   DEVC1   ABSOLUTE. HEX VALUE(0000182E)
                156
  213   DFALT   ADDRESS. HEX LOCATION(00001A87) IN CSECT(068E8   ) LENGTH(1)
                359  473  651  657
  650   DFLT1   ADDRESS. HEX LOCATION(00001F88) IN CSECT(068E8   ) LENGTH(1)
                228
  656   DFLT2   ADDRESS. HEX LOCATION(00001FA0) IN CSECT(068E8   ) LENGTH(1)
                229
  690   DHSAV   ADDRESS. HEX LOCATION(00002000) IN CSECT(068E8   ) LENGTH(2)
                668  683
  856   DINNT   ADDRESS. HEX LOCATION(0000226E) IN CSECT(068E8   ) LENGTH(45)
                781
  184   DLADR   ADDRESS. HEX LOCATION(00001A4E) IN CSECT(068E8   ) LENGTH(1)
                422
  411   DLAY1   ADDRESS. HEX LOCATION(00001C9C) IN CSECT(068E8   ) LENGTH(1)
                407
  413   DLAY2   ADDRESS. HEX LOCATION(00001CA0) IN CSECT(068E8   ) LENGTH(1)
                410
  185   DLCNT   ADDRESS. HEX LOCATION(00001A56) IN CSECT(068E8   ) LENGTH(2)
                180  415  419
  181   DLIST   ADDRESS. HEX LOCATION(00001A50) IN CSECT(068E8   ) LENGTH(2)
                182
  721   DLMSG   ADDRESS. HEX LOCATION(0000203E) IN CSECT(068E8   ) LENGTH(2)
                400
  180   DLNST   ADDRESS. HEX LOCATION(00001A4C) IN CSECT(068E8   ) LENGTH(4)
                184  418
  847   DMSGL   ADDRESS. HEX LOCATION(00002220) IN CSECT(068E8   ) LENGTH(32)
                721
  203   DTCSS   ADDRESS. HEX LOCATION(00001A7A) IN CSECT(068E8   ) LENGTH(2)
                269
   82   DTENT   ABSOLUTE. HEX VALUE(00001816)
                557  562  579  584  588  591  604  607
  853   DTINN   ADDRESS. HEX LOCATION(00002264) IN CSECT(068E8   ) LENGTH(7)
                776
  666   DTOH    ADDRESS. HEX LOCATION(00001FC2) IN CSECT(068E8   ) LENGTH(1)
                404  439  492  496  511  515  546  566
  217   DVALU   ADDRESS. HEX LOCATION(00001A8B) IN CSECT(068E8   ) LENGTH(1)
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CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		653 659
94	DVPNT	ABSOLUTE. HEX VALUE(0000182C)
		265 344
260	EBCBK	ADDRESS. HEX LOCATION(00001AD8) IN CSECT(068E8) LENGTH(1)
		560
106	EIGHT	ABSOLUTE. HEX VALUE(00000008)
		485 490 491 494 495 509 510 513 514
		674 677
96	EPRNT	ABSOLUTE. HEX VALUE(00001830)
		191
188	ERTST	ADDRESS. HEX LOCATION(00001A5C) IN CSECT(068E8) LENGTH(4)
		635
192	ERTS1	ADDRESS. HEX LOCATION(00001A68) IN CSECT(068E8) LENGTH(1)
		190
113	FIFTN	ABSOLUTE. HEX VALUE(0000000F)
		503
214	FIVDF	ADDRESS. HEX LOCATION(00001A88) IN CSECT(068E8) LENGTH(1)
		361
103	FIVE	ABSOLUTE. HEX VALUE(00000005)
		163
726	FLLMS	ADDRESS. HEX LOCATION(00002048) IN CSECT(068E8) LENGTH(2)
		486
862	FLMSG	ADDRESS. HEX LOCATION(000022C0) IN CSECT(068E8) LENGTH(30)
		726
220	FORMS	ADDRESS. HEX LOCATION(00001A8E) IN CSECT(068E8) LENGTH(2)
		493 497
102	FOUR	ABSOLUTE. HEX VALUE(00000004)
		177 183 282 333 383 450 617 671 673
		678
761	FREQ	ADDRESS. HEX LOCATION(0000208E) IN CSECT(068E8) LENGTH(2)
		481
877	FREQ1	ADDRESS. HEX LOCATION(00002350) IN CSECT(068E8) LENGTH(24)
		761
865	FRMG1	ADDRESS. HEX LOCATION(000022E2) IN CSECT(068E8) LENGTH(31)
		731
731	FRMSG	ADDRESS. HEX LOCATION(00002052) IN CSECT(068E8) LENGTH(2)
		505
169	GODCC	ADDRESS. HEX LOCATION(00001A36) IN CSECT(068E8) LENGTH(1)
		167 170
91	HEXFF	ABSOLUTE. HEX VALUE(00001828)
		466 528 625 651 652 657 658
45	HTOE	ABSOLUTE. HEX VALUE(0000001A)
		277 292 294 458 465
687	HUN	ADDRESS. HEX LOCATION(00001FFC) IN CSECT(068E8) LENGTH(1)
		675
80	IDCPT	ABSOLUTE. HEX VALUE(00001812)
		315 320 321 333 374 383 611 617
44	IDLE	ABSOLUTE. HEX VALUE(00000002)
		159 181
894	IDMG1	ADDRESS. HEX LOCATION(000023CA) IN CSECT(068E8) LENGTH(17)
		786
895	IDMG2	ADDRESS. HEX LOCATION(000023DB) IN CSECT(068E8) LENGTH(12)
		255
896	IDMG3	ADDRESS. HEX LOCATION(000023E7) IN CSECT(068E8) LENGTH(18)
		252
786	IDMSG	ADDRESS. HEX LOCATION(000020C0) IN CSECT(068E8) LENGTH(2)
		295
805	INCMD	ADDRESS. HEX LOCATION(000020E6) IN CSECT(068E8) LENGTH(2)
		663
841	INCMG	ADDRESS. HEX LOCATION(000021E8) IN CSECT(068E8) LENGTH(30)
		805
156	INCOA	ADDRESS. HEX LOCATION(00001A12) IN CSECT(068E8) LENGTH(4)
		160 267
155	INCOM	ADDRESS. HEX LOCATION(00001A0E) IN CSECT(068E8) LENGTH(4)
		323 632
162	INCO1	ADDRESS. HEX LOCATION(00001A22) IN CSECT(068E8) LENGTH(2)
		158 321 613 638
135	INERR	ABSOLUTE. HEX VALUE(00000002)
		189
166	IOADR	ADDRESS. HEX LOCATION(00001A2C) IN CSECT(068E8) LENGTH(1)
		164 320 374 612
165	IONST	ADDRESS. HEX LOCATION(00001A2A) IN CSECT(068E8) LENGTH(4)
		166 325 375
186	JINST	ADDRESS. HEX LOCATION(00001A58) IN CSECT(068E8) LENGTH(2)
		273
883	LINE8	ADDRESS. HEX LOCATION(00002388) IN CSECT(068E8) LENGTH(17)
		796
796	LINS8	ADDRESS. HEX LOCATION(000020D4) IN CSECT(068E8) LENGTH(2)
		475
90	LOOPS	ABSOLUTE. HEX VALUE(00001826)
		245 442 463
434	LOOP1	ADDRESS. HEX LOCATION(00001CE0) IN CSECT(068E8) LENGTH(1)
		430
746	LOPMG	ADDRESS. HEX LOCATION(00002070) IN CSECT(068E8) LENGTH(2)
		435
428	LOPND	ADDRESS. HEX LOCATION(00001CD0) IN CSECT(068E8) LENGTH(1)
		236
462	LOPST	ADDRESS. HEX LOCATION(00001D44) IN CSECT(068E8) LENGTH(1)
		235
97	LOST	ABSOLUTE. HEX VALUE(00001832)
		161
179	LPADR	ADDRESS. HEX LOCATION(00001A40) IN CSECT(068E8) LENGTH(1)
		442
175	LPCNT	ADDRESS. HEX LOCATION(00001A44) IN CSECT(068E8) LENGTH(2)
		178 440
890	LPEN	ADDRESS. HEX LOCATION(000023B4) IN CSECT(068E8) LENGTH(14)
		803
202	LPEND	ADDRESS. HEX LOCATION(00001A78) IN CSECT(068E8) LENGTH(2)
		248 455 456
803	LPENM	ADDRESS. HEX LOCATION(000020E2) IN CSECT(068E8) LENGTH(2)
		351
891	LPEN1	ADDRESS. HEX LOCATION(000023C2) IN CSECT(068E8) LENGTH(4)
		249
87	LPIND	ABSOLUTE. HEX VALUE(0000181F)
		347 429 466
859	LPMSG	ADDRESS. HEX LOCATION(0000229E) IN CSECT(068E8) LENGTH(31)
		746
173	LPNST	ADDRESS. HEX LOCATION(00001A3E) IN CSECT(068E8) LENGTH(4)
		179
886	LPST	ADDRESS. HEX LOCATION(0000239C) IN CSECT(068E8) LENGTH(16)
		801

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
801	LPSTM	ADDRESS. HEX LOCATION(000020DE) IN CSECT(068E8) LENGTH(2)
		349
887	LPST1	ADDRESS. HEX LOCATION(000023AC) IN CSECT(068E8) LENGTH(4)
		246
692	MG8	ADDRESS. HEX LOCATION(00002004) IN CSECT(068E8) LENGTH(2)
		279
132	M1	ABSOLUTE. HEX VALUE(FFFFFFFF)
		171
832	M10	ADDRESS. HEX LOCATION(0000217C) IN CSECT(068E8) LENGTH(8)
		712 716
835	M11	ADDRESS. HEX LOCATION(00002188) IN CSECT(068E8) LENGTH(42)
		694
838	M12	ADDRESS. HEX LOCATION(000021B6) IN CSECT(068E8) LENGTH(46)
		696
133	M4	ABSOLUTE. HEX VALUE(FFFFFFFC)
		300
134	M6	ABSOLUTE. HEX VALUE(FFFFFFFA)
		456
807	M8	ADDRESS. HEX LOCATION(000020EA) IN CSECT(068E8) LENGTH(25)
		692
808	M8A	ADDRESS. HEX LOCATION(00002103) IN CSECT(068E8) LENGTH(3)
		243
811	M9	ADDRESS. HEX LOCATION(0000210A) IN CSECT(068E8) LENGTH(19)
		698
814	M9A	ADDRESS. HEX LOCATION(00002120) IN CSECT(068E8) LENGTH(20)
		700
817	M9B	ADDRESS. HEX LOCATION(00002138) IN CSECT(068E8) LENGTH(10)
		702
820	M9C	ADDRESS. HEX LOCATION(00002146) IN CSECT(068E8) LENGTH(8)
		704
823	M9D	ADDRESS. HEX LOCATION(00002152) IN CSECT(068E8) LENGTH(8)
		706
826	M9E	ADDRESS. HEX LOCATION(0000215E) IN CSECT(068E8) LENGTH(13)
		708
829	M9F	ADDRESS. HEX LOCATION(0000216E) IN CSECT(068E8) LENGTH(11)
		710
662	NGOOD	ADDRESS. HEX LOCATION(00001FB8) IN CSECT(068E8) LENGTH(1)
		312
107	NINE	ABSOLUTE. HEX VALUE(00000009)
		311 367
850	NLOOP	ADDRESS. HEX LOCATION(00002244) IN CSECT(068E8) LENGTH(28)
		714
256	NO	ADDRESS. HEX LOCATION(00001AD4) IN CSECT(068E8) LENGTH(1)
		298 477 483 501 526 534 551
257	NOCHN	ADDRESS. HEX LOCATION(00001AD5) IN CSECT(068E8) LENGTH(1)
		528 530
714	NOLCP	ADDRESS. HEX LOCATION(00002030) IN CSECT(068E8) LENGTH(2)
		431
99	ONE	ABSOLUTE. HEX VALUE(00000001)
		266 268 308 313 341 408 519 570 654
		660
128	ONE32	ABSOLUTE. HEX VALUE(00000084)
		554 581 596
79	OPTN2	ABSOLUTE. HEX VALUE(00001810)
		188
42	OUT	ABSOLUTE. HEX VALUE(00000000)
		281 350 352 432 664
43	OUTIN	ABSOLUTE. HEX VALUE(00000001)
		285 296 365 401 436 476 482 487 500
		506 525 533 543 550 564 568 578 595
3	O68E8	CSECT. STAFI(00001900) LENGTH(2874) ESDID(0)
		3
844	PMSGR	ADDRESS. HEX LOCATION(0000220A) IN CSECT(068E8) LENGTH(18)
		741
363	PREPA	ADDRESS. HEX LOCATION(00001C18) IN CSECT(068E8) LENGTH(1)
		360
372	PREPB	ADDRESS. HEX LOCATION(00001C32) IN CSECT(068E8) LENGTH(1)
		362 389
355	PREPR	ADDRESS. HEX LOCATION(00001C04) IN CSECT(068E8) LENGTH(1)
		230
741	PPMSG	ADDRESS. HEX LOCATION(00002066) IN CSECT(068E8) LENGTH(2)
		364
208	PRPCD	ADDRESS. HEX LOCATION(00001A82) IN CSECT(068E8) LENGTH(1)
		356 386
205	RDADF	ADDRESS. HEX LOCATION(00001A7D) IN CSECT(068E8) LENGTH(1)
		286 615
206	RDCOD	ADDRESS. HEX LOCATION(00001A7E) IN CSECT(068E8) LENGTH(2)
		251 288
204	RDID	ADDRESS. HEX LOCATION(00001A7C) IN CSECT(068E8) LENGTH(1)
		287
390	REDID	ADDRESS. HEX LOCATION(00001C68) IN CSECT(068E8) LENGTH(1)
		232
393	RESET	ADDRESS. HEX LOCATION(00001C6E) IN CSECT(068E8) LENGTH(1)
		233
178	RESTR	ADDRESS. HEX LOCATION(00001A46) IN CSECT(068E8) LENGTH(6)
		450 452
791	RETPY	ADDRESS. HEX LOCATION(000020CA) IN CSECT(068E8) LENGTH(2)
		499
880	RETR1	ADDRESS. HEX LOCATION(0000236C) IN CSECT(068E8) LENGTH(24)
		791
201	RETSV	ADDRESS. HEX LOCATION(00001A76) IN CSECT(068E8) LENGTH(2)
		264 301 354
209	RIDCD	ADDRESS. HEX LOCATION(00001A83) IN CSECT(068E8) LENGTH(1)
		391
210	RSTCD	ADDRESS. HEX LOCATION(00001A84) IN CSECT(068E8) LENGTH(1)
		394
689	RTRTN	ADDRESS. HEX LOCATION(00001FFE) IN CSECT(068E8) LENGTH(2)
		667 685
195	R2SAV	ADDRESS. HEX LOCATION(00001A6A) IN CSECT(068E8) LENGTH(2)
		309 339 417 425 444 459 469 647
197	R4SAV	ADDRESS. HEX LOCATION(00001A6E) IN CSECT(068E8) LENGTH(2)
		470 648
198	R5SAV	ADDRESS. HEX LOCATION(00001A70) IN CSECT(068E8) LENGTH(2)
		402 414 437 441 488 507 517 544 548
199	R6SAV	ADDRESS. HEX LOCATION(00001A72) IN CSECT(068E8) LENGTH(2)
		669 684
200	R7SAV	ADDRESS. HEX LOCATION(00001A74) IN CSECT(068E8) LENGTH(2)
		290 297 310 340 518
226	SDADR	ADDRESS. HEX LOCATION(00001A9A) IN CSECT(068E8) LENGTH(2)
		558 580 589 605
105	SEVEN	ABSOLUTE. HEX VALUE(00000007)

CROSS-REFERENCE LISTING

```
DECLARED  NAME      ATTRIBUTES AND REFERENCES

                    167   370
   211    SIOCD     ADDRESS. HEX LOCATION(00001A85) IN CSECT(068E8   ) LENGTH(1)
                    614
   480    SIOFA     ADDRESS. HEX LOCATION(00001D7C) IN CSECT(068E8   ) LENGTH(1)
                    478
   498    SIOR1     ADDRESS. HEX LOCATION(00001DB2) IN CSECT(068E8   ) LENGTH(1)
                    484
   504    SIOR3     ADDRESS. HEX LOCATION(00001DC2) IN CSECT(068E8   ) LENGTH(1)
                    502
   541    SIOR6     ADDRESS. HEX LOCATION(00001E3A) IN CSECT(068E8   ) LENGTH(1)
                    520   531   535
   593    SIOR7     ADDRESS. HEX LOCATION(00001EDA) IN CSECT(068E8   ) LENGTH(1)
                    552
   608    SIOR8     ADDRESS. HEX LOCATION(00001F04) IN CSECT(068E8   ) LENGTH(1)
                    573   585   592
   104    SIX       ABSOLUTE. HEX VALUE(00000006)
                    321   613
   114    SIXTN     ABSOLUTE. HEX VALUE(00000010)
                    335   539   619
   553    SI7       ADDRESS. HEX LOCATION(00001E62) IN CSECT(068E8   ) LENGTH(1)
                    474
   574    SI7A      ADDRESS. HEX LOCATION(00001EA2) IN CSECT(068E8   ) LENGTH(1)
                    556
   586    SI7B      ADDRESS. HEX LOCATION(00001EC6) IN CSECT(068E8   ) LENGTH(1)
                    576
   221    SKOVL     ADDRESS. HEX LOCATION(00001A90) IN CSECT(068E8   ) LENGTH(2)
                    512   516
   771    SPCHR     ADDRESS. HEX LOCATION(000020A2) IN CSECT(068E8   ) LENGTH(2)
                    567   577
   902    SPECR     ADDRESS. HEX LOCATION(0000242A) IN CSECT(068E8   ) LENGTH(15)
                    771
   131    STH68     ABSOLUTE. HEX VALUE(00001C00)
                    155
    81    STRTB     ABSOLUTE. HEX VALUE(00001814)
                    271   272   274   300   319   332   346   373   382
                    416   426   443   460   463   630   646
   529    S5        ADDRESS. HEX LOCATION(00001E14) IN CSECT(068E8   ) LENGTH(1)
                    522   527
   618    S8        ADDRESS. HEX LOCATION(00001F28) IN CSECT(068E8   ) LENGTH(1)
                    610
   108    TEN       ABSOLUTE. HEX VALUE(0000000A)
                    172   278
   688    TENS      ADDRESS. HEX LOCATION(00001FFD) IN CSECT(068E8   ) LENGTH(1)
                    681
   686    THOUS     ADDRESS. HEX LOCATION(00001FFA) IN CSECT(068E8   ) LENGTH(2)
                    672
   110    TWELV     ABSOLUTE. HEX VALUE(0000000C)
                    345   423   479   634   637   679
   116    TWENY     ABSOLUTE. HEX VALUE(00000014)
                    322   631
   117    TWEN2     ABSOLUTE. HEX VALUE(00000016)
                    453
   100    TWO       ABSOLUTE. HEX VALUE(00000002)
                    166   176   179   184   186   187   267   270   328
                    378   451   452   642
   139    UBUFR     ADDRESS. HEX LOCATION(00001906) IN CSECT(068E8   ) LENGTH(2)
                    303   653   659   717
   385    UNPRP     ADDRESS. HEX LOCATION(00001C5E) IN CSECT(068E8   ) LENGTH(1)
                    231
   716    VMG2      ADDRESS. HEX LOCATION(00002034) IN CSECT(068E8   ) LENGTH(2)
                    284
   194    WORKA     ADDRESS. HEX LOCATION(00001A68) IN CSECT(068E8   ) LENGTH(2)
                    298   787
   140    WORK1     ADDRESS. HEX LOCATION(00001946) IN CSECT(068E8   ) LENGTH(2)
                    366   368   369   371   403   489   508   565   572
                    582   722   727   732   742   767   772
   468    WRITE     ADDRESS. HEX LOCATION(00001D5A) IN CSECT(068E8   ) LENGTH(1)
                    237
    98    ZERO      ABSOLUTE. HEX VALUE(00000000)
                    157   162   336   537   599   626
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********** LAST PAGE **********

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                          COPYRIGHT IBM CORP 1976
001900                        3 078E8 START X'1900'
                              4 ********************************************************************************
                              5 *                                                                              *
                              6 *                    ***       PREREQUISITES        ***                        *
                              7 *                                                                              *
                              8 *                                NONE                                          *
                              9 *                                                                              *
                             10 ********************************************************************************
                             11 *                                                                              *
                             12 *                    ***       MODIFICATIONS        ***                        *
                             13 *                                                                              *
                             14 *                   CORRECT THE CHAIN BIT OPERATION.                           *
                             15 *                                                                              *
                             16 ********************************************************************************
                             17 *                                                                              *
                             18 *                    ***     REA'S INCORPORATED     ***                        *
                             19 *                                                                              *
                             20 *                                NONE                                          *
                             21 *                                                                              *
                             22 ********************************************************************************
                             23 *                                                                              *
                             24 *                    ***    SPECIAL INSTRUCTIONS    ***                        *
                             25 *                                                                              *
                             26 *                                NONE                                          *
                             27 *                                                                              *
                             28 ********************************************************************************
                             29 *                                                                              *
                             30 *                    ***       E. C. HISTORY        ***                        *
                             31 *                                                                              *
                             32 *         DATE 06MAY77  DATE 15SEP77  DATE 09DEC77  DATE                       *
                             33 *         E.C. 578756   E.C. 754882   E.C. 755104   E.C.                        *
                             34 *                                                                              *
                             35 ********************************************************************************
                             37 ********************************************************************************
                             38 *                                                                              *
                             39 *      EQUATED NAMES FOR SUPPORTED SVC'S                                       *
                             40 *                                                                              *
                             41 ********************************************************************************
000000                       42 OUT    EQU   0                    OUT SVC
000001                       43 OUTIN  EQU   1                    OUTIN SVC
000002                       44 IDLE   EQU   2                    IDLE SVC
00001A                       45 HTOE   EQU   26                   HEX TO EBCDIC
                             47 ********************************************************************************
                             48 *                                                                              *
                             49 *      EQUATES FOR CODED STOPS USED BY THIS UTILITY MONITOR                    *
                             50 *            (NORMAL AND ERROR)                                                *
                             51 *                                                                              *
                             52 ********************************************************************************
003485                       53 CD5    EQU   X'3485'              COMMAND(S) FOR 4962
003496                       54 CD16   EQU   X'3496'              FIXED HEAD
00349B                       55 CD1B   EQU   X'349B'              INVALID COMMAND
0034A0                       56 CD20   EQU   X'34A0'              READ I.D. MISMATCH
0034A1                       57 CD21   EQU   X'34A1'              STANDARD DATA PATTERN TO BE USED
0034A2                       58 CD22   EQU   X'34A2'              LEVEL TO INTERRUPT
0034A3                       59 CD23   EQU   X'34A3'              LENGTH OF DELAY
0034A4                       60 CD24   EQU   X'34A4'              DATA TO BE USED FOR THIS TEST
0034A5                       61 CD25   EQU   X'34A5'              BYTE COUNT
0034A6                       62 CD26   EQU   X'34A6'              LOOP NOT STARTED
0034A7                       63 CD27   EQU   X'34A7'              NUMBER OF TIMES THRU LOOP
0034A8                       64 CD28   EQU   X'34A8'              SEEK DIFFERENCE
0034A9                       65 CD29   EQU   X'34A9'              SEEK DIRECTION
0034AB                       66 CD2B   EQU   X'34AB'              CYLINDER NUMBER
0034AD                       67 CD2D   EQU   X'34AD'              SECTOR NUMBER
0034AE                       68 CD2E   EQU   X'34AE'              HEAD NUMBER
0034AF                       69 CD2F   EQU   X'34AF'              IS THIS DCB TO BE CHAINED
0034BA                       70 CD3A   EQU   X'34BA'              DO YOU WANT TO USE THE DATA JUST READ
0034BB                       71 CD3B   EQU   X'34BB'              NUMBER OF DATA WORDS
0034BC                       72 CD3C   EQU   X'34BC'              DCB CHAINING
                             74 ********************************************************************************
                             75 *                                                                              *
                             76 *      EQUATE TABLE                                                            *
                             77 *                                                                              *
                             78 ********************************************************************************
000232                       79 CPUTP  EQU   X'0232'              CPU TYPE
001810                       80 OPTN2  EQU   X'1810'              POINTER TO OPTION WORD 2
001812                       81 IDCPT  EQU   X'1812'              POINTER TO IDCB BUILD AREA
001814                       82 STRTB  EQU   X'1814'              POINTER TO I STREAM BUILD AREA
001816                       83 DTENT  EQU   X'1816'              POINTER TO DATA BUILD AREA
001818                       84 DVCNT  EQU   X'1818'              POINTER TO DEVICE UNDER TEST
00181A                       85 DCBPT  EQU   X'181A'              POINTER TO DCB BUILD AREA
00181C                       86 BADCC  EQU   X'181C'              POINTER TO BAD CODE ROUTINE
00181E                       87 KMODE  EQU   X'181E'              POINTER TO DEVICE KEYING IN
00181F                       88 LPIND  EQU   X'181F'              LOOP INDICATOR
001820                       89 KEYMD  EQU   X'1820'              ADDRESS OF DEVICES KEYING
001824                       90 KYMOD  EQU   X'1824'              INDICATOR A DEVICE IS KEYING IN
001826                       91 LOOPS  EQU   X'1826'              ADDRESS OF LOOP START
001828                       92 HEXFF  EQU   X'1828'
001829                       93 ZEROS  EQU   X'1829'
00182A                       94 NUMDV  EQU   X'182A'
00182C                       95 DVPNT  EQU   X'182C'
00182E                       96 DEVC1  EQU   X'182E'
001830                       97 EPRNT  EQU   X'1830'
001832                       98 LOST   EQU   X'1832'
000000                       99 ZERO   EQU   0                    VALUE OF 0
000001                      100 ONE    EQU   1                             1
000002                      101 TWO    EQU   2                             2
000003                      102 THREE  EQU   3                             3
000004                      103 FOUR   EQU   4                             4
000005                      104 FIVE   EQU   5                             5
000006                      105 SIX    EQU   6                             6
000007                      106 SEVEN  EQU   7                             7
000008                      107 EIGHT  EQU   8                             8
000009                      108 NINE   EQU   9                             9
00000A                      109 TEN    EQU   10                            10
00000C                      110 TWELV  EQU   12                            12
00000D                      111 THRTN  EQU   13                            13
00000E                      112 FORTN  EQU   14                            14
00000F                      113 FIFTN  EQU   15                            15
000010                      114 SIXTN  EQU   16                            16
000011                      115 SVNTN  EQU   17                            17
000012                      116 EIGTN  EQU   18                            18
000013                      117 NINTN  EQU   19                            19
000014                      118 TWENY  EQU   20                            20
000016                      119 TWEN2  EQU   22                            22
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                          COPYRIGHT IBM CORP 1976
00001A                      120 TWEN6  EQU   26                          26
00001B                      121 TWEN7  EQU   27                          27
00001C                      122 TWEN8  EQU   28                          28
000020                      123 THIN6  EQU   32                          32
000028                      124 FORTY  EQU   40                          40
00003C                      125 SIXTY  EQU   60                          60
00003F                      126 SIXT3  EQU   63                          63
000040                      127 SIXT4  EQU   64                          64
00007F                      128 ONE27  EQU   127                         127
000080                      129 ONE28  EQU   128                         128
000084                      130 ONE32  EQU   132                         132
000100                      131 TWO56  EQU   256                         256
001C00                      132 STH68  EQU   7168                        7168
FFFFFF                      133 M1     EQU   -1                          -1
FFFFFC                      134 M4     EQU   -4                          -4
FFFFFA                      135 M6     EQU   -6                          -6
FFFFF6                      136 MIN10  EQU   -10                         -10
000002                      137 INERR  EQU   2
                            139 ********************************************************************************
                            140 *                                                                              *
                            141 *                                                                              *
                            142 *      LOGICAL SECTOR NUMBER TO PHYSICAL SECTOR NUMBER CONVERSION              *
                            143 *                                                                              *
                            144 * LOGICAL--> 00, 1F, 01, 1F, 02, 20, 03, 21, 04, 22, 05, 23, 06, 24,          *
                            145 * PHYSICAL-> 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B, 0C, 0D,          *
                            146 *                                                                              *
                            147 * LOGICAL--> 07, 25, 08, 26, 09, 27, 0A, 28, 0B, 29, 0C, 2A, 0D, 2B,          *
                            148 * PHYSICAL-> 0E, 0F, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 1A, 1B,          *
                            149 *                                                                              *
                            150 * LOGICAL--> 0E, 2C, 0F, 2D, 10, 2E, 11, 2F, 12, 30, 13, 31, 14, 32,          *
                            151 * PHYSICAL-> 1C, 1D, 1E, 1F, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29,          *
                            152 *                                                                              *
                            153 * LOGICAL--> 15, 33, 16, 34, 17, 35, 18, 36, 19, 37, 1A, 38, 1B, 39,          *
                            154 * PHYSICAL-> 2A, 2B, 2C, 2D, 2E, 2F, 30, 31, 32, 33, 34, 35, 36, 37,          *
                            155 *                                                                              *
                            156 * LOGICAL--> 1C, 3A, 1D, 3B                                                    *
                            157 * PHYSICAL-> 38, 39, 3A, 3B                                                    *
                            158 *                                                                              *
                            159 ********************************************************************************
                            160 ********************************************************************************
001900 78E8                 162 PID    DC    X'78E8'                    PROGRAM IDENTIFIER
001902 6802 1AA6            163 OVLST  B     TER00                      BRANCH TO START OF OVERLAY
001906 00000000000000000000 164 UBUFR  DC    32A(*-*)
001946 00000000             165 WORK1  DC    2A(*-*)
00194A 00000000000000000000 166 DATIN  DC    32A(*-*)
00198A DEB66BED             167 TERDT  DC    X'DEB66BED'
                            169 ********************************************************************************
                            170 *                                                                              *
                            171 *      THE FOLLOWING INSTRUCTIONS WILL BE MODIFIED FOR TESTING.                *
                            172 *      CARE SHOULD BE TAKEN TO ENSURE THE INSTRUCTIONS MAINTAIN                *
                            173 *      THE SAME RELATIVE POSITION IN THE INSTRUCTION STREAM.                   *
                            174 *                                                                              *
                            175 ********************************************************************************
00198E 4324 1C00            176 INCOM  MVWI  STH68,R3
001992 4024 182E            177 INCOA  MVWI  DEVC1,R0
001996 4800                 178        TBT   (R0,ZERO)
001998 1004                 179        JZ    INC01
00199A 6002                 180        SVC   IDLE
00199C BBFA                 181        JCT   INCOA,R3
00199E 6F13 1832            182        BAL   LOST*,R7
0019A2 4840                 183 INC01  TBTS  (R0,ZERO)
0019A4 0005                 184        ABI   FIVE,R0
0019A6 4000 19AC            185        MVA   IOADR,(R0)
0019AA 680C 19AA            186 IONST  IO    *
0019AC                      187 IOADR  EQU   IONST+TWO
0019AE 6F04 19B6            188 CCCHK  BCC   SEVEN,GODCC
0019B2 6F13 181C            189        BAL   BADCC*,R7
0019B6                      190 GODCC  EQU   *
000008                      191 CCDCP  EQU   GODCC-CCCHK
0019B6 4029 19C2 FFFF       192 CNTST  AWI   M1,CNTWD
0019BC 1004                 193        JZ    *+TEN
0019BE 6802 19BE            194 LPNST  B     *
0019C2 0000                 195 CNTWD  DC    A(*-*)
0019C4 0000                 196 LPCNT  DC    A(*-*)
0019B8                      197 CNTAD  EQU   CNTST+TWO
0019BA                      198 JENST  EQU   CNTST+FOUR
0019C6 8828 19C4 19C2       199 RESTR  MVW   LPCNT,CNTWD
0019C0                      200 LPADR  EQU   LPNST+TWO
0019CC 6F08 19D6            201 DLNST  MVW   DLCNT,R7
0019D0 6002                 202 DLIST  SVC   IDLE
0019D2 BFFE                 203        JCT   DLIST,R7
0019D4 5001                 204        J     *+FOUR
0019CE                      205 DLADR  EQU   DLNST+TWO
0019D6 0000                 206 DLCNT  DC    A(*-*)
0019D8 5000                 207 JINST  J     **TWO
0019DA 5000                 208        J     **TWO
0019DC 4724 1810            209 ERTST  MVWI  OPTN2,R7
0019E0 4F02                 210        TBT   (R7,INERR)
0019E2 1002                 211        JZ    ERTS1
0019E4 6F13 1830            212        BAL   EPRNT*,R7
0019E8                      213 ERTS1  EQU   *
0019E8 0000                 215 WORKA  DC    A(*-*)
0019EA 0000                 216 WORKB  DC    A(*-*)
0019EC 0000                 217 R2SAV  DC    A(*-*)
0019EE 0000                 218 R3SAV  DC    A(*-*)
0019F0 0000                 219 R5SAV  DC    A(*-*)
0019F2 0000                 220 R6SAV  DC    A(*-*)
0019F4 0000                 221 R7SAV  DC    A(*-*)
0019F6 0000                 222 RETSV  DC    A(*-*)
0019F8 0000                 223 LPEND  DC    A(*-*)
0019FA 0000                 224 CNTSV  DC    A(*-*)
0019FC 11100C00             225 DVAL1  DC    X'11100C00'
001A00 11100C0D             226 DVAL2  DC    X'11100C0D'
                            227        ALIGN WORD
001A04 7808                 228 DTCSS  DC    X'7808'
001A06 20                   229 RDID   DC    X'20'
001A07 00                   230 RDADR  DC    X'00'
001A08 0000                 231 RDCOD  DC    X'0000'
001A0A 00AA                 232 TERID  DC    X'00AA'
001A0C 00BA                 233 FXHID  DC    X'00BA'
001A0E 00CA                 234        DC    X'00CA'
001A10 200A                 235 RDSID  DC    X'200A'
001A12 2009                 236 RDATA  DC    X'2009'
001A14 200C                 237 RDVRF  DC    X'200C'
```

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LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT
001A16  0001              238 WRTDA  DC    X'0001'
001A18  200B              239 RDSKW  DC    X'200B'
001A1A  0003              240 WRSKW  DC    X'0003'
001A1C  60                241 PRPCD  DC    X'60'
001A1D  20                242 RIDCD  DC    X'20'
001A1E  6F                243 RSTCD  DC    X'6F'
001A1F  70                244 SIOCD  DC    X'70'
001A20  05                245 DELCT  DC    X'05'
001A21  00                246 DFALT  DC    X'00'
001A22  05                247 FIVDF  DC    X'05'
001A23  02                248 WRSEC  DC    X'02'
001A24  07                249 RECAL  DC    X'07'
001A25  05                250 SEKOP  DC    X'05'
001A26  06                251 FRMOP  DC    X'06'
001A27  08                252 NEGAT  DC    X'08'
                          253         ALIGN WORD
001A28  0000              254 DCBLD  DC    A(*-*)
001A2A  0000              255 DRDFR  DC    A(*-*)
001A2C  0000              256 FORMT  DC    A(*-*)
001A2E  0000              257 SZCYL  DC    A(*-*)
001A30  0000              258 HDREC  DC    A(*-*)
001A32  0000              259 CHNAD  DC    A(*-*)
001A34  0000              260 BYCNT  DC    A(*-*)
001A36  0000              261 SDADR  DC    A(*-*)
001A38  0110              262 SCYLN  DC    X'0110'
001A3A  0001              263 HSECT  DC    X'0001'
001A3C  012E              264 CNDDF  DC    X'012E'
001A3E  0100              265 CNDBT  DC    X'0100'
001A40  0006              266 SIDBC  DC    X'0006'
001A42                    267 TERBL  EQU   *
001A42  2134              268        DC    A(DFLT1)
001A44  2146              269        DC    A(DFLT2)
001A46  1BFA              270        DC    A(PREPR)
001A48  1C56              271        DC    A(UNPRP)
001A4A  1C62              272        DC    A(REDID)
001A4C  1C68              273        DC    A(RESET)
001A4E  1C76              274        DC    A(DELAY)
001A50  1D28              275        DC    A(LOOPS)
001A52  1CBC              276        DC    A(LOPND)
001A54  1FCE              277        DC    A(READ)
001A56  1FE4              278        DC    A(WRITE)
001A58  1FFA              279        DC    A(READS)
001A5A  201A              280        DC    A(WRITS)
001A5C  203C              281        DC    A(RDSSK)
001A5E  2044              282        DC    A(WRSSK)
001A60  20B2              283        DC    A(SEEK)
001A62  20DA              284        DC    A(RCALB)
001A64  20EC              285        DC    A(READV)
001A66  0000              286 AECVT  DC    A(*-*)
001A68  0000              287 AETCV  DC    A(*-*)
001A6A  0000              288 AECTV  DC    A(*-*)
001A6C  0001              289 CVADR  DC    A(1)
001A6E  0000              290 CVAD1  DC    A(*-*)
001A70  22CB              291 CVAD2  DC    A(M8A)
001A72  0002              292 CLPST  DC    A(2)
001A74  1826              293        DC    A(LOOPS)
001A76  263A              294        DC    A(LPST1)
001A78  0002              295 CLPEN  DC    A(2)
001A7A  19F8              296        DC    A(LPEND)
001A7C  2650              297        DC    A(LPEN1)
001A7E  0002              298 CVRID  DC    A(2)
001A80  1A08              299        DC    A(RDCOD)
001A82  26BB              300        DC    A(IDMG3)
001A84  0002              301 CVEXP  DC    A(2)
001A86  1A0A              302        DC    A(TERID)
001A88  26AF              303        DC    A(IDMG2)
001A8A  D5                304 NO     DC    C'N'
001A8B  23                305 ALBRT  DC    X'23'
001A8C  00                306 RDIND  DC    X'00'
001A8D  00                307 WRIND  DC    X'00'
001A8E  00                308 SKIND  DC    X'00'
001A8F  00                309 NOCHN  DC    X'00'
001A90  FF                310 ASKHD  DC    X'FF'
001A91  00                311 SAVHD  DC    X'00'
001A92  00                312 ASKIT  DC    X'00'
001A93  00                313 CHIND  DC    X'00'
001A94  40                314 EBCBK  DC    C' '
001A95  00                315 FXDHD  DC    X'00'
001A96  80                316 ORBIT  DC    X'80'
001A98  0000              317 SKSAV  DC    A(*-*)
001A9A  0000              318 RDSAV  DC    A(*-*)
001A9C  0000              319 WDCNT  DC    A(*-*)
001A9E  0000              320 WRTSV  DC    A(*-*)
001AA0  0000              321 RD1SV  DC    A(*-*)
001AA2  1D                322 CB29   DC    X'1D'
001AA3  3B                323 FIVE9  DC    X'3B'
001AA4  00                324 SKEWD  DC    X'00'
                          325         ALIGN WORD
001AA6                    326 TER00  EQU   *
001AA6  6F0D 19F6         327        MVW   R7,RETSV          SAVE THE RETURN ADDRESS
001AAA  6908 1816         328        MVW   DTENT,R1          GET DATA ADR
001AAE  7921 0001         329        AWI   ONE,R1            THIS IS
001AB2  3109              330        SRL   ONE,R1                TO SET
001AB4  3109              331        SLL   ONE,R1                    WORD BOUNDARY
001AB6  690D 1816         332        MVW   R1,DTENT          SAVE THE ADR
001ABA  6908 182C         333        MVW   DVPNT,R1          DEVICE POINTER
001ABE  7921 0001         334        AWI   ONE,R1            BUMP POINTER
001AC2  690D 1994         335        MVW   R1,INCOA+TWO      PUT IN THE INSTR STREAM
001AC6  7921 0001         336        AWI   ONE,R1            BUMP ADDRESS
001ACA  8860 1A04         337        MVW   DTCSS,(R1)        ENTER DEVICE TYPE
001ACE  7921 0002         338        AWI   TWO,R1            BUMP POINTER
001AD2  8860 1814         339        MVW   STRTB,(R1)        START ADR FOR THIS TEST
001AD6  6808 1814         340        MVW   STRTB,R0          SET R0
001ADA  9024 19D8         341        MVD   JINST,(R0)+       MOVE IN DUMMY INSTR'S
001ADE  680D 1814         342        MVW   R0,STRTB          SAVE THE INSTR STREAM POINTER
001AE2  6D0D 1A6E         343        MVW   R5,CVAD1          PREPARE TO CONVERT
001AE6  4724 1A6C         344        MVA   CVADR,R7          CONTROL BLOCK ADDRESS
001AEA  601A              345        SVC   CVRID             GO CONVERT
001AEC  4424 0014         346        MVWI  TWENY,R4          NUM OF POSSIBLE MESSAGES
001AF0  4724 21A4         347        MVA   MG8,R7            START ADR OF MESSAGES
001AF4                    348 TER10  EQU   *
001AF4  6000              349        SVC   OUT               OUTPUT THE MESSAGE
001AF6  7FE1 0004         350        AWI   FOUR,R7           POSITION FOR NEXT MESSAGE
001AFA  BCFC              351        JCT   TER10,R4          TEST THE NEXT BIT
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LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT
001AFC  4724 21F6         352        MVA   TMG2,R7           DUMMY SVC TO GET DATA
001B00  6001              353        SVC   OUTIN             ISSUE THE OUTIN
001B02  8508 1A07         354        MVB   (R5),RDADR        PUT THE DEVICE ADR IN READ ID
001B06  680C 1A06         355        IO    RDID              DO A READ ID
001B0A  0D03              356        MVBI  THREE,R5          NUM OF POSSIBLE READ I.D'S
001B0C  4324 1A0A         357        MVA   TERID,R3          ADR OF THE FIRST
001B10  6A08 1A08         358        MVW   RDCOD,R2          READ ID RESPONSE
001B14                    359 TER11  EQU   *
001B14  CAC4              360        CW    (R3),R2           IS IT O.K.
001B16  1019              361        JE    TER12             J-YES
001B18  7B61 0002         362        AWI   TWO,R3            GET THE NEXT READ ID
001B1C  BDFB              363        JCT   TER11,R5          CHECK THEM ALL
001B1E  6F0D 19F4         364        MVW   R7,R7SAV          SAVE R7
001B22  4724 1A7E         365        MVA   CVRID,R7          CONVERT CONTROL BLOCK
001B26  601A              366        SVC   HTOE
001B28  4724 1A84         367        MVA   CVEXP,R7          CONVERT CONTROL BLOCK
001B2C  601A              368        SVC   HTOE
001B2E  4724 2250         369        MVA   IDMSG,R7          ADR OF MSG
001B32  6001              370        SVC   OUTIN
001B34  6F08 19F4         371        MVW   R7SAV,R7          RESTORE R7
001B38  802B 19E8 1A8A    372        CB    WORKA,NO          WAS THE ANSWER NO
001B3E  1805              373        JNE   TER12             J-NO
001B40  4029 1814 FFFC    374        AWI   M4,STRTB          RESTORE POINTER
001B46  6812 19F6         375        B     RETSV*            RETURN TO SENDER
001B4A                    376 TER12  EQU   *
001B4A  882B 1A0C 1A08    377        CW    FXHID,RDCOD       IS THIS A FIXED HEAD DISK
001B50  1803              378        JNE   TER13             J-NO
001B52  8028 1828 1A95    379        MVB   HEXFF,FXDHD       T/ON THE IND
001B58                    380 TER13  EQU   *
001B58  4324 1906         381        MVA   UBUFR,R3          INPUT DATA
001B5C  4224 1A42         382        MVA   TERBL,R2          ADR OF BR TABLE
001B60                    383 TER15  EQU   *
001B60  C4C0              384        MVB   (R3),R4           GET THE COMMAND
001B62  103A              385        JZ    TER25             END
001B64  7C82 0001         386        SWI   ONE,R4            REDUCE BY ONE
001B68  D228 19EC         387        MVD   R2,R2SAV          SAVE THE REGS
001B6C  6F0D 19F4         388        MVW   R7,R7SAV          SAVE THE REGISTER
001B70  7C06 0013         389        CWI   NIXTN,R4          IS IT A VALID COMMAND
001B74  6D01 2158         390        BGT   NGOOD             J-NO--TOO HIGH
001B78  3409              391        SLL   ONE,R4            DOUBLE FOR DISPL INTO COMMAND TABLE
001B7A  7288              392        AW    R2,R4             GET THE COMMAND PROCESSOR ADDRESS
001B7C  6808 1812         393        MVW   IDCPT,R0          ADR TO PUT THE IDCB
001B80  6C88 0000         394        MVW   (R4),R4           GET THE ADDRESS IN THE TABLE
001B84  5400              395        BXS   (R4)              GO COMPLETE THE IDCB
001B86                    396 TER20  EQU   *
001B86  6808 1814         397        MVW   STRTB,R0          ADR TO PUT OIO INSTR
001B8A  8828 1812 19AC    398        MVW   IDCPT,IOADR       ADR OF THE IDCB
001B90  8828 1812 19A8    399        MVW   IDCPT,INCO1+SIX   ADR OF THE IDCB
001B96  0F14              400        MVBI  TWENY,R7          NUM OF BYTES IN THE INSTR STRFAM
001B98  4424 198E         401        MVA   INCOM,R4          START ADR OF INSTR STREAM
001B9C  2C04              402        MVFN  (R4),(R0)         MOVE THE INSTRUCTIONS
001B9E  9024 19AA         403        MVD   IONST,(R0)+       MOVE THE INSTRUCTION
001BA2  70E4              404        MVW   R0,R7             SAVE R0
001BA4  7FE1 0008         405        AWI   CCDCP,R7          COMPUTE A NEW ADDRESS
001BA8  6F0D 19B0         406        MVW   R7,CCCHK+TWO      INSERT NEW ADDRESS
001BAC  4724 19AE         407        MVA   CCCHK,R7          ADDRESS OF DATA TO MOVE
001BB0  9714              408        MVD   (R7)+,(R0)+       MOVE THE INSTR'S
001BB2  9714              409        MVD   (R7)+,(R0)+
001BB4  680D 1814         410        MVW   R0,STRTB          BUMP THE INSTR ADR
001BB8  4029 1812 0004    411        AWI   FOUR,IDCPT        BUMP THE IDCB ADR POINTER
001BBE                    412 TER23  EQU   *
001BBE  0F10              413        MVBI  SIXTN,R7           NUMBER OF BYTES TO CLEAR
001BC0  4324 1A28         414        MVA   DCBLD,R3           ADR OF AREA TO CLEAR
001BC4  C220 1829         415        MVB   ZEROS,R2           DATA TO CLEAR WITH
001BC8  2A6C              416        FFN   R2,(R3)            CLEAR THE AREA
001BCA  D220 19EC         417        MVD   R2SAV,R2          RESTORE THE REGS
001BCE  6F08 19F4         418        MVW   R7SAV,R7          RESTORE R7
001BD2  7B61 0001         419        AWI   ONE,R3            BUMP INPUT POINTER
001BD6  BFC4              420        JCT   TER15,R7          GO SET UP FOR NEXT COMMAND
001BD8                    421 TER25  EQU   *
001BD8  6908 182C         422        MVW   DVPNT,R1          DEVICE PARAMETERS UNDER TEST
001BDC  7901 000C         423        AWI   TWELV,R1          BUMP THE POINTER
001BE0  8860 1814         424        MVW   STRTB,(R1)        SAV THE END ADR
001BE4  C025 181F         425        MVBZ  LPIND,R0          WAS A LOOP STARTED
001BE8  1006              426        JZ    TER26             J-NO
001BEA  4724 225A         427        MVA   LPSTM,R7          MSG ADR
001BEE  6000              428        SVC   OUT
001BF0  4724 225E         429        MVA   LPENM,R7          MSG ADR
001BF4  6000              430        SVC   OUT
001BF6                    431 TER26  EQU   *
001BF6  6812 19F6         432        B     RETSV*            RETURN TO FRIEND
001BFA                    433 PREPR  EQU   *
001BFA  8024 1A1C         434        MVB   PRPCD,(R0)+       MOVE THE COMMAND TO THE IDCB ADR
001BFE  8024 1A07         435        MVB   RDADR,(R0)+       MOVE THE DEVICE ADR TO THE IDCB
001C02  C715              436        MVBZ  (R0)+,R7          CLEAR THE BYTE
001C04  C720 1A21         437        MVB   DFALT,R7          IS THE DEFAULT TO BE USED
001C08  1003              438        JZ    PREPA             J-NO
001C0A  8020 1A22         439        MVB   FIVDF,(R0)        MOVE IN THE DEFAULT VALUE
001C0E  500D              440        J     PREPB
001C10                    441 PREPA  EQU   *
001C10  4724 2214         442        MVA   PRMSG,R7          MSG ASKING FOR PREP LEVEL
001C14  6001              443        SVC   OUTIN
001C16  6F08 1946         444        MVW   WORK1,R7          GET THE DATA INPUT
001C1A  3749              445        SLL   NINE,R7           POSITION THE LEVEL
001C1C  6F0D 1946         446        MVW   R7,WORK1          PUT IT BACK IN THE WORK AREA
001C20  4724 1946         447        MVA   WORK1,R7          ADR OF DATA
001C24  4F47              448        TBTS  (R7,SEVEN)        SET THE I BIT
001C26  8020 1946         449        MVB   WORK1,(R0)        MOVE LEVEL & I BIT INTO IDCB
001C2A                    450 PREPB  EQU   *
001C2A  6808 1814         451        MVW   STRTB,R0          ADR TO PUT OIO INSTR
001C2E  8828 1812 19AC    452        MVW   IDCPT,IOADR       ADR OF THE IDCB
001C34  9024 19AA         453        MVD   IONST,(R0)+       MOVE THE I/O INSTR
001C38  70E4              454        MVW   R0,R7             SAVE R0
001C3A  7FE1 0008         455        AWI   CCDCP,R7          COMPUTE A NEW ADDRESS
001C3E  6F0D 19B0         456        MVW   R7,CCCHK+TWO      INSERT NEW ADDRESS
001C42  4724 19AE         457        MVA   CCCHK,R7          ADDRESS OF DATA TO MOVE
001C46  9714              458        MVD   (R7)+,(R0)+       MOVE THE INSTR'S
001C48  9714              459        MVD   (R7)+,(R0)+
001C4A  680D 1814         460        MVW   R0,STRTB          BUMP THE INSTR ADR
001C4E  4029 1812 0004    461        AWI   FOUR,IDCPT        BUMP THE IDCB ADR POINTER
001C54  50B4              462        J     TER25
001C56                    463 UNPRP  EQU   *
001C56  8024 1A1C         464        MVB   PRPCD,(R0)+       IDCB COMMAND
001C5A  8024 1A07         465        MVB   RDADR,(R0)+       ENTER THE DEVICE ADDRESS
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001C5E  C805              466        MVWZ  (R0),R0               CLEAR THE DATA AREA
001C60  50E4              467        J     PREPB                 GO FINISH THE IDCB
001C62                    468 REDID  EQU   *
001C62  8024 1A1D         469        MVB   RIDCD,(R0)+           READ ID IDCB COMMAND
001C66  5002              470        J     COMCD                 GO FINISH THE IDCB
001C68                    471 RESET  EQU   *
001C68  8024 1A1E         472        MVB   RSTCD,(R0)+           RESET IDCB COMMAND
001C6C                    473 COMCD  EQU   *
001C6C  8024 1A07         474        MVB   RDADR,(R0)+           ENTER THE DEVICE ADDRESS
001C70  C805              475        MVWZ  (R0),R0               CLEAR THE DATA AREA
001C72  6802 1B86         476        B     TER20
001C76                    477 DELAY  EQU   *
001C76  4724 2200         478        MVA   DLMSG,R7              ASK FOR THE AMOUNT OF DELAY
001C7A  6001              479        SVC   OUTIN
001C7C  6D08 1946         480        MVW   WORK1,R5              GET THE DATA
001C80  6F03 2162         481        BAL   DTOH,R7               GO CONVERT
001C84  75EA              482        MVW   R5,R7                 MOVE TO CONVERT
001C86  802B 1A8B 0232    483        CB    ALBIT,CPUTP           IS THIS A 4953 PROCESSOR
001C8C  1803              484        JNE   DLAY1                 J-NO
001C8E  370A              485        SRL   ONE,R7                DIVIDE BY 2
001C90  75E8              486        AW    R5,R7                 THIS WILL MULTIPLY BY 1 1/2
001C92  5002              487        J     DLAY2
001C94                    488 DLAY1  EQU   *
001C94  EF21 1A20         489        MB    DELCT,R7              MULTIPLY BY THE DELAY FACTOR
001C98                    490 DLAY2  EQU   *
001C98  6F0D 19D6         491        MVW   R7,DLCNT              PUT THE DELAY INTO THE INSTRUCTION
001C9C  6808 1814         492        MVW   STRTB,R0              ADR TO PUT THE DELAY
001CA0  4224 19CC         493        MVA   DLNST,R2              GEWT THE START OF THE INSTRUCTIONS
001CA4  4324 19D6         494        MVA   DLCNT,R3              DELAY COUNT
001CA8  726A              495        SW    R2,R3                 COMPUTE THE DIFFERENCE
001CAA  7068              496        AW    R0,R3
001CAC  6B0D 19CE         497        MVW   R3,DLADR              MOVE THE ADDRESS INTO THE INSTR
001CB0  0F0C              498        MVBI  TWELV,R7              NUMBER OF BYTES IN THE STREAM
001CB2  2A04              499        MVFF  (R2),(R0)             MOVE THE INSTRUCTIONS
001CB4  680D 1814         500        MVW   R0,STRTB              BUMP ADR FOR THE NEXT INSTR
001CB8  6802 1BBE         501        B     TER23
001CBC                    502 LOPND  EQU   *
001CBC  C020 181F         503        MVB   LPIND,R0              WAS A LOOP STARTED
001CC0  1805              504        JNZ   LOOP1                 J-YES
001CC2  4724 21F2         505        MVA   NOLOP,R7              MSG-NO LOOP STARTED
001CC6  6000              506        SVC   OUT
001CC8  6802 1BBE         507        B     TER23
001CCC                    508 LOOP1  EQU   *
001CCC  4724 221E         509        MVA   LOPMG,R7              MESSAGE ADDRESS
001CD0  6001              510        SVC   OUTIN
001CD2  6D0D 19F0         511        MVW   R5,R5SAV              SAVE THE REG
001CD6  6D08 19C2         512        MVW   CNTWD,R5              GET THE DATA
001CDA  6F03 2162         513        BAL   DTOH,R7               GO CONVERT
001CDE  6D0D 19C4         514        MVW   R5,LPCNT
001CE2  6D08 19F0         515        MVW   R5SAV,R5              RESTORE R5
001CE6  8828 1826 19C0    516        MVW   LOOPS,LPADR           MOVE THE START ADR OF THE LOOP
001CEC  6808 1814         517        MVW   STRTB,R0              ADR TO PUT THE BRANCH INSTR
001CF0  4224 19B6         518        MVA   CNTST,R2              INSTR START ADDRESS
001CF4  4324 19C2         519        MVA   CNTWD,R3              LOOP COUNT ADDRESS
001CF8  726A              520        SW    R2,R3                 COMPUTE THE DIFFERENCE
001CFA  7068              521        AW    R0,R3                 ADD TO THE STARTING ADDRESS
001CFC  6B0D 19B8         522        MVW   R3,CNTAD              PUT THE ADDRESS INTO THE INSTR
001D00  6B0D 19CA         523        MVW   R3,RESTR+FOUR         ADR INTO THE INSTR
001D04  7B61 0002         524        AWI   TWO,R3                BUMP THE ADR
001D08  6B0D 19C8         525        MVW   R3,RESTR+TWO          NEXT ADR INTO INSTR
001D0C  0F16              526        MVBI  TWEN2,R7              NUMBER OF BYTES TO MOVE
001D0E  2A04              527        MVFN  (R2),(R0)             MOVE THE INSTRUCTIONS
001D10  680D 19F8         528        MVW   R0,LPEND              SET UP
001D14  4029 19F8 FFFA    529        AWI   M6,LPEND                  LOOP END
001D1A  4724 1A78         530        MVA   CLPEN,R7                  ADDRESS
001D1E  601A              531        SVC   HTOE
001D20  680D 1814         532        MVW   R0,STRTB              UPDATE THE INSTR STREAM ADR
001D24  6802 1BBE         533        B     TER23
001D28                    534 LOPST  EQU   *
001D28  8828 1814 1826    535        MVW   STRTB,LOOPS           SAVE THE LOOP START ADR
001D2E  4724 1A72         536        MVA   CLPST,R7              CONTROL BLOCK
001D32  601A              537        SVC   HTOE
001D34  8028 1828 181F    538        MVB   HEXFF,LPIND           SET THE LOOP IND
001D3A  6802 1BBE         539        B     TER23
001D3E                    540 SIORT  EQU   *
001D3E  802B 1A25 1A29    541        CB    SEKOP,DCBLD+ONE       IS THIS A SEEK
001D44  181A              542        JNE   SIRT3                 J-NO
001D46  4724 2262         543        MVA   DFCNT,R7              DIFFERENCE MSG
001D4A  6001              544        SVC   OUTIN
001D4C  6D08 1A2A         545        MVW   DRDFR,R5              GET THE DATA
001D50  6F03 2162         546        BAL   DTOH,R7               GO CONVERT
001D54  6D0D 1A2A         547        MVW   R5,DRDFR              MOVE TO CONVERT
001D58  6D0D 1A98         548        MVW   R5,SKSAV              SAVE FOR FUTURE
001D5C  4724 226C         549        MVA   SDIRT,R7               DIRECTION MSG
001D60  6001              550        SVC   OUTIN
001D62  802B 194A 1A8A    551        CB    DATIN,NO               POSITIVE SEEK
001D68  1004              552        JE    SIRT2                  J-NO
001D6A  8028 1829 1A2A    553        MVB   ZEROS,DRDFR            SET POSITIVE SEEK
001D70  503A              554        J     SIRT5
001D72                    555 SIRT2  EQU   *
001D72  8028 1A27 1A2A    556        MVB   NEGAT,DRDFR            SET NEGATIVE SEEK
001D78  5036              557        J     SIRT5
001D7A                    558 SIRT3  EQU   *
001D7A  4724 2280         559        MVA   CLNUM,R7              CYLINDER NUMBER
001D7E  6001              560        SVC   OUTIN
001D80  6D08 1A2E         561        MVW   SZCYL,R5              GET THE DATA
001D84  6F03 2162         562        BAL   DTOH,R7               GO CONVERT
001D88  6D0D 1A2E         563        MVW   R5,SZCYL              MOVE TO CONVERT
001D8C                    564 SI4    EQU   *
001D8C  C720 1A8C         565        MVB   RDIND,R7              IS THE READ IND ON
001D90  1013              566        JZ    SI4A                  J-NO
001D92  4724 2276         567        MVA   WRRDM,R7              ADR OF CONTROL BLOCK
001D96  6001              568        SVC   OUTIN
001D98  802B 194A 1A8A    569        CB    DATIN,NO              WAS IT A NEGATIVE RESPONSE
001D9E  100A              570        JE    SI4AA                 J-YES
001DA0  6D08 1AA0         571        MVW   RD1SV,R5              GET THE DCB POINTER
001DA4  0F10              572        MVBI  SIXTN,R7              NUMBER OF BYTES TO MOVE
001DA6  4324 1A28         573        MVA   DCBLD,R3              GET THE DCB BLD AREA
001DAA  2D64              574        MVFN  (R5),(R3)             MOVE THE READ DCB
001DAC  8828 1A16 1A28    575        MVW   WRTDA,DCBLD           WRITE COMMAND
001DB2  5033              576        J     SIOR5
001DB4                    577 SI4AA  EQU   *
001DB4  C725 1A8C         578        MVBZ  RDIND,R7              CLEAR THE INDICATOR
001DB8                    579 SI4A   EQU   *
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001DB8  802B 1A2A 1A27    580        CB    DRDFR,NEGAT           IS THIS A BACKWARD SEEK
001DBE  1004              581        JE    S14B                  J-YES
001DC0  A828 1A98 1A9A    582        AW    SKSAV,RDSAV           ADD FOR CYLINDER NUMBER
001DC6  5003              583        J     S14C                  CONTINUE
001DC8                    584 S14B   EQU   *
001DC8  A829 1A98 1A9A    585        SW    SKSAV,RDSAV           SUBTRACT FOR CYLINDER NUMBER
001DCE                    586 S14C   EQU   *
001DCE  8828 1A9A 1A2E    587        MVW   RDSAV,SZCYL            PUT IT IN THE DCB
001DD4  4724 228A         588        MVA   RCNUM,R7               SECTOR
001DD8  6001              589        SVC   OUTIN
001DDA  6D08 19EA         590        MVW   WORKB,R5              GET THE DATA
001DDE  6F03 2162         591        BAL   DTOH,R7               GO CONVERT
001DE2  6D0D 1A30         592        MVW   R5,HDREC              MOVE TO CONVERT
001DE6                    593 SIRT5  EQU   *
001DE6  C725 1A90         594        MVBZ  ASKHD,R7               IS THE IND ON
001DEA  1014              595        JZ    SI5                    J-NO
001DEC  4724 2294         596        MVA   HDNUM,R7               HEAD
001DF0  6001              597        SVC   OUTIN
001DF2  6F08 194A         598        MVW   DATIN,R7               GET THE DATA
001DF6  C728 1A91         599        MVB   R7,SAVHD               SAVE THE HEAD FOR FUTURE DCB'S
001DFA  C720 1A95         600        MVB   FXDHD,R7               IS THIS A FIXED HEAD DISK
001DFE  100A              601        JZ    SI5                    J-NO
001E00  4724 229E         602        MVA   FXMSG,R7               MSG CONTROL BLOCK
001E04  6001              603        SVC   OUTIN
001E06  802B 194A 1A8A    604        CB    DATIN,NO               WAS THE ANSWER NEGATIVE
001E0C  1003              605        JE    SI5                    J-YES
001E0E  8029 1A96 1A91    606        OB    ORBYT,SAVHD            T/ON FIXED HEAD BIT FOR DCB
001E14                    607 SI5    EQU   *
001E14  8028 1A91 1A30    608        MVB   SAVHD,HDREC            PUT THE HEAD IN THE DCB
001E1A                    609 SIOR5  EQU   *
001E1A  6F08 19F4         610        MVW   R7SAV,R7               RESTORE R7
001E1E  7F06 0001         611        CWI   ONE,R7                 IS THIS THE LAST OP
001E22  1023              612        JE    SIOR6                  J-YES
001E24  C720 1A92         613        MVB   ASKIT,R7               HAS THE QUESTION BEEN ASKED
001E28  180D              614        JNZ   S5                     J-YES
001E2A  8028 1828 1A92    615        MVB   HEXFF,ASKIT            T/ON THE IND
001E30  4724 22A8         616        MVA   DCBCH,R7               CONTROL BLOCK
001E34  6001              617        SVC   OUTIN
001E36  802B 194A 1A8A    618        CB    DATIN,NO               WAS IT A NEGATIVE RESPONSE
001E3C  1803              619        JNE   S5                     J-NO
001E3E  8028 1828 1A8F    620        MVB   HEXFF,NOCHN            T/ON THE IND
001E44                    621 S5     EQU   *
001E44  C720 1A8F         622        MVB   NOCHN,R7               IS THE IND ON
001E48  1810              623        JNZ   SIOR6                  J-YES
001E4A  4724 2228         624        MVA   CHBIT,R7               MSG CONTROL BLOCK
001E4E  6001              625        SVC   OUTIN
001E50  802B 194A 1A8A    626        CB    DATIN,NO               WAS THE ANSWER NEGATIVE
001E56  1009              627        JE    SIOR6                  J-YES
001E58  4624 1A28         628        MVA   DCBLD,R6               GET THE ADR OF DCB BUILD AREA
001E5C  4E40              629        TBTS  (R6,ZERO)              T/ON THE CHAIN BIT
001E5E  6E08 181A         630        MVW   DCBPT,R6               GET THE DCB ADR
001E62  7EC1 0010         631        AWI   SIXTN,R6               BUMP TO THE NEXT DCB
001E66  6E0D 1A32         632        MVW   R6,CHNAD               MOVE IN THE CHAIN ADR
001E6A                    633 SIOR6  EQU   *
001E6A  802B 1A24 1A29    634        CB    RECAL,DCBLD+ONE        IS THIS A RECALIBRATE
001E70  1070              635        JE    SIOR8                  J-YES
001E72  802B 1A25 1A29    636        CB    SEKOP,DCBLD+ONE        IS THIS A SEEK
001E78  106C              637        JE    SIOR8                  J-YES
001E7A  802B 1A15 1A29    638        CB    RDVRF+ONE,DCBLD+ONE    IS THIS A READ VERIFY
001E80  1068              639        JE    SIOR8                  J-YES
001E82  C725 1AA4         640        MVBZ  SKEWD,R7               IS THE IND ON
001E86  1865              641        JNZ   SIOR8                  J-YES
001E88  C720 1A8C         642        MVB   RDIND,R7               IS THE READ IND ON
001E8C  1004              643        JZ    SI6                    J-NO
001E8E  802B 1A17 1A29    644        CB    WRTDA+ONE,DCBLD+ONE    IS THIS A WRITE COMMAND
001E94  105E              645        JE    SIOR8                  J-YES
001E96                    646 SI6    EQU   *
001E96  4724 220A         647        MVA   BYCTM,R7               CONTROL BLOCK
001E9A  6001              648        SVC   OUTIN
001E9C  6D08 1A34         649        MVW   BYCNT,R5               GET THE DATA
001EA0  6F03 2162         650        BAL   DTOH,R7                GO CONVERT
001EA4  6D0D 1A34         651        MVW   R5,BYCNT               MOVE TO CONVERT
001EA8  802B 1A13 1A29    652        CB    RDATA+ONE,DCBLD+ONE    IS THIS A READ
001EAE  1807              653        JNE   SI6A                   J-NO
001EB0  8828 1816 1A36    654        MVW   DTENT,SDADR            DATA RECEIVE AREA
001EB6  A828 1A34 1816    655        AW    BYCNT,DTENT            NEW DATA ADR
001EBC  504A              656        J     SIOR8
001EBE                    657 SI6A   EQU   *
001EBE  4724 2246         658        MVA   DATRQ,R7               CONTROL BLOCK
001EC2  6001              659        SVC   OUTIN
001EC4  802B 194A 1A8A    660        CB    DATIN,NO               WAS THE ANSWER NO
001ECA  1011              661        JE    SIOR7                  J-YES
001ECC                    662 SIRT6  EQU   *
001ECC  6F08 1A34         663        MVW   BYCNT,R7               NUMBER OF BYTES TO MOVE
001ED0  6A08 1816         664        MVW   DTENT,R2               DATA FIELD ADR
001ED4  6A0D 1A36         665        MVW   R2,SDADR               PUT DATA ADR IN DCB
001ED8  CF2E 1816         666        AW    R7,DTENT               BUMP THE DATA AREA POINTER
001EDC  370A              667        SRL   ONE,R7                 WORD BOUNDARY
001EDE                    668 SIR6   EQU   *
001EDE  4324 198A         669        MVA   TERDT,R3               ADR OF DATA
001EE2  8B94              670        MVW   (R3)+,(R2)+            MOVE A WORD
001EE4  BF01              671        JCT   SIR6A,R7
001EE6  5002              672        J     SIR6B
001EE8                    673 SIR6A  EQU   *
001EE8  8B94              674        MVW   (R3)+,(R2)+            MOVE THE NEXT WORD
001EEA  BFF9              675        JCT   SIR6,R7
001EEC                    676 SIR6B  EQU   *
001EEC  5032              677        J     SIOR8
001EEE                    678 SIOR7  EQU   *
001EEE  4724 223C         679        MVA   BQCNT,R7               CONTROL BLOCK FOR WORD COUNT
001EF2  6001              680        SVC   OUTIN
001EF4  6D08 1A9C         681        MVW   WDCNT,R5               GET THE WORD COUNT
001EF8  6F03 2162         682        BAL   DTOH,R7                CONVERT TO HEX
001EFC  6D0D 1A9C         683        MVW   R5,WDCNT               SAVE THE HEX NUMBER
001F00  6D0D 19FA         684        MVW   R5,CNTSV               SAVE THE HEX NUMBER
001F04  6A08 1816         685        MVW   DTENT,R2               GET THE START ADR
001F08  6A0D 1A36         686        MVW   R2,SDADR               PUT DATA ADR IN DCB
001F0C                    687 SI7    EQU   *
001F0C  4724 2232         688        MVA   DATER,R7               CONTROL BLOCK
001F10  6001              689        SVC   OUTIN
001F12  370A              690        SRL   ONE,R7                 WORDS
001F14  CF2F 1A9C         691        SW    R7,WDCNT               SUBTRACT FROM THE TOTAL
001F18  4324 194A         692        MVA   DATIN,R3               START OF DATA JUST ENTERED
001F1C                    693 SI7A   EQU   *
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LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT
001F1C 8B94                694        MVW   (R3)+,(R2)+          MOVE A WORD
001F1E BFFE                695        JCT   SI7A,R7              MOVE ALL THE WORDS
001F20 6F08 1A9C           696        MVW   WDCNT,R7             IS THERE MORE WORDS TO INPUT
001F24 11F3                697        JP    SI7                  J-YES
001F26 6D08 1A34           698        MVW   BYCNT,R5             GET THE BYTE COUNT
001F2A 350A                699        SRL   ONE,R5               WORD COUNT
001F2C 6D0D 1A9C           700        MVW   R5,WDCNT             SAVE THE WORD COUNT
001F30 ED26 19FA           701        DW    CNTSV,R5             NUMBER OF TIMES TO REPEAT
001F34 7DA1 FFFF           702        AWI   M1,R5                REDUCE BY ONE
001F38 6F08 19FA           703        MVW   CNTSV,R7             GET THE WORD COUNT
001F3C 3709                704        SLL   ONE,R7               MAKE A BYTE COUNT
001F3E 6F0D 19FA           705        MVW   R7,CNTSV             RESTORE THE COUNT
001F42                     706 SI7B   EQU   *
001F42 6F08 19FA           707        MVW   CNTSV,R7             NUMBER OF BYTES TO MOVE
001F46 6B08 1816           708        MVW   DTENT,R3             START OF DATA
001F4A 2B44                709        MVFN  (R3),(R2)            MOVE THE DATA
001F4C BDFA                710        JCT   SI7B,R5              REPEAT
001F4E 6A0D 1816           711        MVW   R2,DTENT             UPDATE THE ADDRESS
001F52                     712 SIOR8  EQU   *
001F52 C720 1A93           713        MVB   CHIND,R7             IS THE IND ON
001F56 180F                714        JNZ   S8                   J-YES
001F58 6808 1812           715        MVW   IDCPT,R0             GET THE POINTER
001F5C 680D 19AC           716        MVW   R0,IOADR             MOVE IN THE IDCB POINTER
001F60 680D 19A8           717        MVW   R0,INCO1+SIX         MOVE IN THE IDCB POINTER
001F64 8024 1A1F           718        MVB   SIOCD,(R0)+          IDCB COMMAND
001F68 8024 1A07           719        MVB   RDADR,(R0)+          DEVICE ADDRESS
001F6C 8820 181A           720        MVW   DCBPT,(R0)           ADDRESS OF DCB BUILD AREA
001F70 4029 1812 0004      721        AWI   FOUR,IDCPT           BUMP THE POINTER
001F76                     722 S8     EQU   *
001F76 0F10                723        MVBI  SIXTN,R7             LENGTH OF THE DCB
001F78 6A08 181A           724        MVW   DCBPT,R2             WHERE TO PUT THE DCB
001F7C 72C4                725        MVW   R2,R6                SAVE THE POINTER
001F7E 4324 1A28           726        MVA   DCBLD,R3             ADR OF DCB JUST BUILT
001F82 2B44                727        MVFN  (R3),(R2)            MOVE IN THE DCB
001F84 6A0D 181A           728        MVW   R2,DCBPT             NEW POINTER
001F88 8028 1828 1A93      729        MVB   HEXFF,CHIND          T/ON THE IND
001F8E 4E00                730        TBT   (R6,ZERO)            IS THE CHAIN BIT ON
001F90 6A00 1BBE           731        BON   TER23                B-YES GO AGAIN
001F94                     732 SIOR9  EQU   *
001F94 C725 1A93           733        MVBZ  CHIND,R7             CLEAR THE IND
001F98 6808 1814           734        MVW   STRTB,R0             GET THE INSTR STREAM
001F9C 0F14                735        MVBI  TWENY,R7             NUM OF BYTES IN THE INSTR STREAM
001F9E 4424 198E           736        MVA   INCOM,R4             START ADR OF INSTR STREAM
001FA2 2C04                737        MVFN  (R4),(R0)            MOVE THE INSTRUCTIONS
001FA4 0F0C                738        MVBI  TWELV,R7             NUM OF BYTES IN THE INSTR STREAM
001FA6 4424 19DC           739        MVA   ERTST,R4             START ADR OF INSTR STREAM
001FAA 2C04                740        MVFN  (R4),(R0)            MOVE THE INSTRUCTIONS
001FAC 0F0C                741        MVBI  TWELV,R7             NUM OF BYTES IN THE INSTR STREAM
001FAE 4424 19A2           742        MVA   INCO1,R4             START ADR OF INSTR STREAM
001FB2 2C04                743        MVFN  (R4),(R0)            MOVE THE INSTRUCTIONS
001FB4 70E4                744        MVW   R0,R7                SAVE R0
001FB6 7FE1 0008           745        AWI   CCDCP,R7             COMPUTE A NEW ADDRESS
001FBA 6F0D 19B0           746        MVW   R7,CCCHK+TWO         INSERT NEW ADDRESS
001FBE 4724 19AE           747        MVA   CCCHK,R7             ADDRESS OF DATA TO MOVE
001FC2 9714                748        MVD   (R7)+,(R0)+          MOVE THE INSTR'S
001FC4 9714                749        MVD   (R7)+,(R0)+
001FC6 680D 1814           750        MVW   R0,STRTB             BUMP THE POINTER FOR THE NEXT INSTR
001FCA 6802 1BBE           751        B     TER23
001FCE                     752 READ   EQU   *
001FCE 8828 1A12 1A28      753        MVW   RDATA,DCBLD          DCB COMMAND
001FD4 8828 181A 1AA0      754        MVW   DCBPT,RD1SV          SAVE THE DCB POINTER
001FDA 8028 1828 1A8C      755        MVB   HEXFF,RDIND          SET THE READ IND
001FE0 6802 1DB8           756        B     SI4A
001FE4                     757 WRITE  EQU   *
001FE4 8828 1A16 1A28      758        MVW   WRTDA,DCBLD          DCB COMMAND
001FEA 8828 181A 1A9E      759        MVW   DCBPT,WRTSV          SAVE THE DCB POINTER
001FF0 8028 1828 1A8D      760        MVB   HEXFF,WRIND          T/ON THE IND
001FF6 6802 1D8C           761        B     SI4
001FFA                     762 READS  EQU   *
001FFA 8828 1A10 1A28      763        MVW   RDSID,DCBLD          DCB COMMAND
002000 C720 1A21           764        MVB   DFALT,R7             IS THIS THE DEFAULT OPTION
002004 1022                765        JZ    SIDCB                J-NO
002006 8828 1A40 1A34      766        MVW   SIDBC,BYCNT          THESE ARE THE DEFAULT OPTION
00200C 8828 1816 1A36      767        MVW   DTENT,SDADR                 ''
002012 4029 1816 0006      768        AWI   SIX,DTENT                   ''
002018 509C                769        J     SIOR8
00201A                     770 WRITS  EQU   *
00201A 8028 1A23 1A29      771        MVB   WRSEC,DCBLD+ONE      DCB COMMAND
002020 C720 1A21           772        MVB   DFALT,R7             IS THIS THE DEFAULT OPTION
002024 1012                773        JZ    SIDCB                J-NO
002026 8828 1A40 1A34      774        MVW   SIDBC,BYCNT          THESE ARE THE DEFAULT OPTION
00202C 6C08 1816           775        MVW   DTENT,R4                    ''
002030 7C81 FFFA           776        AWI   M6,R4                       ''
002034 6C0D 1A36           777        MVW   R4,SDADR
002038 6802 1F52           778        B     SIOR8
00203C                     779 RDSSK  EQU   *
00203C 8828 1A18 1A28      780        MVW   RDSKW,DCBLD          DCB COMMAND
002042 5003                781        J     SIDCB                J-NO
002044                     782 WRSSK  EQU   *
002044 8828 1A1A 1A28      783        MVW   WRSKW,DCBLD          DCB COMMAND
00204A                     784 SIDCB  EQU   *
00204A 8028 1828 1AA4      785        MVB   HEXFF,SKEWD          SET THE IND
002050 4724 228A           786        MVA   RCNUM,R7             MSG CONTROL BLOCK
002054 6001                787        SVC   OUTLN
002056 6D08 19EA           788        MVW   WORKB,R5             GET THE DATA
00205A 6F03 2162           789        BAL   DTOH,R7              GO CONVERT
00205E C528 19EA           790        MVB   R5,WORKB            PUT THE DATA IN THE DCB
002062 802B 1829 19EA      791        CB    ZEROS,WORKB          CK FOR LOG # ZERO
002068 100D                792        JE    SID1                 BCH IF LOG # IS ZERO
00206A 802B 19EA 1AA2      793        CB    WORKB,CB29           COMP LOG TO 29
002070 1C0D                794        JGE   SID2                 BCH IF LGSEC EQ OR LESS THAN CB29
002072 4024 0002           795        MVWI  TWO,R0               SETUP MULTIPLIER
002076 E821 19EA           796        MB    WORKB,R0             LOG SECTOR # TIMES 2
00207A 7802 003C           797        SWI   SIXTY,R0             LOG SEC TIMES 2 MINUS 60
00207E C028 1A2C           798        MVB   R0,FORMT             PHYSICAL SECTOR NUMBER
002082 500C                799        J     SID3                 RETURN TO CALLER
002084                     800 SID1   EQU   *
002084 8028 1AA3 1A2C      801        MVB   FIVE9,FORMT          PHYSICAL SECTOR # 59
00208A 5008                802        J     SID3                 RETURN TO CALLER
00208C                     803 SID2   EQU   *
00208C 4024 0002           804        MVWI  TWO,R0               LOAD MULTIPLIER
002090 E821 19EA           805        MB    WORKB,R0             LOG SECTOR # TIMES 2
002094 7802 0001           806        SWI   ONE,R0               SUBTRACT ONE
002098 C028 1A2C           807        MVB   R0,FORMT             LOAD PHYSICAL SECTOR #
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LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT
00209C                     808 SID3   EQU   *
00209C 8828 1A40 1A34      809        MVW   SIDBC,BYCNT          THIS IS THE BYTE COUNT
0020A2 8828 1816 1A36      810        MVW   DTENT,SDADR          THIS IS THE DATA AREA
0020A8 4029 1816 0006      811        AWI   SIX,DTENT           BUMP THE POINTER
0020AE 6802 1E1A           812        B     SIOR5
0020B2                     813 SEEK   EQU   *
0020B2 C725 1A8C           814        MVBZ  RDIND,R7             RESET THE READ IND
0020B6 8028 1828 1A90      815        MVB   HEXFF,ASKHD          T/ON THE IND
0020BC 8028 1828 1A8E      816        MVB   HEXFF,SKIND          T/ON THE IND
0020C2 8028 1A25 1A29      817        MVB   SEKOP,DCBLD+ONE      DCB COMMAND
0020C8 C720 1A21           818        MVB   DFALT,R7             IS THE DEFAULT TO BE USED
0020CC 6800 1D3E           819        BZ    SIORT                B-NO
0020D0 8828 1A3C 1A2A      820        MVW   CNDDF,DRDFR          DEFAULT PARAMETERS
0020D6 6802 1F52           821        B     SIOR8
0020DA                     822 RCALB  EQU   *
0020DA 8028 1A24 1A29      823        MVB   RECAL,DCBLD+ONE      DCB COMMAND
0020E0 C720 1A21           824        MVB   DFALT,R7             IS THE DEFAULT TO BE USED
0020E4 6800 1E1A           825        BZ    SIOR5                J-NO
0020E8 6802 1F52           826        B     SIOR8
0020EC                     827 READV  EQU   *
0020EC C720 1A8D           828        MVB   WRIND,R7             IS THE IND ON
0020F0 1008                829        JZ    RD2                  J-NO
0020F2 6E08 1A9E           830        MVW   WRTSV,R6             GET THE WRITE DCB ADRESS
0020F6                     831 RD1    EQU   *
0020F6 0F10                832        MVBI  SIXTN,R7             BYTES TO MOVE
0020F8 4324 1A28           833        MVA   DCBLD,R3             WHERE TO PUT THE DCB
0020FC 2E64                834        MVFN  (R6),(R3)            MOVE IT
0020FE 8828 1A14 1A28      835        MVW   RDVRF,DCBLD          DCB COMMAND
002104 6802 1E1A           836        B     SIOR5
002108                     837 RD2    EQU   *
002108 C720 1A8C           838        MVB   RDIND,R7             IS THE IND ON
00210C 1003                839        JZ    RD3                  J-NO
00210E 6E08 1AA0           840        MVW   RD1SV,R6             GET THE DCB ADR
002112 50F1                841        J     RD1
002114                     842 RD3    EQU   *
002114 C720 1A8E           843        MVB   SKIND,R7             IS THE IND ON
002118 1008                844        JZ    RD4                  J-NO
00211A 8828 1A98 1A9A      845        MVW   SKSAV,RDSAV          GET THE SEEK DIFFEERENCE
002120 8828 1A14 1A28      846        MVW   RDVRF,DCBLD          CONTROL WORD
002126 6802 1DCE           847        B     S14C
00212A                     848 RD4    EQU   *
00212A 8828 1A14 1A28      849        MVW   RDVRF,DCBLD          CONTROL WORD
002130 6802 1DB8           850        B     SI4A
002134                     851 DFLT1  EQU   *
002134 8028 1828 1A21      852        MVB   HEXFF,DFALT          IND DEFAULT IS TO BE USED
00213A 9028 19FC 1906      853        MVD   DVAL1,UBUFR          PUT THE VALUE IN THE BUFFER
002140 0F03                854        MVBI  THREE,R7             IND THREE COMMANDS
002142 6802 1B4A           855        B     TER12
002146                     856 DFLT2  EQU   *
002146 8028 1828 1A21      857        MVB   HEXFF,DFALT          IND DEFAULT IS TO BE USED
00214C 9028 1A00 1906      858        MVD   DVAL2,UBUFR          PUT THE VALUE IN THE BUFFER
002152 0F04                859        MVBI  FOUR,R7              IND FOUR COMMANDS
002154 6802 1B4A           860        B     TER12
002158                     861 NGOOD  EQU   *
002158 4724 2344           862        MVA   INCMD,R7              ADR OF INVALID COMMAND MSG
00215C 6000                863        SVC   OUT                   OUTPUT THE MESSAGE
00215E 6802 1B86           864        B     TER20
002162                     865 DTOH   EQU   *
002162 6F0D 219E           866        MVW   R7,RTRTN
002166 6C0D 21A0           867        MVW   R4,DHSAV             SAVE R4
00216A 6E0D 19F2           868        MVW   R6,R6SAV             SAVE R6
00216E 748A                869        SW    R4,R4                CLEAR THE REG
002170 3425                870        SLLD  FOUR,R4              MOVE THOUSAND INTO R4
002172 EC25 219A           871        MW    THOUS,R4             MULTIPLY THOUSANDS
002176 3522                872        SRL   FOUR,R5              POSITION THE HUNS,TENS
002178 3546                873        SRLD  EIGHT,R5             MOVE TENS AND UNITS INTO R6
00217A ED21 219C           874        MB    HUN,R5               MULTIPLY HUNDREDS
00217E 74A8                875        AW    R4,R5                ADD THOUS AND HUNS
002180 3642                876        SRL   EIGHT,R6
002182 3626                877        SRLD  FOUR,R6              MOVE UNITS INTO R7
002184 3762                878        SRL   TWELV,R7             POSITION THE UNITS
002186 77A5                879        AW    R7,R5                ADD UNITS TO THOUS AND HUNS
002188 EE21 219D           880        MB    TENS,R6              MULTIPLY TENS
00218C 76A8                881        AW    R6,R5                GET THE GRAND TOTAL
00218E 6C08 21A0           882        MVW   DHSAV,R4             RESTORE R4
002192 6E08 19F2           883        MVW   R6SAV,R6             RESTORE R6
002196 6812 219E           884        B     RTRTN*
00219A 03E8                885 THOUS  DC    A(1000)
00219C 64                  886 HUN    DC    H'100'
00219D 0A                  887 TENS   DC    H'10'
00219E 0000                888 RTRTN  DC    A(*-*)
0021A0 0000                889 DHSAV  DC    A(*-*)
0021A2 0080                890        DC    X'0080'
0021A4 22B2                891 M8     DC    A(M8)
0021A6 0080                892        DC    X'0080'
0021A8 244C                893        DC    A(M11)
0021AA 0080                894        DC    X'0080'
0021AC 2472                895        DC    A(M12)
0021AE 0080                896        DC    X'0080'
0021B0 22D2                897        DC    A(M9)
0021B2 0080                898        DC    X'0080'
0021B4 22E8                899        DC    A(M9A)
0021B6 0080                900        DC    X'0080'
0021B8 2300                901        DC    A(M9B)
0021BA 0080                902        DC    X'0080'
0021BC 230E                903        DC    A(M9C)
0021BE 0080                904        DC    X'0080'
0021C0 231A                905        DC    A(M9D)
0021C2 0080                906        DC    X'0080'
0021C4 2326                907        DC    A(M9E)
0021C6 0080                908        DC    X'0080'
0021C8 2336                909        DC    A(M9F)
0021CA 0080                910        DC    X'0080'
0021CC 2348                911        DC    A(M10)
0021CE 0080                912        DC    X'0080'
0021D0 2358                913        DC    A(M10A)
0021D2 0080                914        DC    X'0080'
0021D4 2368                915        DC    A(M10B)
0021D6 0080                916        DC    X'0080'
0021D8 237C                917        DC    A(M10C)
0021DA 0080                918        DC    X'0080'
0021DC 2392                919        DC    A(M10H)
0021DE 0080                920        DC    X'0080'
0021E0 23AC                921        DC    A(M10I)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT
0021E2  0080               922         DC    X'0080'
0021E4  23C8               923         DC    A(M10D)
0021E6  0080               924         DC    X'0080'
0021E8  23D2               925         DC    A(M10F)
0021EA  0080               926         DC    X'0080'
0021EC  23E4               927         DC    A(M10J)
0021EE  0080               928         DC    X'0080'
0021F0  23F6               929         DC    A(M10K)
0021F2  2500               930 NOLOP   DC    A(NLOOP)
0021F4  00C0               931         DC    X'00C0'
0021F6  240A               932 TMG2    DC    A(M10G)
0021F8  1906               933         DC    A(UBUFR)
0021FA  0040               934         DC    A(64)
0021FC  0001               935         DC    A(1)
0021FE  00C0               936         DC    X'00C0'
002200  24DC               937 DLMSG   DC    A(DMSGL)
002202  1946               938         DC    A(WORK1)
002204  0002               939         DC    A(2)
002206  0001               940         DC    A(1)
002208  00C0               941         DC    X'00C0'
00220A  257A               942 BYCTM   DC    A(BYTEC)
00220C  1A34               943         DC    A(BYCNT)
00220E  0002               944         DC    A(2)
002210  0001               945         DC    A(1)
002212  00C0               946         DC    X'00C0'
002214  24C6               947 PRMSG   DC    A(PMSGR)
002216  1946               948         DC    A(WORK1)
002218  0002               949         DC    A(2)
00221A  0001               950         DC    A(1)
00221C  00C0               951         DC    X'00C0'
00221E  2558               952 LOPMG   DC    A(LPMSG)
002220  19C2               953         DC    A(CNTWD)
002222  0002               954         DC    A(2)
002224  0001               955         DC    A(1)
002226  00C0               956         DC    X'00C0'
002228  25EC               957 CHBIT   DC    A(CHBT)
00222A  194A               958         DC    A(DATIN)
00222C  0001               959         DC    A(1)
00222E  0000               960         DC    A(0)
002230  00C0               961         DC    X'00C0'
002232  251E               962 DATER   DC    A(DTINN)
002234  194A               963         DC    A(DATIN)
002236  0040               964         DC    A(64)
002238  0001               965         DC    A(1)
00223A  00C0               966         DC    X'00C0'
00223C  2684               967 RQCNT   DC    A(COUNT)
00223E  1A9C               968         DC    A(WDCNT)
002240  0004               969         DC    A(4)
002242  0001               970         DC    A(1)
002244  00C0               971         DC    X'00C0'
002246  2528               972 DATRQ   DC    A(DINNT)
002248  194A               973         DC    A(DATIN)
00224A  0001               974         DC    A(1)
00224C  0000               975         DC    A(*-*)
00224E  00C0               976         DC    X'00C0'
002250  269E               977 IDMSG   DC    A(IDMG1)
002252  19B8               978         DC    A(WORKA)
002254  0001               979         DC    A(1)
002256  0000               980         DC    A(0)
002258  0080               981         DC    X'0080'
00225A  262A               982 LPSTM   DC    A(LPST)
00225C  0080               983         DC    X'0080'
00225E  2642               984 LPENM   DC    A(LPEN)
002260  00C0               985         DC    X'00C0'
002262  2588               986 DFCNT   DC    A(DFMSG)
002264  1A2A               987         DC    A(DRDFR)
002266  0002               988         DC    A(2)
002268  0001               989         DC    A(1)
00226A  00C0               990         DC    X'00C0'
00226C  259A               991 SDIRT   DC    A(SDMSG)
00226E  194A               992         DC    A(DATIN)
002270  0001               993         DC    A(1)
002272  0000               994         DC    A(0)
002274  00C0               995         DC    X'00C0'
002276  2658               996 WRRDM   DC    A(WRDMG)
002278  194A               997         DC    A(DATIN)
00227A  0001               998         DC    A(1)
00227C  0000               999         DC    A(0)
00227E  00C0              1000         DC    X'00C0'
002280  25AA              1001 CLNUM   DC    A(CLMSG)
002282  1A2E              1002         DC    A(SZCYL)
002284  0002              1003         DC    A(2)
002286  0001              1004         DC    A(1)
002288  00C0              1005         DC    X'00C0'
00228A  25BC              1006 RCNUM   DC    A(RCMSG)
00228C  19EA              1007         DC    A(WORKB)
00228E  0002              1008         DC    A(2)
002290  0001              1009         DC    A(1)
002292  00C0              1010         DC    X'00C0'
002294  25CC              1011 HDNUM   DC    A(HDMSG)
002296  194A              1012         DC    A(DATIN)
002298  0002              1013         DC    A(2)
00229A  0001              1014         DC    A(1)
00229C  00C0              1015         DC    X'00C0'
00229E  25D4              1016 FXMSG   DC    A(FIXMG)
0022A0  194A              1017         DC    A(DATIN)
0022A2  0001              1018         DC    A(1)
0022A4  0000              1019         DC    A(0)
0022A6  00C0              1020         DC    X'00C0'
0022A8  260C              1021 DCBCH   DC    A(DCBC1)
0022AA  194A              1022         DC    A(DATIN)
0022AC  0001              1023         DC    A(1)
0022AE  0000              1024         DC    A(0)
0022B0  0000              1025         DC    A(0)
0022B2  E2C5D3C5C3E340C3D 1026 M8      DC    C'SELECT COMMAND(S) FOR DA '
0022CB  404040            1027 M8A     DC    C'   '
0022CE  00                1028         DC    X'00'
0022D0  0000              1029         DC    A(0)
0022D2  F0F340D7D9C5D7C1D 1030 M9      DC    C'03 PREPARE I BIT ON'
0022E5  00                1031         DC    X'00'
0022E6  0000              1032         DC    A(0)
0022E8  F0F440D7D9C5D7C1D 1033 M9A     DC    C'04 PREPARE I BIT OFF'
0022FC  00                1034         DC    X'00'
0022FE  0000              1035         DC    A(0)
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT
002300  F0F540D9C5C1C440C 1036 M9B     DC    C'05 READ ID'
00230A  00                1037         DC    X'00'
00230C  0000              1038         DC    A(0)
00230E  F0F640D9C5E2C5E3  1039 M9C     DC    C'06 RESET'
002316  00                1040         DC    X'00'
002318  0000              1041         DC    A(0)
00231A  F0F740C4C5D3C1E8  1042 M9D     DC    C'07 DELAY'
002322  00                1043         DC    X'00'
002324  0000              1044         DC    A(0)
002326  F0F840D3D6D6D740E 1045 M9E     DC    C'08 LOOP START'
002333  00                1046         DC    X'00'
002334  0000              1047         DC    A(0)
002336  F0F940D3D6D6D740C 1048 M9F     DC    C'09 LOOP END'
002341  00                1049         DC    X'00'
002342  00C0              1050         DC    X'00C0'
002344  24A6              1051 INCMD   DC    A(INCMG)
002346  0000              1052         DC    A(0)
002348  F0C140D9C5C1C440C 1053 M10     DC    C'0A READ DATA'
002354  00                1054         DC    X'00'
002356  0000              1055         DC    A(0)
002358  F0C240E6D9C9E3C54 1056 M10A    DC    C'0B WRITE DATA'
002365  00                1057         DC    X'00'
002366  0000              1058         DC    A(0)
002368  F0C340D9C5C1C440E 1059 M10B    DC    C'0C READ SECTOR ID'
002379  00                1060         DC    X'00'
00237A  0000              1061         DC    A(0)
00237C  F0C440E6D9C9E3C54 1062 M10C    DC    C'0D WRITE SECTOR ID'
00238E  00                1063         DC    X'00'
002390  0000              1064         DC    A(0)
002392  F0C540D9C5C1C440E 1065 M10H    DC    C'0E READ SECTOR ID SKEWED'
0023AA  0000              1066         DC    X'0000'
0023AC  F0C640E6D9C9E3C54 1067 M10I    DC    C'0F WRITE SECTOR ID SKEWED'
0023C5  00                1068         DC    X'00'
0023C6  0000              1069         DC    A(0)
0023C8  F1F040E2C5C5D2    1070 M10D    DC    C'10 SEEK'
0023CF  00                1071         DC    X'00'
0023D0  0000              1072         DC    A(0)
0023D2  F1F140D9C5C3C1D3C 1073 M10F    DC    C'11 RECALIBRATE'
0023E0  00                1074         DC    X'00'
0023E2  0000              1075         DC    A(0)
0023E4  F1F240D9C5C1C440E 1076 M10J    DC    C'12 READ VERIFY'
0023F2  00                1077         DC    X'00'
0023F4  0000              1078         DC    A(0)
0023F6  5C5C5C5C40C3C1E4E 1079 M10K    DC    C'**** CAUTION ****'
002407  00                1080         DC    X'00'
002408  3485              1081         DC    A(CD5)
00240A  E2D6D4C540C3D6D4D 1082 M10G    DC    C'SOME COMMAND(S) WHEN USED COULD DESTROY CUSTOMER DATA '
002440  C9D5E3C5C7D9C9E3E 1083         DC    C'INTEGRITY'
002449  00                1084         DC    X'00'
00244A  0000              1085         DC    A(0)
00244C  F0F140C4C5C6C1E4D 1086 M11     DC    C'01 DEFAULT=RECAL,SEEK,READ SECT ID'
00246E  00                1087         DC    X'00'
002470  0000              1088         DC    A(0)
002472  F0F240C4C5C6C1E4D 1089 M12     DC    C'02 DEFAULT=RECAL,SEEK,READ SECT ID,WRITE SECT ID'
0024A2  00                1090         DC    X'00'
0024A4  349B              1091         DC    A(CD1B)
0024A6  E6D9D6D5C740C9C4C 1092 INCMG   DC    C'WRONG IDCB COMMAND,START OVER'
0024C3  00                1093         DC    X'00'
0024C4  34A2              1094         DC    A(CD22)
0024C6  D3C5E5C5D340E3D64 1095 PMSGR   DC    C'LEVEL TO INTERRUPT'
0024D8  00                1096         DC    X'00'
0024DA  34A3              1097         DC    A(CD23)
0024DC  D3C5D5C7E3C840D6C 1098 DMSGL   DC    C'LENGTH OF DELAY(IN MILLISECONDS)'
0024FC  00                1099         DC    X'00'
0024FE  34A6              1100         DC    A(CD26)
002500  D3D6D6D740D5D6E34 1101 NLOOP   DC    C'LOOP NOT STARTED,START OVER'
00251B  00                1102         DC    X'00'
00251C  34A4              1103         DC    A(CD24)
00251E  C4C1E3C140C9E2    1104 DTINN   DC    C'DATA IS'
002525  00                1105         DC    X'00'
002526  34A1              1106         DC    A(CD21)
002528  C4D640E8D6E440E6C 1107 DINNT   DC    C'DO YOU WANT TO USE THE STANDARD DATA PATTERN?'
002555  00                1108         DC    X'00'
002556  34A7              1109         DC    A(CD27)
002558  C8D6E640D4C1D5E84 1110 LPMSG   DC    C'HOW MANY TIMES THROUGH THE LOOP'
002577  00                1111         DC    X'00'
002578  34A5              1112         DC    A(CD25)
00257A  C2E8E3C540C3D6E4D 1113 BYTEC   DC    C'BYTE COUNT'
002584  00                1114         DC    X'00'
002586  34A8              1115         DC    A(CD28)
002588  E2C5C5D240C4C9C6C 1116 DFMSG   DC    C'SEEK DIFFERENCE'
002597  00                1117         DC    X'00'
002598  34A9              1118         DC    A(CD29)
00259A  C6D6D9E6C1D9C440E 1119 SDMSG   DC    C'FORWARD SEEK?'
0025A7  00                1120         DC    X'00'
0025A8  34AB              1121         DC    A(CD2B)
0025AA  C3E8D3C9D5C4C5D94 1122 CLMSG   DC    C'CYLINDER NUMBER'
0025B9  00                1123         DC    X'00'
0025BA  34AD              1124         DC    A(CD2D)
0025BC  E2C5C3E3D6D940D5E 1125 RCMSG   DC    C'SECTOR NUMBER'
0025C9  00                1126         DC    X'00'
0025CA  34AE              1127         DC    A(CD2E)
0025CC  C8C5C1C4          1128 HDMSG   DC    C'HEAD'
0025D0  00                1129         DC    X'00'
0025D2  3496              1130         DC    A(CD16)
0025D4  C9E240E3C8C9E240C 1131 FIXMG   DC    C'IS THIS A FIXED HEAD?'
0025E9  00                1132         DC    X'00'
0025EA  34AF              1133         DC    A(CD2F)
0025EC  C4D640E8D6E440E6C 1134 CHBT    DC    C'DO YOU WANT THE CHAIN BIT ON?'
002609  00                1135         DC    X'00'
00260A  34BC              1136         DC    A(CD3C)
00260C  E6C9D3D340C1D5E84 1137 DCBC1   DC    C'WILL ANY DCB''S BE CHAINED?'
002626  00                1138         DC    X'00'
002628  0000              1139         DC    A(0)
00262A  D3D6D6D740E2E3C1D 1140 LPST    DC    C'LOOP STARTED AT '
00263A  F0F0F0F0          1141 LPST1   DC    C'0000'
00263E  00                1142         DC    X'00'
002640  0000              1143         DC    A(0)
002642  D3D6D6D740C5D5C4C 1144 LPEN    DC    C'LOOP ENDED AT '
002650  F0F0F0F0          1145 LPEN1   DC    C'0000'
002654  00                1146         DC    X'00'
002656  34BA              1147         DC    A(CD3A)
002658  C4D640E8D6E440E6C 1148 WRDMG   DC    C'DO YOU WANT TO WRITE THE DATA JUST READ?'
002680  00                1149         DC    X'00'
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 LOCTR   OBJECT TEXT         STMT SOURCE STATEMENT
002682   34BB                1150         DC    A(CD3B)
002684   C8D6E640D4C1D5E84   1151 COUNT   DC    C'HOW MANY WORDS OF DATA'
00269A   00                  1152         DC    X'00'
00269C   34A0                1153         DC    A(CD20)
00269E   D9C5C1C440C9C440C   1154 IDMG1   DC    C'READ ID EXPECTED '
0026AF   E7E7E7E740C9C440E   1155 IDMG2   DC    C'XXXX ID WAS '
0026BB   E7E7E7E740C9E240E   1156 IDMG3   DC    C'XXXX IS THIS O.K.?'
0026CD   00                  1157         DC    X'00'
000000                       1158         END
```


CROSS-REFERENCE LISTING

```
DECLARED  NAME     ATTRIBUTES AND REFERENCES
       0  .R0.     ABSOLUTE. HEX VALUE(00000000)
                   177  178  183  184  185  340  341  342  393
                   397  402  403  404  408  409  410  425  434
                   435  436  439  449  451  453  454  458  459
                   460  464  465  466  466  469  472  474  475
                   475  492  496  499  500  503  517  521  527
                   528  532  715  716  717  718  719  720  720
                   734  737  740  743  744  748  749  750  795
                   796  797  798  804  805  806  807
       0  .R1.     ABSOLUTE. HEX VALUE(00000001)
                   328  329  330  331  332  333  334  335  336
                   337  337  338  339  339  422  423  424  424
       0  .R2.     ABSOLUTE. HEX VALUE(00000002)
                   358  360  382  387  392  415  416  417  493
                   495  499  518  520  527  664  665  670  670
                   674  674  685  686  694  694  709  711  724
                   725  727  728
       0  .R3.     ABSOLUTE. HEX VALUE(00000003)
                   176  181  357  360  362  381  384  414  416
                   419  494  495  496  497  519  520  521  522
                   523  524  525  573  574  669  670  674  692
                   694  708  709  726  727  833  834
       0  .R4.     ABSOLUTE. HEX VALUE(00000004)
                   346  351  384  386  389  391  392  394  394
                   394  394  395  401  402  736  737  739  740
                   742  743  775  776  777  867  869  869  870
                   871  875  882
       0  .R5.     ABSOLUTE. HEX VALUE(00000005)
                   343  354  356  363  480  482  486  511  512
                   514  515  545  547  548  561  563  571  574
                   590  592  649  651  681  683  684  698  699
                   700  701  702  710  788  790  872  873  874
                   875  879  881
       0  .R6.     ABSOLUTE. HEX VALUE(00000006)
                   628  629  630  631  632  725  730  830  834
                   840  868  876  877  880  881  883
       0  .R7.     ABSOLUTE. HEX VALUE(00000007)
                   182  189  201  203  209  210  212  327  344
                   347  350  352  364  365  367  369  371  388
                   400  404  405  406  407  408  409  413  418
                   420  427  429  436  437  442  444  445  446
                   447  448  454  455  456  457  458  459  478
                   481  482  485  486  489  491  498  505  509
                   513  526  530  536  543  546  549  559  562
                   565  567  572  578  588  591  594  596  598
                   599  600  602  610  611  613  616  622  624
                   640  642  647  650  658  663  666  667  671
                   675  679  682  688  690  691  695  696  703
                   704  705  707  713  723  733  735  738  741
                   744  745  746  747  748  749  764  772  786
                   789  814  818  824  828  832  838  843  854
                   859  862  866  878  879
     305  ALBRT    ADDRESS. HEX LOCATION(00001A8B) IN CSECT(078E8   ) LENGTH(1)
                   483
     310  ASKHD    ADDRESS. HEX LOCATION(00001A90) IN CSECT(078E8   ) LENGTH(1)
                   594  815
     312  ASKIT    ADDRESS. HEX LOCATION(00001A92) IN CSECT(078E8   ) LENGTH(1)
                   613  615
      86  BADCC    ABSOLUTE. HEX VALUE(0000181C)
                   189
     260  BYCNT    ADDRESS. HEX LOCATION(00001A34) IN CSECT(078E8   ) LENGTH(2)
                   649  651  655  663  698  766  774  809  943
     942  BYCTM    ADDRESS. HEX LOCATION(0000220A) IN CSECT(078E8   ) LENGTH(2)
                   647
    1113  BYTEC    ADDRESS. HEX LOCATION(0000257A) IN CSECT(078E8   ) LENGTH(10)
                   942
     322  CB29     ADDRESS. HEX LOCATION(00001AA2) IN CSECT(078E8   ) LENGTH(1)
                   793
     188  CCCHK    ADDRESS. HEX LOCATION(00001AE) IN CSECT(078E8   ) LENGTH(4)
                   191  406  407  456  457  746  747
     191  CCDCP    ABSOLUTE. HEX VALUE(00000008)
                   405  455  745
      55  CD1B     ABSOLUTE. HEX VALUE(0000349B)
                  1091
      54  CD16     ABSOLUTE. HEX VALUE(00003496)
                  1130
      66  CD2B     ABSOLUTE. HEX VALUE(000034AB)
                  1121
      67  CD2D     ABSOLUTE. HEX VALUE(000034AD)
                  1124
      68  CD2E     ABSOLUTE. HEX VALUE(000034AE)
                  1127
      69  CD2F     ABSOLUTE. HEX VALUE(000034AF)
                  1133
      56  CD20     ABSOLUTE. HEX VALUE(000034A0)
                  1153
      57  CD21     ABSOLUTE. HEX VALUE(000034A1)
                  1106
      58  CD22     ABSOLUTE. HEX VALUE(000034A2)
                  1094
      59  CD23     ABSOLUTE. HEX VALUE(000034A3)
                  1097
      60  CD24     ABSOLUTE. HEX VALUE(000034A4)
                  1103
      61  CD25     ABSOLUTE. HEX VALUE(000034A5)
                  1112
      62  CD26     ABSOLUTE. HEX VALUE(000034A6)
                  1100
      63  CD27     ABSOLUTE. HEX VALUE(000034A7)
                  1109
      64  CD28     ABSOLUTE. HEX VALUE(000034A8)
                  1115
      65  CD29     ABSOLUTE. HEX VALUE(000034A9)
                  1118
      70  CD3A     ABSOLUTE. HEX VALUE(000034BA)
                  1147
      71  CD3B     ABSOLUTE. HEX VALUE(000034BB)
                  1150
      72  CD3C     ABSOLUTE. HEX VALUE(000034BC)
                  1136
      53  CD5      ABSOLUTE. HEX VALUE(00003485)
```

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
		1081
957	CHBIT	ADDRESS. HEX LOCATION(00002228) IN CSECT(078E8) LENGTH(2)
		624
1134	CHBT	ADDRESS. HEX LOCATION(000025EC) IN CSECT(078E8) LENGTH(29)
		957
313	CHIND	ADDRESS. HEX LOCATION(00001A93) IN CSECT(078E8) LENGTH(1)
		713 729 733
259	CHNAD	ADDRESS. HEX LOCATION(00001A32) IN CSECT(078E8) LENGTH(2)
		632
1122	CLMSG	ADDRESS. HEX LOCATION(000025AA) IN CSECT(078E8) LENGTH(15)
		1001
1001	CLNUM	ADDRESS. HEX LOCATION(00002280) IN CSECT(078E8) LENGTH(2)
		559
295	CLPEN	ADDRESS. HEX LOCATION(00001A78) IN CSECT(078E8) LENGTH(2)
		530
292	CLPST	ADDRESS. HEX LOCATION(00001A72) IN CSECT(078E8) LENGTH(2)
		536
264	CNDDF	ADDRESS. HEX LOCATION(00001A3C) IN CSECT(078E8) LENGTH(2)
		820
197	CNTAD	ADDRESS. HEX LOCATION(000019B8) IN CSECT(078E8) LENGTH(1)
		522
192	CNTST	ADDRESS. HEX LOCATION(000019B6) IN CSECT(078E8) LENGTH(6)
		197 198 518
224	CNTSV	ADDRESS. HEX LOCATION(000019FA) IN CSECT(078E8) LENGTH(2)
		684 701 703 705 707
195	CNTWD	ADDRESS. HEX LOCATION(000019C2) IN CSECT(078E8) LENGTH(2)
		192 199 512 519 953
473	COMCD	ADDRESS. HEX LOCATION(00001C6C) IN CSECT(078E8) LENGTH(1)
		470
1151	COUNT	ADDRESS. HEX LOCATION(00002684) IN CSECT(078E8) LENGTH(22)
		967
79	CPUTP	ABSOLUTE. HEX VALUE(00000232)
		483
289	CVADR	ADDRESS. HEX LOCATION(00001A6C) IN CSECT(078E8) LENGTH(2)
		344
290	CVAD1	ADDRESS. HEX LOCATION(00001A6E) IN CSECT(078E8) LENGTH(2)
		343
301	CVEXP	ADDRESS. HEX LOCATION(00001A84) IN CSECT(078E8) LENGTH(2)
		367
298	CVRID	ADDRESS. HEX LOCATION(00001A7E) IN CSECT(078E8) LENGTH(2)
		365
962	DATER	ADDRESS. HEX LOCATION(00002232) IN CSECT(078E8) LENGTH(2)
		688
166	DATIN	ADDRESS. HEX LOCATION(0000194A) IN CSECT(078E8) LENGTH(2)
		551 569 598 604 618 626 660 692 958
		963 973 992 997 1012 1017 1022
972	DATRQ	ADDRESS. HEX LOCATION(00002246) IN CSECT(078E8) LENGTH(2)
		658
1021	DCBCH	ADDRESS. HEX LOCATION(000022A8) IN CSECT(078E8) LENGTH(2)
		616
1137	DCBC1	ADDRESS. HEX LOCATION(0000260C) IN CSECT(078E8) LENGTH(26)
		1021
254	DCBLD	ADDRESS. HEX LOCATION(00001A28) IN CSECT(078E8) LENGTH(2)
		414 541 573 575 628 634 636 638 644
		652 726 753 758 763 771 780 783 817
		823 833 835 846 849
85	DCBPT	ABSOLUTE. HEX VALUE(0000181A)
		630 720 724 728 754 759
477	DELAY	ADDRESS. HEX LOCATION(00001C76) IN CSECT(078E8) LENGTH(1)
		274
245	DELCT	ADDRESS. HEX LOCATION(00001A20) IN CSECT(078E8) LENGTH(1)
		489
96	DEVC1	ABSOLUTE. HEX VALUE(0000182E)
		177
246	DFALT	ADDRESS. HEX LOCATION(00001A21) IN CSECT(078E8) LENGTH(1)
		437 764 772 818 824 852 857
986	DFCNT	ADDRESS. HEX LOCATION(00002262) IN CSECT(078E8) LENGTH(2)
		543
851	DFLT1	ADDRESS. HEX LOCATION(00002134) IN CSECT(078E8) LENGTH(1)
		268
856	DFLT2	ADDRESS. HEX LOCATION(00002146) IN CSECT(078E8) LENGTH(1)
		269
1116	DFMSG	ADDRESS. HEX LOCATION(00002588) IN CSECT(078E8) LENGTH(15)
		986
889	DHSAV	ADDRESS. HEX LOCATION(000021A0) IN CSECT(078E8) LENGTH(2)
		867 882
1107	DINNT	ADDRESS. HEX LOCATION(00002528) IN CSECT(078E8) LENGTH(45)
		972
205	DLADR	ADDRESS. HEX LOCATION(000019CE) IN CSECT(078E8) LENGTH(1)
		497
488	DLAY1	ADDRESS. HEX LOCATION(00001C94) IN CSECT(078E8) LENGTH(1)
		484
490	DLAY2	ADDRESS. HEX LOCATION(00001C98) IN CSECT(078E8) LENGTH(1)
		487
206	DLCNT	ADDRESS. HEX LOCATION(000019D6) IN CSECT(078E8) LENGTH(2)
		201 491 494
202	DLIST	ADDRESS. HEX LOCATION(000019D0) IN CSECT(078E8) LENGTH(2)
		203
937	DLMSG	ADDRESS. HEX LOCATION(00002200) IN CSECT(078E8) LENGTH(2)
		478
201	DLNST	ADDRESS. HEX LOCATION(000019CC) IN CSECT(078E8) LENGTH(4)
		205 493
1098	DMSGL	ADDRESS. HEX LOCATION(000024DC) IN CSECT(078E8) LENGTH(32)
		937
255	DRDFR	ADDRESS. HEX LOCATION(00001A2A) IN CSECT(078E8) LENGTH(2)
		545 547 553 556 580 820 987
228	DTCSS	ADDRESS. HEX LOCATION(00001A04) IN CSECT(078E8) LENGTH(2)
		337
83	DTENT	ABSOLUTE. HEX VALUE(00001816)
		328 332 654 655 664 666 685 708 711
		767 768 775 810 811
1104	DTINN	ADDRESS. HEX LOCATION(0000251E) IN CSECT(078E8) LENGTH(7)
		962
865	DTOH	ADDRESS. HEX LOCATION(00002162) IN CSECT(078E8) LENGTH(1)
		481 513 546 562 591 650 682 789
225	DVAL1	ADDRESS. HEX LOCATION(000019FC) IN CSECT(078E8) LENGTH(4)
		853
226	DVAL2	ADDRESS. HEX LOCATION(00001A00) IN CSECT(078E8) LENGTH(4)
		858
95	DVPNT	ABSOLUTE. HEX VALUE(0000182C)
		333 422

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
107	EIGHT	ABSOLUTE. HEX VALUE(00000008)
		873 876
97	EPRNT	ABSOLUTE. HEX VALUE(00001830)
		212
209	ERTST	ADDRESS. HEX LOCATION(000019DC) IN CSECT(078E8) LENGTH(4)
		739
213	ERTS1	ADDRESS. HEX LOCATION(000019E8) IN CSECT(078E8) LENGTH(1)
		211
247	FIVDF	ADDRESS. HEX LOCATION(00001A22) IN CSECT(078E8) LENGTH(1)
		439
104	FIVE	ABSOLUTE. HEX VALUE(00000005)
		184
323	FIVE9	ADDRESS. HEX LOCATION(00001AA3) IN CSECT(078E8) LENGTH(1)
		801
1131	FIXMG	ADDRESS. HEX LOCATION(000025D4) IN CSECT(078E8) LENGTH(21)
		1016
256	FORMT	ADDRESS. HEX LOCATION(00001A2C) IN CSECT(078E8) LENGTH(2)
		798 801 807
103	FOUR	ABSOLUTE. HEX VALUE(00000004)
		198 204 350 411 461 523 721 859 870
		872 877
315	FXDHD	ADDRESS. HEX LOCATION(00001A95) IN CSECT(078E8) LENGTH(1)
		379 600
233	FXHID	ADDRESS. HEX LOCATION(00001A0C) IN CSECT(078E8) LENGTH(2)
		377
1016	FXMSG	ADDRESS. HEX LOCATION(0000229E) IN CSECT(078E8) LENGTH(2)
		602
190	GODCC	ADDRESS. HEX LOCATION(000019B6) IN CSECT(078E8) LENGTH(1)
		188 191
1128	HDMSG	ADDRESS. HEX LOCATION(000025CC) IN CSECT(078E8) LENGTH(4)
		1011
1011	HDNUM	ADDRESS. HEX LOCATION(00002294) IN CSECT(078E8) LENGTH(2)
		596
258	HDREC	ADDRESS. HEX LOCATION(00001A30) IN CSECT(078E8) LENGTH(2)
		592 608
92	HEXFF	ABSOLUTE. HEX VALUE(00001828)
		379 538 615 620 729 755 760 785 815
		816 852 857
45	HTOE	ABSOLUTE. HEX VALUE(0000001A)
		345 366 368 531 537
886	HUN	ADDRESS. HEX LOCATION(0000219C) IN CSECT(078E8) LENGTH(1)
		874
81	IDCPT	ABSOLUTE. HEX VALUE(00001812)
		393 398 399 411 452 461 715 721
44	IDLE	ABSOLUTE. HEX VALUE(00000002)
		180 202
1154	IDMG1	ADDRESS. HEX LOCATION(0000269E) IN CSECT(078E8) LENGTH(17)
		977
1155	IDMG2	ADDRESS. HEX LOCATION(000026AF) IN CSECT(078E8) LENGTH(12)
		303
1156	IDMG3	ADDRESS. HEX LOCATION(000026BB) IN CSECT(078E8) LENGTH(18)
		300
977	IDMSG	ADDRESS. HEX LOCATION(00002250) IN CSECT(078E8) LENGTH(2)
		369
1051	INCMD	ADDRESS. HEX LOCATION(00002344) IN CSECT(078E8) LENGTH(2)
		862
1092	INCMG	ADDRESS. HEX LOCATION(000024A6) IN CSECT(078E8) LENGTH(29)
		1051
177	INCOA	ADDRESS. HEX LOCATION(00001992) IN CSECT(078E8) LENGTH(4)
		181 335
176	INCOM	ADDRESS. HEX LOCATION(0000198E) IN CSECT(078E8) LENGTH(4)
		401 736
183	INCO1	ADDRESS. HEX LOCATION(000019A2) IN CSECT(078E8) LENGTH(2)
		179 399 717 742
137	INERR	ABSOLUTE. HEX VALUE(00000002)
		210
187	IOADR	ADDRESS. HEX LOCATION(000019AC) IN CSECT(078E8) LENGTH(1)
		185 398 452 716
186	IONST	ADDRESS. HEX LOCATION(000019AA) IN CSECT(078E8) LENGTH(4)
		187 403 453
207	JINST	ADDRESS. HEX LOCATION(000019D8) IN CSECT(078E8) LENGTH(2)
		341
91	LOOPS	ABSOLUTE. HEX VALUE(00001826)
		293 516 535
508	LOOP1	ADDRESS. HEX LOCATION(00001CCC) IN CSECT(078E8) LENGTH(1)
		504
952	LOPMG	ADDRESS. HEX LOCATION(0000221E) IN CSECT(078E8) LENGTH(2)
		509
502	LOPND	ADDRESS. HEX LOCATION(00001CBC) IN CSECT(078E8) LENGTH(1)
		276
534	LOPST	ADDRESS. HEX LOCATION(00001D28) IN CSECT(078E8) LENGTH(1)
		275
98	LOST	ABSOLUTE. HEX VALUE(00001832)
		182
200	LPADR	ADDRESS. HEX LOCATION(000019C0) IN CSECT(078E8) LENGTH(1)
		516
196	LPCNT	ADDRESS. HEX LOCATION(000019C4) IN CSECT(078E8) LENGTH(2)
		199 514
1144	LPEN	ADDRESS. HEX LOCATION(00002642) IN CSECT(078E8) LENGTH(14)
		984
223	LPEND	ADDRESS. HEX LOCATION(000019F8) IN CSECT(078E8) LENGTH(2)
		296 528 529
984	LPENM	ADDRESS. HEX LOCATION(0000225E) IN CSECT(078E8) LENGTH(2)
		429
1145	LPEN1	ADDRESS. HEX LOCATION(00002650) IN CSECT(078E8) LENGTH(4)
		297
88	LPIND	ABSOLUTE. HEX VALUE(0000181F)
		425 503 538
1110	LPMSG	ADDRESS. HEX LOCATION(00002558) IN CSECT(078E8) LENGTH(31)
		952
194	LPNST	ADDRESS. HEX LOCATION(000019BE) IN CSECT(078E8) LENGTH(4)
		200
1140	LPST	ADDRESS. HEX LOCATION(0000262A) IN CSECT(078E8) LENGTH(16)
		982
982	LPSTM	ADDRESS. HEX LOCATION(0000225A) IN CSECT(078E8) LENGTH(2)
		427
1141	LPST1	ADDRESS. HEX LOCATION(0000263A) IN CSECT(078E8) LENGTH(4)
		294
891	MG8	ADDRESS. HEX LOCATION(000021A4) IN CSECT(078E8) LENGTH(2)
		347
133	M1	ABSOLUTE. HEX VALUE(FFFFFFFF)

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
		192 702
1053	M10	ADDRESS. HEX LOCATION(00002348) IN CSECT(078E8) LENGTH(12)
		911
1056	M10A	ADDRESS. HEX LOCATION(00002358) IN CSECT(078E8) LENGTH(13)
		913
1059	M10B	ADDRESS. HEX LOCATION(00002368) IN CSECT(078E8) LENGTH(17)
		915
1062	M10C	ADDRESS. HEX LOCATION(0000237C) IN CSECT(078E8) LENGTH(18)
		917
1070	M10D	ADDRESS. HEX LOCATION(000023C8) IN CSECT(078E8) LENGTH(7)
		923
1073	M10F	ADDRESS. HEX LOCATION(000023D2) IN CSECT(078E8) LENGTH(14)
		925
1082	M10G	ADDRESS. HEX LOCATION(0000240A) IN CSECT(078E8) LENGTH(54)
		932
1065	M10H	ADDRESS. HEX LOCATION(00002392) IN CSECT(078E8) LENGTH(24)
		919
1067	M10I	ADDRESS. HEX LOCATION(000023AC) IN CSECT(078E8) LENGTH(25)
		921
1076	M10J	ADDRESS. HEX LOCATION(000023E4) IN CSECT(078E8) LENGTH(14)
		927
1079	M10K	ADDRESS. HEX LOCATION(000023F6) IN CSECT(078E8) LENGTH(17)
		929
1086	M11	ADDRESS. HEX LOCATION(0000244C) IN CSECT(078E8) LENGTH(34)
		893
1089	M12	ADDRESS. HEX LOCATION(00002472) IN CSECT(078E8) LENGTH(48)
		895
134	M4	ABSOLUTE. HEX VALUE(FFFFFFFC)
		374
135	M6	ABSOLUTE. HEX VALUE(FFFFFFFA)
		529 776
1026	M8	ADDRESS. HEX LOCATION(000022B2) IN CSECT(078E8) LENGTH(25)
		891
1027	M8A	ADDRESS. HEX LOCATION(000022CB) IN CSECT(078E8) LENGTH(3)
		291
1030	M9	ADDRESS. HEX LOCATION(000022D2) IN CSECT(078E8) LENGTH(19)
		897
1033	M9A	ADDRESS. HEX LOCATION(000022E8) IN CSECT(078E8) LENGTH(20)
		899
1036	M9B	ADDRESS. HEX LOCATION(00002300) IN CSECT(078E8) LENGTH(10)
		901
1039	M9C	ADDRESS. HEX LOCATION(0000230E) IN CSECT(078E8) LENGTH(8)
		903
1042	M9D	ADDRESS. HEX LOCATION(0000231A) IN CSECT(078E8) LENGTH(8)
		905
1045	M9E	ADDRESS. HEX LOCATION(00002326) IN CSECT(078E8) LENGTH(13)
		907
1048	M9F	ADDRESS. HEX LOCATION(00002336) IN CSECT(078E8) LENGTH(11)
		909
252	NEGAT	ADDRESS. HEX LOCATION(00001A27) IN CSECT(078E8) LENGTH(1)
		556 580
861	NGOOD	ADDRESS. HEX LOCATION(00002158) IN CSECT(078E8) LENGTH(1)
		390
108	NINE	ABSOLUTE. HEX VALUE(00000009)
		445
117	NINTN	ABSOLUTE. HEX VALUE(00000013)
		389
1101	NLOOP	ADDRESS. HEX LOCATION(00002500) IN CSECT(078E8) LENGTH(27)
		930
304	NO	ADDRESS. HEX LOCATION(00001A8A) IN CSECT(078E8) LENGTH(1)
		372 551 569 604 618 626 660
309	NOCHN	ADDRESS. HEX LOCATION(00001A8F) IN CSECT(078E8) LENGTH(1)
		620 622
930	NOLOP	ADDRESS. HEX LOCATION(000021F2) IN CSECT(078E8) LENGTH(2)
		505
100	ONE	ABSOLUTE. HEX VALUE(00000001)
		329 330 331 334 336 386 391 419 485
		541 611 634 636 638 638 644 644 652
		652 667 690 699 704 771 806 817 823
80	OPTN2	ABSOLUTE. HEX VALUE(00001810)
		209
316	ORBYT	ADDRESS. HEX LOCATION(00001A96) IN CSECT(078E8) LENGTH(1)
		606
42	OUT	ABSOLUTE. HEX VALUE(00000000)
		349 428 430 506 863
43	OUTIN	ABSOLUTE. HEX VALUE(00000001)
		353 370 443 479 510 544 550 560 568
		589 597 603 617 625 648 659 680 689
		787
3	O78E8	CSECT. START(00001900) LENGTH(3534) ESDID(0)
		3
1095	PMSGR	ADDRESS. HEX LOCATION(000024C6) IN CSECT(078E8) LENGTH(18)
		947
441	PREPA	ADDRESS. HEX LOCATION(00001C10) IN CSECT(078E8) LENGTH(1)
		438
450	PREPB	ADDRESS. HEX LOCATION(00001C2A) IN CSECT(078E8) LENGTH(1)
		440 467
433	PREPR	ADDRESS. HEX LOCATION(00001BFA) IN CSECT(078E8) LENGTH(1)
		270
947	PRMSG	ADDRESS. HEX LOCATION(00002214) IN CSECT(078E8) LENGTH(2)
		442
241	PRPCD	ADDRESS. HEX LOCATION(00001A1C) IN CSECT(078E8) LENGTH(1)
		434 464
822	RCALB	ADDRESS. HEX LOCATION(000020DA) IN CSECT(078E8) LENGTH(1)
		284
1125	RCMSG	ADDRESS. HEX LOCATION(000025BC) IN CSECT(078E8) LENGTH(13)
		1006
1006	RCNUM	ADDRESS. HEX LOCATION(0000228A) IN CSECT(078E8) LENGTH(2)
		588 786
230	RDADR	ADDRESS. HEX LOCATION(00001A07) IN CSECT(078E8) LENGTH(1)
		354 435 465 474 719
236	RDATA	ADDRESS. HEX LOCATION(00001A12) IN CSECT(078E8) LENGTH(2)
		652 753
231	RDCOD	ADDRESS. HEX LOCATION(00001A08) IN CSECT(078E8) LENGTH(2)
		299 358 377
229	RDID	ADDRESS. HEX LOCATION(00001A06) IN CSECT(078E8) LENGTH(1)
		355
306	RDIND	ADDRESS. HEX LOCATION(00001A8C) IN CSECT(078E8) LENGTH(1)
		565 578 642 755 814 838
318	RDSAV	ADDRESS. HEX LOCATION(00001A9A) IN CSECT(078E8) LENGTH(2)
		582 585 587 845

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
235	RDSID	ADDRESS. HEX LOCATION(00001A10) IN CSECT(078E8) LENGTH(2)
		763
239	RDSKW	ADDRESS. HEX LOCATION(00001A18) IN CSECT(078E8) LENGTH(2)
		780
779	RDSSK	ADDRESS. HEX LOCATION(0000203C) IN CSECT(078E8) LENGTH(1)
		281
237	RDVRF	ADDRESS. HEX LOCATION(00001A14) IN CSECT(078E8) LENGTH(2)
		638 835 846 849
831	RD1	ADDRESS. HEX LOCATION(000020F6) IN CSECT(078E8) LENGTH(1)
		841
321	RD1SV	ADDRESS. HEX LOCATION(00001AA0) IN CSECT(078E8) LENGTH(2)
		571 754 840
837	RD2	ADDRESS. HEX LOCATION(00002108) IN CSECT(078E8) LENGTH(1)
		829
842	RD3	ADDRESS. HEX LOCATION(00002114) IN CSECT(078E8) LENGTH(1)
		839
848	RD4	ADDRESS. HEX LOCATION(0000212A) IN CSECT(078E8) LENGTH(1)
		844
752	READ	ADDRESS. HEX LOCATION(00001FCE) IN CSECT(078E8) LENGTH(1)
		277
762	READS	ADDRESS. HEX LOCATION(00001FFA) IN CSECT(078E8) LENGTH(1)
		279
827	READV	ADDRESS. HEX LOCATION(000020EC) IN CSECT(078E8) LENGTH(1)
		285
249	RECAL	ADDRESS. HEX LOCATION(00001A24) IN CSECT(078E8) LENGTH(1)
		634 823
468	REDID	ADDRESS. HEX LOCATION(00001C62) IN CSECT(078E8) LENGTH(1)
		272
471	RESET	ADDRESS. HEX LOCATION(00001C68) IN CSECT(078E8) LENGTH(1)
		273
199	RESTR	ADDRESS. HEX LOCATION(000019C6) IN CSECT(078E8) LENGTH(6)
		523 525
222	RETSV	ADDRESS. HEX LOCATION(000019F6) IN CSECT(078E8) LENGTH(2)
		327 375 432
242	RIDCD	ADDRESS. HEX LOCATION(00001A1D) IN CSECT(078E8) LENGTH(1)
		469
967	RQCNT	ADDRESS. HEX LOCATION(0000223C) IN CSECT(078E8) LENGTH(2)
		679
243	RSTCD	ADDRESS. HEX LOCATION(00001A1E) IN CSECT(078E8) LENGTH(1)
		472
888	RTRTN	ADDRESS. HEX LOCATION(0000219E) IN CSECT(078E8) LENGTH(2)
		866 884
217	R2SAV	ADDRESS. HEX LOCATION(000019EC) IN CSECT(078E8) LENGTH(2)
		387 417
219	R5SAV	ADDRESS. HEX LOCATION(000019F0) IN CSECT(078E8) LENGTH(2)
		511 515
220	R6SAV	ADDRESS. HEX LOCATION(000019F2) IN CSECT(078E8) LENGTH(2)
		868 883
221	R7SAV	ADDRESS. HEX LOCATION(000019F4) IN CSECT(078E8) LENGTH(2)
		364 371 388 418 610
311	SAVHD	ADDRESS. HEX LOCATION(00001A91) IN CSECT(078E8) LENGTH(1)
		599 606 608
261	SDADR	ADDRESS. HEX LOCATION(00001A36) IN CSECT(078E8) LENGTH(2)
		654 665 686 767 777 810
991	SDIRT	ADDRESS. HEX LOCATION(0000226C) IN CSECT(078E8) LENGTH(2)
		549
1119	SDMSG	ADDRESS. HEX LOCATION(0000259A) IN CSECT(078E8) LENGTH(13)
		991
813	SEEK	ADDRESS. HEX LOCATION(000020B2) IN CSECT(078E8) LENGTH(1)
		283
250	SEKOP	ADDRESS. HEX LOCATION(00001A25) IN CSECT(078E8) LENGTH(1)
		541 636 817
106	SEVEN	ABSOLUTE. HEX VALUE(00000007)
		188 448
266	SIDBC	ADDRESS. HEX LOCATION(00001A40) IN CSECT(078E8) LENGTH(2)
		766 774 809
784	SIDCB	ADDRESS. HEX LOCATION(0000204A) IN CSECT(078E8) LENGTH(1)
		765 773 781
800	SID1	ADDRESS. HEX LOCATION(00002084) IN CSECT(078E8) LENGTH(1)
		792
803	SID2	ADDRESS. HEX LOCATION(0000208C) IN CSECT(078E8) LENGTH(1)
		794
808	SID3	ADDRESS. HEX LOCATION(0000209C) IN CSECT(078E8) LENGTH(1)
		799 802
244	SIOCD	ADDRESS. HEX LOCATION(00001A1F) IN CSECT(078E8) LENGTH(1)
		718
540	SIORT	ADDRESS. HEX LOCATION(00001D3E) IN CSECT(078E8) LENGTH(1)
		819
609	SIOR5	ADDRESS. HEX LOCATION(00001E1A) IN CSECT(078E8) LENGTH(1)
		576 812 825 836
633	SIOR6	ADDRESS. HEX LOCATION(00001E6A) IN CSECT(078E8) LENGTH(1)
		612 623 627
678	SIOR7	ADDRESS. HEX LOCATION(00001EEE) IN CSECT(078E8) LENGTH(1)
		661
712	SIOR8	ADDRESS. HEX LOCATION(00001F52) IN CSECT(078E8) LENGTH(1)
		635 637 639 641 645 656 677 769 778
		821 826
555	SIRT2	ADDRESS. HEX LOCATION(00001D72) IN CSECT(078E8) LENGTH(1)
		552
558	SIRT3	ADDRESS. HEX LOCATION(00001D7A) IN CSECT(078E8) LENGTH(1)
		542
593	SIRT5	ADDRESS. HEX LOCATION(00001DE6) IN CSECT(078E8) LENGTH(1)
		554 557
668	SIR6	ADDRESS. HEX LOCATION(00001EDE) IN CSECT(078E8) LENGTH(1)
		675
673	SIR6A	ADDRESS. HEX LOCATION(00001EE8) IN CSECT(078E8) LENGTH(1)
		671
676	SIR6B	ADDRESS. HEX LOCATION(00001EEC) IN CSECT(078E8) LENGTH(1)
		672
105	SIX	ABSOLUTE. HEX VALUE(00000006)
		399 717 768 811
114	SIXTN	ABSOLUTE. HEX VALUE(00000010)
		413 572 631 723 832
125	SIXTY	ABSOLUTE. HEX VALUE(0000003C)
		797
564	SI4	ADDRESS. HEX LOCATION(00001D8C) IN CSECT(078E8) LENGTH(1)
		761
579	SI4A	ADDRESS. HEX LOCATION(00001DB8) IN CSECT(078E8) LENGTH(1)
		566 756 850
577	SI4AA	ADDRESS. HEX LOCATION(00001DB4) IN CSECT(078E8) LENGTH(1)
		570

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
     607  SI5         ADDRESS. HEX LOCATION(00001E14) IN CSECT(078E8   ) LENGTH(1)
                      595   601   605
     646  SI6         ADDRESS. HEX LOCATION(00001E96) IN CSECT(078E8   ) LENGTH(1)
                      643
     657  SI6A        ADDRESS. HEX LOCATION(00001EBE) IN CSECT(078E8   ) LENGTH(1)
                      653
     687  SI7         ADDRESS. HEX LOCATION(00001F0C) IN CSECT(078E8   ) LENGTH(1)
                      697
     693  SI7A        ADDRESS. HEX LOCATION(00001F1C) IN CSECT(078E8   ) LENGTH(1)
                      695
     706  SI7B        ADDRESS. HEX LOCATION(00001F42) IN CSECT(078E8   ) LENGTH(1)
                      710
     324  SKEWD       ADDRESS. HEX LOCATION(00001AA4) IN CSECT(078E8   ) LENGTH(1)
                      640   785
     308  SKIND       ADDRESS. HEX LOCATION(00001A8E) IN CSECT(078E8   ) LENGTH(1)
                      816   843
     317  SKSAV       ADDRESS. HEX LOCATION(00001A98) IN CSECT(078E8   ) LENGTH(2)
                      548   582   585   845
     132  STH68       ABSOLUTE. HEX VALUE(00001C00)
                      176
      82  STRTB       ABSOLUTE. HEX VALUE(00001814)
                      339   340   342   374   397   410   424   451   460
                      492   500   517   532   535   734   750
     257  SZCYL       ADDRESS. HEX LOCATION(00001A2E) IN CSECT(078E8   ) LENGTH(2)
                      561   563   587  1002
     584  S14B        ADDRESS. HEX LOCATION(00001DC8) IN CSECT(078E8   ) LENGTH(1)
                      581
     586  S14C        ADDRESS. HEX LOCATION(00001DCE) IN CSECT(078E8   ) LENGTH(1)
                      583   847
     621  S5          ADDRESS. HEX LOCATION(00001E44) IN CSECT(078E8   ) LENGTH(1)
                      614   619
     722  S8          ADDRESS. HEX LOCATION(00001F76) IN CSECT(078E8   ) LENGTH(1)
                      714
     109  TEN         ABSOLUTE. HEX VALUE(0000000A)
                      193
     887  TENS        ADDRESS. HEX LOCATION(0000219D) IN CSECT(078E8   ) LENGTH(1)
                      880
     267  TERBL       ADDRESS. HEX LOCATION(00001A42) IN CSECT(078E8   ) LENGTH(1)
                      382
     167  TERDT       ADDRESS. HEX LOCATION(0000198A) IN CSECT(078E8   ) LENGTH(4)
                      669
     232  TERID       ADDRESS. HEX LOCATION(00001A0A) IN CSECT(078E8   ) LENGTH(2)
                      302   357
     326  TER00       ADDRESS. HEX LOCATION(00001AA6) IN CSECT(078E8   ) LENGTH(1)
                      163
     348  TER10       ADDRESS. HEX LOCATION(00001AF4) IN CSECT(078E8   ) LENGTH(1)
                      351
     359  TER11       ADDRESS. HEX LOCATION(00001B14) IN CSECT(078E8   ) LENGTH(1)
                      363
     376  TER12       ADDRESS. HEX LOCATION(00001B4A) IN CSECT(078E8   ) LENGTH(1)
                      361   373   855   860
     380  TER13       ADDRESS. HEX LOCATION(00001B58) IN CSECT(078E8   ) LENGTH(1)
                      378
     393  TER15       ADDRESS. HEX LOCATION(00001B60) IN CSECT(078E8   ) LENGTH(1)
                      420
     396  TER20       ADDRESS. HEX LOCATION(00001B86) IN CSECT(078E8   ) LENGTH(1)
                      476   864
     412  TER23       ADDRESS. HEX LOCATION(00001BBE) IN CSECT(078E8   ) LENGTH(1)
                      462   501   507   533   539   731   751
     421  TER25       ADDRESS. HEX LOCATION(00001BD8) IN CSECT(078E8   ) LENGTH(1)
                      385
     431  TER26       ADDRESS. HEX LOCATION(00001BF6) IN CSECT(078E8   ) LENGTH(1)
                      426
     885  THOUS       ADDRESS. HEX LOCATION(0000219A) IN CSECT(078E8   ) LENGTH(2)
                      871
     102  THREE       ABSOLUTE. HEX VALUE(00000003)
                      356   854
     932  TMG2        ADDRESS. HEX LOCATION(000021F6) IN CSECT(078E8   ) LENGTH(2)
                      352
     110  TWELV       ABSOLUTE. HEX VALUE(0000000C)
                      423   498   738   741   878
     118  TWENY       ABSOLUTE. HEX VALUE(00000014)
                      346   400   735
     119  TWEN2       ABSOLUTE. HEX VALUE(00000016)
                      526
     101  TWO         ABSOLUTE. HEX VALUE(00000002)
                      187   197   200   205   207   208   335   338   362
                      406   456   524   525   746   795   804
     164  UBUFR       ADDRESS. HEX LOCATION(00001906) IN CSECT(078E8   ) LENGTH(2)
                      381   853   858   933
     463  UNPRP       ADDRESS. HEX LOCATION(00001C56) IN CSECT(078E8   ) LENGTH(1)
                      271
     319  WDCNT       ADDRESS. HEX LOCATION(00001A9C) IN CSECT(078E8   ) LENGTH(2)
                      681   683   691   696   700   968
     215  WORKA       ADDRESS. HEX LOCATION(000019E8) IN CSECT(078E8   ) LENGTH(2)
                      372   978
     216  WORKB       ADDRESS. HEX LOCATION(000019EA) IN CSECT(078E8   ) LENGTH(2)
                      590   788   790   791   793   796   805  1007
     165  WORK1       ADDRESS. HEX LOCATION(00001946) IN CSECT(078E8   ) LENGTH(2)
                      444   446   447   449   880   938   948
    1148  WRDMG       ADDRESS. HEX LOCATION(00002658) IN CSECT(078E8   ) LENGTH(40)
                      996
     307  WRIND       ADDRESS. HEX LOCATION(00001A8D) IN CSECT(078E8   ) LENGTH(1)
                      760   828
     757  WRITE       ADDRESS. HEX LOCATION(00001FE4) IN CSECT(078E8   ) LENGTH(1)
                      278
     770  WRITS       ADDRESS. HEX LOCATION(0000201A) IN CSECT(078E8   ) LENGTH(1)
                      280
     996  WRRDM       ADDRESS. HEX LOCATION(00002276) IN CSECT(078E8   ) LENGTH(2)
                      567
     248  WRSEC       ADDRESS. HEX LOCATION(00001A23) IN CSECT(078E8   ) LENGTH(1)
                      771
     240  WRSKW       ADDRESS. HEX LOCATION(00001A1A) IN CSECT(078E8   ) LENGTH(2)
                      783
     782  WRSSK       ADDRESS. HEX LOCATION(00002044) IN CSECT(078E8   ) LENGTH(1)
                      282
     238  WRTDA       ADDRESS. HEX LOCATION(00001A16) IN CSECT(078E8   ) LENGTH(2)
                      575   644   758
     320  WRTSV       ADDRESS. HEX LOCATION(00001A9E) IN CSECT(078E8   ) LENGTH(2)
                      759   830
      99  ZERO        ABSOLUTE. HEX VALUE(00000000)
```


CROSS-REFERENCE LISTING

```
DECLARED  NAME      ATTRIBUTES AND REFERENCES
      93  ZEROS       178   183   629   730
                      ABSOLUTE. HEX VALUE(00001829)
                      415   553   791
```

********** LAST PAGE **********

```
 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                              3 ************************************************************************
                              4 *                                                                      *
                              5 *                    ***       PREREQUISITES        ***               *
                              6 *                                                                      *
                              7 *                                NONE                                  *
                              8 *                                                                      *
                              9 ************************************************************************
                             10 *                                                                      *
                             11 *                    ***       MODIFICATIONS        ***               *
                             12 *                                                                      *
                             13 *    ADDED SUPPORT FOR 2740 MODEL 1 TERMINALS WITH STATION CONTROL     *
                             14 *    AND FOR 2740 MODEL 2 TERMINALS.                                   *
                             15 *    ADDED BREAK FEATURE SUPPORT FOR 2741 TERMINALS AND TRANSMIT       *
                             16 *    CONTROL FOR 2740 MODEL 1 TERMINALS.                               *
                             17 *                                                                      *
                             18 ************************************************************************
                             19 *                                                                      *
                             20 *                    ***     REA'S INCORPORATED     ***               *
                             21 *                                                                      *
                             22 *                                NONE                                  *
                             23 *                                                                      *
                             24 ************************************************************************
                             25 *                                                                      *
                             26 *                    ***    SPECIAL INSTRUCTIONS    ***               *
                             27 *                                                                      *
                             28 *                                NONE                                  *
                             29 *                                                                      *
                             30 ************************************************************************
                             31 *                                                                      *
                             32 *                    ***       E. C. HISTORY        ***               *
                             33 *                                                                      *
                             34 *         DATE 02AUG77 DATE 15JAN79 DATE          DATE                *
                             35 *         E.C. 754863  E.C. 375147  E.C.          E.C.                *
                             36 *                                                                      *
                             37 ************************************************************************
                             38          MACRO
                             39 &L       QUEST &A,&B,&C
                             40 &L       BAL   QUEST,R7            DISPLAY MSG, ASK FOR INPUT
                             41          DC    A(&A)               MSG ADDP
                             42          DC    X'&B&C'             00=EBCDIC, 01=HEX  & CONTROL FLAG
                             43          MEND
                             44 ************************************************************************
                             45          MACRO
                             46 &L       MSG   &A,&B
                             47 &L       BAL   MSG,R7              GENERAL DISPLAY MESSAGE
                             48          DC    A(&A)               MSG ADDR,FLAG
                             49          DC    X'&B'
                             50          ALIGN WORD
                             51          MEND
                             52 ************************************************************************
                             53          MACRO
                             54 &L       TMSG  &A,&B
                             55 &L       BAL   TMSG,R7             SVC TRACE MESSAGES (DIAGNOSTIC)
                             56          DC    A(&A)               OPTN1 BIT 11 ON TO DISPLAY
                             57          DC    X'&B'
                             58          ALIGN WORD
                             59          MEND
                             60 ************************************************************************
                             61          MACRO
                             62 &L       LMSG  &A,&B
                             63 &L       BAL   LMSG,R7             LINE ACTION MESSAGES
                             64          DC    A(&A)               OPTN1 BIT 10 OFF TO DISPLAY
                             65          DC    X'&B'
                             66          ALIGN WORD
                             67          MEND
                             68 ************************************************************************
                             69          MACRO
                             70 &L       MOV   &A,&B,&C
                             71 &L       BAL   MOV,R7        MOVE BYTES. STRT ADDR, END ADDR, TO ADDR.
                             72          DC    A(&A,&B,&C)
                             73          MEND
                             74 ************************************************************************
                             75          MACRO
                             76 &L       MSK   &A,&B,&C
                             77 &L       BAL   MSK,R7        START ADDR, END ADDR, BYTE VALUE TO STORF
                             78          DC    A(&A,&B)
                             79          DC    X'&C'
                             80          ALIGN WORD
                             81          MEND
                             82 ************************************************************************
                             83          MACRO
                             84 &L       DELAY &A
                             85 &L       BAL   DELAY,R7            DELAY MILLISECONDS
                             86          DC    A(&A)
                             87          MEND
                             88 ************************************************************************
                             89          MACRO
                             90 &L       WINT  &A
                             91 &L       BAL   WINT,R7             DELAY MILLISECONDS, WAIT FOR INT.
                             92          DC    A(&A)               RETURN ONLY IF INT OCCURED IN TIME.
                             93          MEND
                             94 ************************************************************************
                             95          MACRO
                             96 &L       WINTS &A
                             97 &L       BAL   WINTS,R7            DELAY SECONDS, WAIT FOR INT.
                             98          DC    A(&A)               RETURN ONLY IF INT OCCURED IN TIME.
                             99          MEND
                            100 ************************************************************************
                            101          MACRO
                            102 &L       ETH   &A,&B,&C
                            103 &L       BAL   ETH,R7              CVT EBCDIC TO HEX  (2:1)
                            104          DC    A(&A,&B,&C)         FROM ADDR, TO ADDR, SOURCE BYTE COUNT
                            105          MEND
                            106 ************************************************************************
                            107          MACRO
                            108 &L       HTE   &A,&B,&C
                            109 &L       BAL   HTE,R7              CVT HEX TO EBCDIC  (1:2)
                            110          DC    A(&A,&B,&C)         FROM ADDR, TO ADDR, SOURCE BYTE COUNT
                            111          MEND
                            112 ************************************************************************
                            113          MACRO
                            114 &L       ALN
                            115 &L       DC    X'00'                                    MSG TERMINATOR
                            116 *--------------------------------------------------------------------*
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                            117          ALIGN WORD
                            118          MEND
                            119 ************************************************************************
                            120          MACRO
                            121 &L       SCANB &A,&B,&C
                            122 &L       BAL   SCANB,R7            START ADDR, BYTE COUNT, BYTE VALUE
                            123          DC    A(&A,&B)
                            124          DC    X'&C'
                            125          ALIGN WORD
                            126          MEND
                            127 ************************************************************************
                            128          MACRO
                            129 &L       SCANW &A,&B,&C
                            130 &L       BAL   SCANW,R7      START ADDR, BYTE COUNT, WORD VALUE TO SCAN
                            131          DC    A(&A,&B)
                            132          DC    X'&C'
                            133          ALIGN WORD
                            134          MEND
                            135 ************************************************************************
                            136          MACRO
                            137 &L       CKPT  &A
                            138 &L       MVWI  X'&A',CKPT <<<<<< C H E C K P O I N T <<<<<<<********
                            139 *--------------------------------------------------------------------*
                            140          MEND
                            141 ************************************************************************
                            143 ************************************************************************
                            144 *                                                                      *
                            145 *          DCP OPTION BITS SUPPORTED                                   *
                            146 *                                                                      *
                            147 *       OPTION WORD 1                                                  *
                            148 *                                                                      *
                            149 *   BIT 0                          PROGRAM TERMINATE                   *
                            150 *   BIT 1                          REQUEST DEVICE ADDR FROM OPERATOR   *
                            151 *   BIT 2                          NOT USED                            *
                            152 *   BIT 3                          NOT USED                            *
                            153 *                                                                      *
                            154 *   BIT 4                          BYPASS DISPLAY STATUS MESSAGES      *
                            155 *   BIT 5                          BYPASS DISPLAY ERROR MESSAGES       *
                            156 *   BIT 6                          NOT USED                            *
                            157 *   BIT 7                          RESERVED                            *
                            158 *                                                                      *
                            159 *   BIT 8                          DO NOT PRINT CONFIGURATION          *
                            160 *   BIT 9                          NOT USED                            *
                            161 *   BIT 10                         BYPASS LINE ACTION MESSAGES         *
                            162 *   BIT 11                         DISPLAY SVC COMMAND TRACE           *
                            163 *                                                                      *
                            164 *   BIT 12                         DO NOT LOOP ROUTINE                 *
                            165 *   BIT 13                         PRINT LOG AT END OR RESET/START     *
                            166 *   BIT 14                         ASK INITIAL QUESTIONS AGAIN         *
                            167 *   BIT 15                         DO NOT CLEAR LOG AFTER PRINT        *
                            168 *                                                                      *
                            169 *       OPTION WORD TWO                                                *
                            170 *                                                                      *
                            171 *   BIT 0-15                       NOT USED                            *
                            172 *                                                                      *
                            173 ************************************************************************
                            174 *                                                                      *
                            175 *          START STOP DEVICE CONTROL BLOCK                             *
                            176 *                                                                      *
                            177 *      7     DATA ADDRESS                                            *
                            178 *      ---------------------------------                             *
                            179 *      6     BYTE COUNT                                              *
                            180 *      ---------------------------------                             *
                            181 *      5     CHAIN ADDRESS                                           *
                            182 *      ---------------------------------                             *
                            183 *      4     LINE CONTROL CHARACTER                                  *
                            184 *      ---------------------------------                             *
                            185 *      3     LINE CONTROL CHARACTERS/TIMER 2                         *
                            186 *      ---------------------------------                             *
                            187 *      2     LINE CONTROL CHARACTERS/TIMER 1                         *
                            188 *      ---------------------------------                             *
                            189 *      1     BIT RATE CONSTANT/EOA                                   *
                            190 *      ---------------------------------                             *
                            191 *      0     CONTROL WORD                                            *
                            192 *      ---------------------------------                             *
                            193 *                                                                      *
                            194 *                                                                      *
                            195 ************************************************************************
                            196 *          CONTROL WORD (WORD 0 OF DCB)                                *
                            197 *      ---------------------------------                             *
                            198 *   BIT 0   CHAINING FLAG                                              *
                            199 *   BIT 1   NOT USED - MUST BE ZERO                                    *
                            200 *   BIT 2   INPUT FLAG                                                 *
                            201 *   BIT 3   NOT USED - MUST BE ZERO                                    *
                            202 *   BIT 4   NOT USED - MUST BE ZERO                                    *
                            203 *   BIT 5-7 CYCLE STEAL ADDRESS KEY                                    *
                            204 *   BIT 8-9 NOT USED - MUST BE ZERO                                    *
                            205 *                                                                      *
                            206 *  10 11 12 13 14 15                                                   *
                            207 *   0  0  0  0  0  0  TRANSMIT                                         *
                            208 *   0  0  0  0  0  1  TRANSMIT END                                     *
                            209 *   0  0  0  0  1  0  TRANSMIT ALLCW BREAK                             *
                            210 *   0  0  0  0  1  1  TRANSMIT END ALLOW PREAK                         *
                            211 *   0  0  0  1  0  0  RECEIVE                                          *
                            212 *   0  0  0  1  0  1  RECEIVE WITHTIMEOUT                              *
                            213 *   1  0  0  1  0  0  RECEIVE RESPONSE                                 *
                            214 *   1  0  0  1  0  1  RECEIVE RESPONSE WITH TIMEOUT                    *
                            215 *   0  0  0  1  1  0  RING ENABLE                                      *
                            216 *   0  0  0  1  1  1  RING ENABLE WITH TIMEOUT                         *
                            217 *   0  0  1  0  0  0  DTR ENABLE                                       *
                            218 *   0  0  1  0  0  1  DTR ENABLE WITH TIMEOUT                          *
                            219 *   0  0  1  0  1  0  DTR ENABLE WITH TONE                             *
                            220 *   0  0  1  0  1  1  DTR ENABLE WITH TONE & TIMEOUT                   *
                            221 *   0  0  1  1  0  0  DTR DISABLE                                      *
                            222 *   0  X  1  1  0  1  SET CONTROL OR DIAGNOSTIC                        *
                            223 *   0  0  1  1  1  0  PROGRAM DELAY                                    *
                            224 *   0  0  1  1  1  1  RESET                                            *
                            225 ************************************************************************
                            226 *                TIMER USEAGE                                          *
                            227 *                                                                      *
                            228 *          TIMER ONE                TIMER TWO                          *
                            229 *          1. RECEIVE TIMEOUT       1. PROGRAM DELAY                   *
                            230 *          2. TRANSMIT DELAY        2. CLEAR TO SEND DELAY             *
                            231 *          3. TRANSMIT END DELAY    3. DATA SET READY TIMEOUT          *
```

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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                    COPYRIGHT IBM CORP 1976
                            232 *          4. ANSWERTONE OR BREAK    4. RING INDICATOR TIMEOUT          *
                            233 *                                    5. DISABLE DATA TERMINAL           *
                            234 *                                       READY DELAY                     *
                            235 ************************************************************************
                            236 *                                                                      *
                            237 *     INTERRUPT STATUS BYTE CONTENTS FOR START STOP ADAPTERS           *
                            238 *                                                                      *
                            239 *     0     FETCH CYCLE STEAL STATUS                                   *
                            240 *     1     DELAYED COMMAND REJECT                                     *
                            241 *     2     INCORRECT LENGTH RECORD                                    *
                            242 *     3     DCB SPECIFICATION CHECK                                    *
                            243 *     4     STORAGE CHECK                                              *
                            244 *     5     INVALID STORAGE ADDRESS                                    *
                            245 *     6     PROTECTION CHECK                                           *
                            246 *     7     INTERFACE DATA CHECK                                       *
                            247 *                                                                      *
                            248 ************************************************************************
                            249 *                                                                      *
                            250 *        STATUS WORD CONTENTS FOR START STOP ADAPTERS                  *
                            251 *                                                                      *
                            252 *     WORD ZERO                                                        *
                            253 *     0 THRU 15: MAIN STORAGE ADDRESS OF LAST ATTEMPTED CYCLE STEAL    *
                            254 *                TRANSFER.                                             *
                            255 *                                                                      *
                            256 *                                                                      *
                            257 *     WORD ONE                                                         *
                            258 *     0     OVERRUN: RCV OR XMT BUFFER NOT SERVICED WITHIN 1 CHAR TIME *
                            259 *     1     TIMEOUT                                                    *
                            260 *     2     LRC ERROR: BCC DOES NOT COMPARE                            *
                            261 *     3     DCB REJECT                                                 *
                            262 *     4     EOB RECOGNIZED IN TRANSMIT & BYTE COUNT NOT ZERO           *
                            263 *     5     VRC ERROR: HEX 00 WILL BE PLACED IN STORAGE                *
                            264 *     6     BREAK: A BREAK CONDITION WAS DETECTED DURING XMIT.         *
                            265 *     7     STOP BIT ERROR: MISSING STOP BIT IN RCVD CHARACTER         *
                            266 *     8     DIAGNOSTIC ERROR                                           *
                            267 *     9     MODEM INTERFACE ERROR                                      *
                            268 *     10 THRU 15 RESERVED                                              *
                            269 *                                                                      *
                            270 *     WORD TWO                                                         *
                            271 *                                                                      *
                            272 *     0     DATA TERMINAL READY                                        *
                            273 *     1     DATA SET READY                                             *
                            274 *     2     REQUEST TO SEND                                            *
                            275 *     3     CLEAR TO SEND                                              *
                            276 *     4     RING INDICATOR                                             *
                            277 *     5     RECEIVE MODE                                               *
                            278 *     6     TRANSMIT MODE                                              *
                            279 *     7     RESERVED NOT USED                                          *
                            280 *     8 THRU 15 NOT USED                                               *
                            281 *                                                                      *
                            282 ************************************************************************
                            283 *                                                                      *
                            284 *        OIO   CONDITION CODES                                         *
                            285 *        CC VALUE                                                      *
                            286 *     0     DEVICE NOT ATTACHED                                        *
                            287 *     1     BUSY                                                       *
                            288 *     2     BUSY AFTER RESET                                           *
                            289 *     3     COMMAND REJECT                                             *
                            290 *     4     INTERVENTION REQUIRED                                      *
                            291 *     5     INTERFACE DATA CHECK                                       *
                            292 *     6     CONTROLLER BUSY                                            *
                            293 *     7     SUCCESSFUL                                                 *
                            294 *                                                                      *
                            295 *     INTERRUPT CONDITION CODES                                        *
                            296 *          CC VALUE                                                    *
                            297 *     0     CONTROLLER END                                             *
                            298 *     1     NOT USED OR GENERATED BY THE ADAPTER                       *
                            299 *     2     EXCEPTION                                                  *
                            300 *     3     DEVICE END                                                 *
                            301 *     4 THRU 7 NOT USED OR GENERATED BY THE ADAPTER                    *
                            302 ************************************************************************
 001800                     303 TE8E6   START X'1800'
                            304 ************************************************************************
                            305 *                                                                      *
                            306 *                EQUATED NAMES FOR SUPPORTED SVC'S                     *
                            307 *                                                                      *
                            308 ************************************************************************
 000000                     309 OUT     EQU   0          OUT SVC
 000001                     310 OUTIN   EQU   1          OUTIN SVC
 000002                     311 IDLE    EQU   2          WAIT TIME VARIES BY PROCESSOR
 000003                     312 IDLE5   EQU   3          WAIT TIME 500 USEC (ABSOLUTE)
 000004                     313 CHNGE   EQU   4          CHANGE LEVEL SVC
 000005                     314 PGMCK   EQU   5          ALLOW RETURN ON PROGRAM CHECK SVC
 000006                     315 EXIT    EQU   6          EXIT SVC
 000007                     316 TERM    EQU   7          TERMINATE SVC
 000008                     317 RESET   EQU   8          RESET DEVICE SVC
 000009                     318 RID     EQU   9          READ ID SVC
 00000A                     319 START   EQU   10         START CYCLE STEAL SVC
 00000B                     320 STCSS   EQU   11         START CYCLE STEAL STATUS SVC
 00000C                     321 PREP    EQU   12         PREPARE DEVICE SVC
 00000D                     322 READ0   EQU   13         READ WITH FUNCTION BIT 3 OFF SVC
 00000E                     323 READ1   EQU   14         READ WITH FUNCTION BIT 3 ON SVC
 00000F                     324 RSTAT   EQU   15         READ STATUS SVC
 000010                     325 WRITO   EQU   16         WRITE WITH FUNCTION BIT 3 OFF SVC
 000011                     326 WRIT1   EQU   17         WRITE WITH FUNCTION BIT 3 ON SVC
 000012                     327 CTRL    EQU   18         CONTROL SVC
 000013                     328 RICB    EQU   19         RELEASE INTERUPT CONTROL BLOCK SVC
 000014                     329 CICB    EQU   20         CONNECT INTERUPT CONTROL BLOCK SVC
 000015                     330 HIO     EQU   21         HALT ALL I/O
 000016                     331 REQSD   EQU   22         REQUEST USE OF DCP DISK SVC
 000017                     332 RELSD   EQU   23         RELEASE USE OF DCP DISK SVC
                            333 *       EQU   24         RESERVED
 000019                     334 ETOH    EQU   25         EBCDIC TO HEX SVC (STRING)
 00001A                     335 HTOE    EQU   26         HEX TO EBCDIC SVC (STRING)
 00001B                     336 ATOH    EQU   27         ASCII TO HEX SVC (STRING)
 00001C                     337 HTOA    EQU   28         HEX TO ASCII SVC (STRING)
 00001D                     338 ETOA    EQU   29         EBCDIC TO ASCII SVC (STRING)
 00001E                     339 ATOE    EQU   30         ASCII TO EBCDIC SVC (STRING)
 00001F                     340 READI   EQU   31         READ DATA SETS FOR MDL/UTIL
 000020                     341 WRITI   EQU   32         WRITE DATA SETS FOR UTIL
                            342 *
 000000                     343 NAKR    EQU   0    BIT 0 SET =   (N)  NEGATIVE RESPONSE
 000001                     344 YAKR    EQU   1          1   =   (Y)  POSITIVE RESPONSE
 000002                     345 EOAR    EQU   2          2   =   (D)  END OF ADDR (ENTER TEXT MODE)
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                    COPYRIGHT IBM CORP 1976
 000003                     346 EOTR    EQU   3          3   =   (C) EOT (END OF TRANSMISSION), (RESET)
                            347 *
 000004                     348 EOBR    EQU   4          4   =   (B) EOB (END OF BLOCK) LRC CHECK
 000005                     349 TXTR    EQU   5          5   =   TEXT ( (D) DATA (B) )
                            350 ************************************************************************
                            351 *                                                                      *
                            352 *                     PROGRAM CONTROL TABLE                            *
                            353 *                                                                      *
                            354 ************************************************************************
 001800  C5F8C5F6           355 PID     DC    C'E8E6'            PROGRAM ID
 001804  00                 356 LEVEL   DC    X'00'
 001805  00                 357         DC    X'00'
 001806  1864               358 INADR   DC    A(BEGIN)
 001808  1812               359 DEVPT   DC    A(DATAB)
 00180A  0000               360 RTNE    DC    A(*-*)             CURRENT ROUTINE NUMBER
 00180C  0000               361 CKPT    DC    A(*-*)             CURRENT CHECKPOINT
 00180E  4000               362 OPTN1   DC    X'4000'            PROGRAM OPTION WORD 1
 001810  0000               363 OPTN2   DC    A(*-*)             PROGRAM OPTION WORD 2
 001812  0001               364 DATAB   DC    A(1)
 001814  00000000000000000  365 DEVAD   DC    10X'00'            DA/TYPE/FLAGS/DEVICE INFO
 00181E  00000000000000000  366         DC    10X'00'            DA/TYPE/FLAGS/DEVICE INFO
 001828  00000000000000000  367         DC    10X'00'            DA/TYPE/FLAGS/DEVICE INFO
 001832  00000000000000000  368         DC    10X'00'            DA/TYPE/FLAGS/DEVICE INFO
 00183C  00000000000000000  369         DC    10X'00'            DA/TYPE/FLAGS/DEVICE INFO
 001846  00000000000000000  370         DC    10X'00'            DA/TYPE/FLAGS/DEVICE INFO
 001850  00000000000000000  371         DC    10X'00'            DA/TYPE/FLAGS/DEVICE INFO
 00185A  00000000000000000  372         DC    10X'00'            DA/TYPE/FLAGS/DEVICE INFO
                            374 ************************************************************************
                            375 *                                                                      *
                            376 *        ROUTINE 01                                                    *
                            377 *                                                                      *
                            378 ************************************************************************
                            379 *                                                                      *
                            380 *        NAME:  INITIALIZATION                                         *
                            381 *                                                                      *
                            382 *        PURPOSE: INITIALIZE THE DEVICE                                *
                            383 *                                                                      *
                            384 *        METHOD:                                                       *
                            385 *        RESET INDICATORS                                              *
                            386 *        GET DEVICE ADDRESS                                            *
                            387 *        CONNECT INTERRUPT CONTROL BLOCK                               *
                            388 *        RESET DEVICE                                                  *
                            389 *        PREPARE DEVICE                                                *
                            390 *        PRINT LOG                                                     *
                            391 *        PRINT CONFIGURATION                                           *
                            392 *        GET BPS RATE/BUILD COD CHARACTERS AND SET PTTC                *
                            393 *        SET OPTIONS                                                   *
                            394 *                                                                      *
                            395 ************************************************************************
 001864  6802 1868          396 BEGIN   B     RT01               **NOTE THIS BRANCH MAY BE MODIFIED
                            397 *
 001868  4020 1866 1868     398 RT01    MVA   RT01,BEGIN+2
 00186E  4020 180A 0001     399         MVWI  1,RTNE             SET RTNE TO 1
                            400 ************** RESET INDICATORS ************************************
                            401 *-----------------------------
                            402 *        CKPT  01             *
                            403 *-----------------------------
                            404         CKPT  01                 CHECKPOINT 01
 001874  4020 180C 0001     405+        MVWI  X'01',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            406+*-------------------------------------------------------------------*
                            407         MSK   INTSW,CSSBYPAS+1,00  RESET  INDICATORS
 00187A  6F03 2E70          408+        BAL   MSK,R7             START ADDR, END ADDR, BYTE VALUE TO STORE
 00187E  2506251B           409+        DC    A(INTSW,CSSBYPAS+1)
 001882  00                 410+        DC    X'00'
 001883  00                 411+        ALIGN WORD
 001884  CF25 3750          412         MVWZ  XADDR,R7           CLEAR XADDR SO NO PRINT BEFORE XMIT
 001888  4020 3024 30BA     413         MVA   TOPADDR+2,REGSAV   RESTORE STACK POINTERS IF RESTART
                            414 ************** ENTER DEVICE ADDR ************************************
                            415 *-----------------------------
                            416 *        CKPT  02             *
                            417 *-----------------------------
 00188E  4020 180C 0002     418 DATYP   CKPT  02                 CHECKPOINT 02
                            419+DATYP   MVWI  X'02',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            420+*-------------------------------------------------------------------*
 001894  6808 251C          421         MVW   FLAG0,R0           FIRST TIME THRU?
 001898  1805               422         JNZ   FMSG               IF NOT, SKIP LOG AREA PRESET
                            423         MSK   LOGSV,LAST,88      PRESET LOG AREA TO '88'
 00189A  6F03 2E70          424+        BAL   MSK,R7             START ADDR, END ADDR, BYTE VALUE TO STORE
 00189E  3A4C3C4C           425+        DC    A(LOGSV,LAST)
 0018A2  88                 426+        DC    X'88'
 0018A3  00                 427+        ALIGN WORD
 0018A4  4124 180E          428 FMSG    MVA   OPTN1,R1           DEVADD OPTN SET ON?
 0018A8  4981               429         TBTR  (R1,1)               *
 0018AA  105B               430         JOFF  CONNECT            SKIP MSG IF NOT
                            431 *>>>>>>>>|-------------------------|
                            432 *        |  DEVICE ADDR ENTRY      |
                            433 *        |-------------------------|
                            434 REQNO   QUEST E888,01,80         ENTER DEVICE ADDR
 0018AC  6F03 2F36          435+REQNO   BAL   QUEST,R7           DISPLAY MSG, ASK FOR INPUT
 0018B0  3660               436+        DC    A(E888)            MSG ADDR
 0018B2  0180               437+        DC    X'0180'            00=EBCDIC, 01=HEX  & CONTROL FLAG
 0018B4  C120 3796          438         MVB   FIELD1,R1          GET CONSOLE ENTRY DATA
 0018B8  3141               439         SLL   8,R1
 0018BA  C121 2547          440         OB    E88,R1
 0018BE  690D 1814          441         MVW   R1,DEVAD           PUT IT IN 'DEVICE ADDR' AREA
 0018C2  6F03 3588          442         BAL   READID,R7          READ DEVICE ID
 0018C6  6F08 244C          443         MVW   DEVID,R7           SAVE THE DEVICE ID JUST READ
 0018CA  6F0D 2508          444         MVW   R7,IDSAV           SAVE THE DEVICE ID JUST READ
 0018CE  7F06 100E          445         CWI   X'100E',R7         SEE IF 'SINGLE LINE ACCA '
 0018D2  1025               446         JE    DAOK               IF =100E, SINGLE LINE
 0018D4  7FB0 FCFF          447         NWI   X'FCFF',R7         STRIP OFF 4 LINES,
 0018D8  7F06 200E          448         CWI   X'200E',R7         VERIFY MULTILINE ID (LESS #LINES)
 0018DC  101D               449         JE    MLTYP              IF EQUAL, SET MULTILINE TYPE - E9
                            450 *--------------------
 0018DE  6F08 2508          451         MVW   IDSAV,R7           CHECK FOR ACCA RPQ
 0018E2  7FE0 F00E          452         NWI   X'F00E',R7         STRIP OFF DON'T CARE BITS
 0018E6  7F06 100E          453         CWI   X'100E',R7         CHECK DEVICE ID
 0018EA  1003               454         JE    SET80              IF EQUAL, GO SET DEVICE TYPE 80
 0018EC  7F06 200E          455         CWI   X'200E',R7         CHECK DEVICE ID
 0018F0  1809               456         JNE   ERPRINT            IF NOT EQUAL, PRINT ID ERR
 0018F2  6908 1814          457 SET80   MVW   DEVAD,R1           OTHERWISE, CHANGE DEVICE TYPE TO 80
 0018F6  3142               458         SRL   8,R1               *
 0018F8  3141               459         SLL   8,R1               *
 0018FA  C121 2544          460         OB    K80,R1             *
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                            461          MVW   R1,DEVAD             PUT IT IN 'DEVICE ADDR' AREA
                            462          J     DAOK                 CONTINUE
                            463 *-------------------
                            464 ERPRINT  HTE   IDSAV,E895A,2        CONVERT ID TO EBCDIC FOR PRINT
                            465+ERPRINT  BAL   HTE,R7               CVT HEX TO EBCDIC  (1:2)
001904  6F03 2F84           466+         DC    A(IDSAV,E895A,2)     FROM ADDR, TO ADDR, SOURCE BYTE COUNT
001908  250837350002        467          MSG   E895,C0              ERROR IN 'ID'
                            468+         BAL   MSG,R7               GENERAL DISPLAY MESSAGE
                            469+         DC    A(E895)              MSG ADDR,FLAG
00190E  6F03 2EFC           470+         DC    X'C0'
001912  3724                471+         ALIGN WORD
001914  C0                  472          J     REQNO
001915  00
001916  50CA
001918  4029 1814 0001      473 MLTYP    AWI   1,DEVAD              CHANGE 'E8' TO 'E9' IN 'TYPE'
00191E  4020 1812 C001      474 DAOK     MVWI  X'C001',DATAB        SET UP FOR 'DUMMY TERMINATE'
001924  4020 1866 1932      475          MVA   ENTROPTS,BEGIN+2     MODIFY BRANCH ADDR TO PREVENT COMING
                            476 *                                   HERE MORE THAN ONCE.
00192A  4020 251C 0001      477          MVWI  1,FLAG0              SET FLAG FIRST TIME THROUGH
001930  6007                478          SVC   TERM                 TERMINATE
                            479 ***************************************************************
                            480 * EXIT THE PROGRAM HERE             GO BACK TO 'BEGIN'
                            481 *  THE NEXT ENTRY TO PROGRAM WILL BE DIRECTLY TO 'ENTROPTS' BECAUSE THE
                            482 *  BRANCH ADDR WAS ALTERED. IT WILL BE RESTORED TO 'RT01' HOWEVER
                            483 *  AT 'ENTROPTS'. THIS ALLOWS DCP TO DO NECESSARY HOUSEKEEPING
                            484 *  FOR THE  CONFIGURATION TABLE .
                            485 ***************************************************************
001932  4020 1866 1868      486 ENTROPTS MVA   RT01,BEGIN+2         MODIFY BRANCH ADDR TO ORIGINAL
001938  4020 180A 0001      487          MVWI  1,RTNE
00193E  6908 1816           488          MVW   DEVAD+2,R1           CHECK THAT ENTRY IS VALID.
001942  1209                489          JN    TOK                  IF BIT 0 NOT ON, PRINT ERR MSG
                            490          MSG   E898,C0              ERROR MSG
001944  6F03 2EFC           491+         BAL   MSG,R7               GENERAL DISPLAY MESSAGE
001948  373C                492+         DC    A(E898)              MSG ADDR,FLAG
00194A  C0                  493+         DC    X'C0'
00194B  00                  494+         ALIGN WORD
00194C  402C 180E 4000      495          OWI   X'4000',OPTN1        TURN ON DA/TYP OPTN BIT
001952  6802 1864           496          B     BEGIN                GET ANOTHER ENTRY
001956  4020 1812 0001      497 TOK      MVWI  1,DATAB              RESET FLAGS FOR REAL TERM LATER
00195C  8028 1817 2505      498          MVB   DEVAD+3,CONF1+1      STORE BYTE 3 FROM CONFIG TABLE
                            499 ***************** CONNECT INTERRUPT CONTROL BLOCK ******************
                            500 *-------------------------
                            501 *        CKPT  03          *
                            502 *-------------------------
                            503 CONNECT  CKPT  03                   CHECKPOINT 03
001962  4020 180C 0003      504+CONNECT  MVWI  X'03',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            505+*-------------------------------------------------------------------*
001968  6F03 31C0           506          BAL   CICB1,R7             GO CONNECT INTERRUPT CONTROL BLOCK
                            507 ****************** DEVICE RESET ************************************
                            508 *-------------------------
                            509 *        CKPT  04          *
                            510 *-------------------------
                            511          CKPT  04                   CHECKPOINT 04
00196C  4020 180C 0004      512+         MVWI  X'04',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            513+*-------------------------------------------------------------------*
001972  6F03 2BA0           514          BAL   RSET,R7              RESET DEVICE
                            515 ******************** PREP COMMAND ************************************
                            516 *-------------------------
                            517 *        CKPT  05          *
                            518 *-------------------------
                            519          CKPT  05                   CHECKPOINT 05
001976  4020 180C 0005      520+         MVWI  X'05',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            521+*-------------------------------------------------------------------*
00197C  6F03 2B4A           522          BAL   PREPD,R7             ENABLE INTERRUPT LEVEL 2
                            523 ******************** PRINT LOG MSG ***********************************
                            524 *-------------------------
                            525 *        CKPT  06          *
                            526 *-------------------------
                            527          CKPT  06                   CHECKPOINT 06
001980  4020 180C 0006      528+         MVWI  X'06',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            529+*-------------------------------------------------------------------*
001986  402B 180E 0004      530          TWI   X'0004',OPTN1        SEE IF PRINT LOG IS SET
00198C  1A05                531          JNN   PRCFIG               JUMP IF NOT
00198E  4020 2A18 3A4C      532          MVA   LOGSV,LOGPT          RESTORE LOG AREA POINTER TO START
001994  6F03 2A1A           533          BAL   PRNTLOG,R7           PRINT THE DATA LOG
                            534 ********************** PRINT CONFIGURATION **********************
                            535 *-------------------------
                            536 *        CKPT  07          *
                            537 *-------------------------
                            538 PRCFIG   CKPT  07                   CHECKPOINT 07
001998  4020 180C 0007      539+PRCFIG   MVWI  X'07',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            540+*-------------------------------------------------------------------*
                            541          MSK   FIELD1,FLAGEND,60    PREFILL MSG AREA WITH DASHES
00199E  6F03 2E70           542+         BAL   MSK,R7          START ADDR, END ADDR, BYTE VALUE TO STORE
0019A2  379637D2            543+         DC    A(FIELD1,FLAGEND)
0019A6  60                  544+         DC    X'60'
0019A7  00                  545+         ALIGN WORD
0019A8  6F03 2BC8           546          BAL   CSTAT,R7             GO READ CYCLE STEAL STATUS
0019AC  802B 2548 1815      547          CB    KE9,DEVAD+1
                            548 *-------------------------------------------------------------------
0019B2  181B                549          JNE   IDOK                 BRANCH IF NO
                            550 *     IF MULTILINE, GET # LINES AVAILABLE FROM BITS 4-7 OF ID
                            551 *  00 = 8 LINES SUPPORTED
                            552 *  01 = 8 LINES SUPPORTED
                            553 *  02 = 4 LINES SUPPORTED
                            554 *  03 = 6 LINES SUPPORTED
0019B4  4020 37C2 D3C9      555          MVWI  C'LI',FIELD8+2
0019BA  4020 37C4 D5C5      556          MVWI  C'NE',FIELD8+4
0019C0  6E08 2508           557          MVW   IDSAV,R6             GET  THE DEVICE ID JUST READ
0019C4  7EC0 0300           558          NWI   X'0300',R6           STRIP OFF BITS 0-3
0019C8  3642                559          SRL   8,R6                 MOVE BITS 4-7 TO 8-15 OF R6.
0019CA  4724 F0F8           560          MVWI  X'F0F8',R7           SET UP TO ANALYZE COUNT
                            561 *---------------------  SET UP FOR F0F8
0019CE  F600                562          CBI   X'00',R6
0019D0  100A                563          JE    LINES                JUMP IF 8 LINES (R7=F0F8)
0019D2  07FE                564          ABI   -2,R7                DECREMENT THE 'EBCDIC VALUE'
                            565 *---------------------  SET UP FOR F0F6
0019D4  F603                566          CBI   X'03',R6
0019D6  1007                567          JE    LINES                JUMP IF 6 LINES (R7=F0F6)
0019D8  07FE                568          ABI   -2,R7                DECREMENT THE 'EBCDIC VALUE'
                            569 *---------------------  SET UP FOR F0F4
0019DA  F602                570          CBI   X'02',R6
0019DC  1004                571          JE    LINES                JUMP IF 4 LINES (R7=F0F4)
0019DE  07FE                572          ABI   -2,R7                DECREMENT THE 'EBCDIC VALUE'
                            573 *---------------------  SET UP FOR F0F2
0019E0  F601                574          CBI   X'01',R6
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
0019E2  1001                575          JE    LINES                JUMP IF 2 LINES (R7=F0F4)
0019E4  07FE                576          ABI   -2,R7                DECREMENT THE 'EBCDIC VALUE'
                            577 *---------------------  SET UP FOR F0F0
0019E6  6F0D 37C0           578 LINES    MVW   R7,FIELD8            SET UP CALCULATED # LINES
0019EA  4124 2452           579 IDOK     MVA   STATUS2,R1           LOOK AT STATUS WORD 2
0019EE  4900                580          TBT   (R1,0)               TEST FOR BIT 0, DATA TERMINAL READY
0019F0  1A06                581          JNN   S3BIT1               BRANCH IF NOT
0019F2  4020 3796 C4E3      582          MVWI  C'DT',FIELD1         SET FLAG
0019F8  4020 3798 D940      583          MVWI  C'R ',FIELD1+2       SET FLAG
0019FE  4901                584 S3BIT1   TBT   (R1,1)               TEST FOR BIT 1, DATA SET READY
001A00  1A06                585          JNN   S3BIT2               BRANCH IF NOT
001A02  4020 379C C4E2      586          MVWI  C'DS',FIELD2         SET FLAG
001A08  4020 379E D940      587          MVWI  C'R ',FIELD2+2       *
001A0E  4902                588 S3BIT2   TBT   (R1,2)               TEST FOR BIT 2, REQUEST TO SEND
001A10  1A06                589          JNN   S3BIT3               BRANCH IF NOT
001A12  4020 37A2 D9E3      590          MVWI  C'RT',FIELD3         SET FLAG
001A18  4020 37A4 E240      591          MVWI  C'S ',FIELD3+2       *
001A1E  4903                592 S3BIT3   TBT   (R1,3)               TEST FOR BIT 3, CLEAR TO SEND
001A20  1A06                593          JNN   S3BIT4               BRANCH IF NOT
001A22  4020 37A8 C3E3      594          MVWI  C'CT',FIELD4         SET FLAG
001A28  4020 37AA E240      595          MVWI  C'S ',FIELD4+2       *
001A2E  4904                596 S3BIT4   TBT   (R1,4)               TEST FOR BIT 4, RING INDICATOR
001A30  1A03                597          JNN   S3BIT5               BRANCH IF NOT
001A32  4020 37AE D9C9      598          MVWI  C'RI',FIELD5         SET FLAG
001A38  4905                599 S3BIT5   TBT   (R1,5)               TEST FOR BIT 5, RECEIVE MODE
001A3A  1A06                600          JNN   S3BIT6               BRANCH IF NOT
001A3C  4020 37B4 D9C3      601          MVWI  C'RC',FIELD6         SET FLAG
001A42  4020 37B6 E540      602          MVWI  C'V ',FIELD6+2       *
001A48  4906                603 S3BIT6   TBT   (R1,6)               TEST FOR BIT 6, XMIT MODE
001A4A  1A06                604          JNN   STATEND              BRANCH IF NOT
001A4C  4020 37BA E7D4      605          MVWI  C'XM',FIELD7         SET FLAG
001A52  4020 37BC E340      606          MVWI  C'T ',FIELD7+2       *
                            607 *
                            608 *  DETERMINE FROM OPTION WORD 1 WHETHER TO PRINT CONFIGURATION
                            609 *
001A58  4224 0060           610 STATEND  MVWI  X'60',R2             BYTE VALUE TO SCAN FOR
001A5C  4324 37D2           611          MVA   E8AC+60,R3           SET ADDR OF RIGHTMOST BYTE OF FIELD
001A60  4724 003A           612          MVWI  58,R7                FIELD BYTE SIZE
001A64  2A6A                613          SFNED R2,(R3)              SCAN BYTE FIELD NOT = AND DECREMENT
001A66  7B61 0001           614 ADD1     AWI   1,R3
001A6A  1BFD                615          JNEV  ADD1                 JUMP NOT EVEN
001A6C  CFE5 0002           616          MVWZ  (R3,2),R7            SET ZEROS IN LINE TO SHORTEN PRINT
001A70  402B 180E 0080      617          TWI   X'0080',OPTN1        DO NOT PRINT IF BIT ON
001A76  1208                618          JN    BLCOD                SKIP IF BIT ON
                            619 *
                            620 *   PRINT CONFIG
                            621 *
                            622          MSG   E88C,80              CONFIG HEADER
001A78  6F03 2EFC           623+         BAL   MSG,R7               GENERAL DISPLAY MESSAGE
001A7C  3692                624+         DC    A(E88C)              MSG ADDR,FLAG
001A7E  80                  625+         DC    X'80'
001A7F  00                  626+         ALIGN WORD
                            627          MSG   E8AC,80              PRINT CONFIG
001A80  6F03 2EFC           628+         BAL   MSG,R7               GENERAL DISPLAY MESSAGE
001A84  3796                629+         DC    A(E8AC)              MSG ADDR,FLAG
001A86  80                  630+         DC    X'80'
001A87  00                  631+         ALIGN WORD
                            632 **********GET BPS RATE, BUILD COD CHARACTERS AND SET PTTC **********
                            633 *-------------------------
                            634 *        CKPT  08          *
                            635 *-------------------------
001A88  4020 180C 0008      636 BLCOD    CKPT  08                   CHECKPOINT 08
                            637+BLCOD    MVWI  X'08',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            638+*-------------------------------------------------------------------*
001A8E  4124 180E           639          MVA   OPTN1,R1             CHECK OPTION TO ASK QUESTIONS AGAIN
001A92  490E                640          TBT   (R1,14)              *
001A94  1203                641          JON   ASKRATE              IF ON, ASK QUESTIONS
001A96  6F08 2522           642          MVW   BPSPL,R7             HAS BPS BEEN ENTERED ALREADY?
001A9A  1826                643          JNZ   SETRATE              SKIP ENTRY IF SO
001A9C  6F03 2F36           644 ASKRATE  QUEST E887,01,C0           ASK FOR BPS RATE
                            645+ASKRATE  BAL   QUEST,R7             DISPLAY MSG, ASK FOR INPUT
001AA0  365A                646+         DC    A(E887)              MSG ADDR
001AA2  01C0                647+         DC    X'01C0'              00=EBCDIC, 01=HEX  & CONTROL FLAG
001AA4  6F08 3796           648          MVW   IBUFF,R7             134.5 BPS?
001AA8  7F06 0134           649          CWI   X'0134',R7           *
001AAC  1804                650          JNE   CK300                IF NOT, CHECK FOR 300 BPS
001AAE  8028 253F 249C      651          MVB   K46,CDCB+2           SET BIT RATE - 135 BPS
001AB4  5019                652          J     SETRATE              CONTINUE
001AB6  7F06 0300           653 CK300    CWI   X'0300',R7           300 BPS ?
001ABA  1804                654          JNE   CK600                IF NOT, CHECK FOR 600 BPS
001ABC  8028 253C 249C      655          MVB   K1F,CDCB+2           SET BIT RATE - 300 BPS,LOW SPEED JPR
001AC2  5012                656          J     SETRATE              CONTINUE
001AC4  7F06 0600           657 CK600    CWI   X'0600',R7           600 BPS?
001AC8  1804                658          JNE   CK950                IF NOT, CHECK FOR 950 BPS
001ACA  8028 2538 249C      659          MVB   K0F,CDCB+2           SET 600 BPS - LOW SPEED JPR
001AD0  500B                660          J     SETRATE              CONTINUE
001AD2  7F06 0950           661 CK950    CWI   X'0950',R7           950 BPS?
001AD6  1005                662          JE    SET950               IF NOT, PRINT ERR MSG
                            663          MSG   E898,80              INVALID ENTRY
001AD8  6F03 2EFC           664+         BAL   MSG,R7               GENERAL DISPLAY MESSAGE
001ADC  373C                665+         DC    A(E898)              MSG ADDR,FLAG
001ADE  80                  666+         DC    X'80'
001ADF  00                  667+         ALIGN WORD
001AE0  50DD                668          J     ASKRATE              GET ANOTHER ENTRY
001AE2  8028 2537 249C      669 SET950   MVB   K09,CDCB+2           SET 950 BPS - HIGH SPEED JPR
001AE8  6F03 31A0           670 SETRATE  BAL   COD,R7                BUILD COD CHARACTERS AND SET PTTC
001AEC  4020 2522 0001      671          MVWI  1,BPSFL              SET BPS ENTERED FLAG
                            672 ************** ASK TERMINAL QUESTIONS ********************************
                            673 *-------------------------
                            674 *        CKPT  09          *
                            675 *-------------------------
                            676          CKPT  09                   CHECKPOINT 09
001AF2  4020 180C 0009      677+         MVWI  X'09',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            678+*-------------------------------------------------------------------*
001AF8  6F08 2526           679          MVW   QUESTFL,R7           QUESTIONS ANSWERED?
001AFC  1007                680          JZ    ASKQUEST             IF NOT, ASK QUESTIONS
001AFE  4124 180E           681          MVA   OPTN1,R1             CHECK OPTION TO ASK QUESTIONS AGAIN
001B02  498E                682          TBTR  (R1,14)              *
001B04  1203                683          JON   ASKQUEST             IF ON, ASK QUESTIONS
001B06  6F08 2526           684          MVW   QUESTFL,R7           QUESTIONS ANSWERED?
001B0A  1865                685          JNZ   SETOPTNS             IF SO, SKIP QUESTIONS
                            686 ASKQUEST MSK   CHECKFL,RT4FL,00      CLEAR FLAGS USED BELOW
001B0C  6F03 2E70           687+ASKQUEST BAL   MSK,R7          START ADDR, END ADDR, BYTE VALUE TO STORE
001B10  25282532            688+         DC    A(CHECKFL,RT4FL)
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001B14  00                689+          DC    X'00'
001B15  00                690+          ALIGN WORD
                          691           QUEST E882,00,C0         CORR CODE?
001B16  6F03 2F36         692+          BAL   QUEST,R7           DISPLAY MSG, ASK FOR INPUT
001B1A  35EC              693+          DC    A(E882)            MSG ADDR
001B1C  00C0              694+          DC    X'00C0'            00=EBCDIC, 01=HEX  & CONTROL FLAG
001B1E  C020 3796         695           MVB   IBUFF,R0           GET BUFFER
001B22  F0E8              696           CBI   C'Y',R0            CHECK FOR CORR CODE
001B24  1003              697           JE    CORRCODE           JUMP IF SO
001B26  CF25 2524         698           MVWZ  CORRFL,R7          OTHERWISE, RESET CORR CODE FLAG
001B2A  5003              699           J     NEXQUES            SET EBCD CODE
001B2C  4020 2524 0001    700 CORRCODE  MVWI  1,CORRFL           SET CORR CODE FLAG
                          701 NEXQUES   QUEST E889,00,C0         2740-2?
001B32  6F03 2F36         702+NEXQUES   BAL   QUEST,R7           DISPLAY MSG, ASK FOR INPUT
001B36  366A              703+          DC    A(E889)            MSG ADDR
001B38  00C0              704+          DC    X'00C0'            00=EBCDIC, 01=HEX  & CONTROL FLAG
001B3A  C020 3796         705           MVB   IBUFF,R0           *
001B3E  F0E8              706           CBI   C'Y',R0            *
001B40  180C              707           JNE   NXQUES             IF NOT, CONTINUE
                          708           QUEST E883,00,C0         BUFFERED RECEIVE ?
001B42  6F03 2F36         709+          BAL   QUEST,R7           DISPLAY MSG, ASK FOR INPUT
001B46  35FE              710+          DC    A(E883)            MSG ADDR
001B48  00C0              711+          DC    X'00C0'            00=EBCDIC, 01=HEX  & CONTROL FLAG
001B4A  C020 3796         712           MVB   IBUFF,R0           *
001B4E  F0E8              713           CBI   C'Y',R0            *
001B50  1824              714           JNE   SETRT3             IF NOT, CONTINUE
001B52  4020 2532 0001    715           MVWI  1,RT4FL            IF SO, SET ROUTINE 04
001B58  5023              716           J     ENTAD              AND GO ENTER TERMINAL ADDRESS
                          717 NXQUES    QUEST E88A,00,C0         2740-1?
001B5A  6F03 2F36         718+NXQUES    BAL   QUEST,R7           DISPLAY MSG, ASK FOR INPUT
001B5E  3674              719+          DC    A(E88A)            MSG ADDR
001B60  00C0              720+          DC    X'00C0'            00=EBCDIC, 01=HEX  & CONTROL FLAG
001B62  C020 3796         721           MVB   IBUFF,R0           GET BUFFER
001B66  F0E8              722           CBI   C'Y',R0            IF SO, CONTINUE
001B68  1004              723           JE    NXQUES1            OTHERWISE, MUST BE 2741
001B6A  4020 252C 0001    724           MVWI  1,T2741FL          SET 2741 FLAG
001B70  5032              725           J     SETOPTNS           CONTINUE
                          726 NXQUES1   QUEST E881,00,C0         TRANSMIT CONTROL?
001B72  6F03 2F36         727+NXQUES1   BAL   QUEST,R7           DISPLAY MSG, ASK FOR INPUT
001B76  35D8              728+          DC    A(E881)            MSG ADDR
001B78  00C0              729+          DC    X'00C0'            00=EBCDIC, 01=HEX  & CONTROL FLAG
001B7A  C020 3796         730           MVB   IBUFF,R0           GET BUFFER
001B7E  F0E8              731           CBI   C'Y',R0            IF NOT, CONTINUE
001B80  1804              732           JNE   NXQUES2            *
001B82  4020 252E 0001    733           MVWI  1,X2740FL          SET 2740 TRANSMIT CONTROL FLAG
001B88  501B              734           J     RECK               CONTINUE
                          735 NXQUES2   QUEST E88B,00,C0         STATION CONTROL?
001B8A  6F03 2F36         736+NXQUES2   BAL   QUEST,R7           DISPLAY MSG, ASK FOR INPUT
001B8E  367E              737+          DC    A(E88B)            MSG ADDR
001B90  00C0              738+          DC    X'00C0'            00=EBCDIC, 01=HEX  & CONTROL FLAG
001B92  C020 3796         739           MVB   IBUFF,R0           GET BUFFER
001B96  F0E8              740           CBI   C'Y',R0            IF NOT, CONTINUE
001B98  1813              741           JNE   RECK               *
001B9A  4020 2530 0001    742 SETRT3    MVWI  1,RT3FL            SET ROUTINE 03
001BA0  4020 252A 0001    743 ENTAD     MVWI  1,STCTRL           SET STATION CONTROL FLAG
                          744 GETAD     QUEST E88E,01,80         GET TERMINAL ADDRESS
001BA6  6F03 2F36         745+GETAD     BAL   QUEST,R7           DISPLAY MSG, ASK FOR INPUT
001BAA  36AE              746+          DC    A(E88E)            MSG ADDR
001BAC  0180              747+          DC    X'0180'            00=EBCDIC, 01=HEX  & CONTROL FLAG
001BAE  C020 3796         748           MVB   FIELD1,R0          ANYTHING ENTERED ?
001BB2  10F9              749           JZ    GETAD              IF NOT, GET ANOTHER ENTRY
001BB4  8028 3796 274B    750           MVB   FIELD1,TERMAD1     SAVE ADDRESS FOR POLLING
001BBA  8028 3796 2752    751           MVB   FIELD1,TERMAD2     SAVE ADDRESS FOR ADDRESSING
                          752 RECK      QUEST E88D,00,C0         RECORD CHECKING?
001BC0  6F03 2F36         753+RECK      BAL   QUEST,R7           DISPLAY MSG, ASK FOR INPUT
001BC4  369A              754+          DC    A(E88D)            MSG ADDR
001BC6  00C0              755+          DC    X'00C0'            00=EBCDIC, 01=HEX  & CONTROL FLAG
001BC8  C020 3796         756           MVB   IBUFF,R0           GET BUFFER
001BCC  F0E8              757           CBI   C'Y',R0            IF NOT, CONTINUE
001BCE  1803              758           JNE   SETOPTNS           *
001BD0  4020 2528 0001    759           MVWI  1,CHECKFL          SET RECORD CHECKING FLAG
                          760 ************** SET OPTIONS ***********************************************
                          761 *--------------------------
                          762 *       CKPT  0A          *
                          763 *--------------------------
                          764 SETOPTNS CKPT  0A                  CHECKPOINT 0A
001BD6  4020 180C 000A    765+SETOPTNS MVWI  X'0A',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                          766+*-------------------------------------------------------------------------*
001BDC  4020 2526 0001    767           MVWI  1,QUESTFL          SET QUESTIONS ANSWERED FLAG
                          768           HTE   OPTN1,OPTPRT,2     CONVERT INTO MESSAGE (HEX)
001BE2  6F03 2F84         769+          BAL   HTE,R7             CVT HEX TO EBCDIC  (1:2)
001BE6  180E361A0002      770+          DC    A(OPTN1,OPTPRT,2)  FROM ADDR, TO ADDR, SOURCE BYTE COUNT
                          771           QUEST OPTNS,01,C0        ENTER OPTIONS
001BEC  6F03 2F36         772+          BAL   QUEST,R7           DISPLAY MSG, ASK FOR INPUT
001BF0  3612              773+          DC    A(OPTNS)           MSG ADDR
001BF2  01C0              774+          DC    X'01C0'            00=EBCDIC, 01=HEX  & CONTROL FLAG
                          775           HTE   OPTN1,OPTPRT,2     CONVERT INTO MESSAGE (HEX)
001BF4  6F03 2F84         776+          BAL   HTE,R7             CVT HEX TO EBCDIC  (1:2)
001BF8  180E361A0002      777+          DC    A(OPTN1,OPTPRT,2)  FROM ADDR, TO ADDR, SOURCE BYTE COUNT
                          778           MSG   OPTNS,80           PRINT OPTION WORDS AS ENTERED
001BFE  6F03 2EFC         779+          BAL   MSG,R7             GENERAL DISPLAY MESSAGE
001C02  3612              780+          DC    A(OPTNS)           MSG ADDR,FLAG
001C04  80                781+          DC    X'80'
001C05  00                782+          ALIGN WORD
001C06  4124 180E         783           MVA   OPTN1,R1           CHECK OPTION TO ASK QUESTIONS AGAIN
001C0A  490E              784           TBT   (R1,14)            *
001C0C  6A00 1A88         785           BON   BLCOD              IF ON, BRANCH TO ASK QUESTIONS
001C10  6F08 2530         786           MVW   RT3FL,R7           RTN 03 ?
001C14  6801 1F40         787           BNZ   RT03               BRANCH IF ROUTINE 03
001C18  6F08 2532         788           MVW   RT4FL,R7           RTN 04 ?
001C1C  6801 21B8         789           BNZ   RT04               BRANCH IF ROUTINE 04
                          790 *                                  OTHERWISE, DEFAULT TO ROUTINE 02
                          792 ************************************************************************
                          793 *                                                                      *
                          794 *       ROUTINE 02                                                     *
                          795 *                                                                      *
                          796 ************************************************************************
                          797 *
                          798 *       NAME:  2741,2740-1 WITH OR WITHOUT RECORD CHECKING             *
                          799 *                                                                      *
                          800 *       PURPOSE: START STOP OVER THE LINE EXERCISER                     *
                          801 *                                                                      *
                          802 *       METHOD:                                                        *
                          803 *       RECEIVE ECHO TEXT                                              *
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                          804 *       TRANSMIT ECHO TEXT                                             *
                          805 *                                                                      *
                          806 ************************************************************************
001C20  4020 180A 0002    807 RT02      MVWI  2,RTNE             SET RTN 02
                          808 ******************** DTR ENABLE ***************************************
                          809 *--------------------------
                          810 *       CKPT  01          *
                          811 *--------------------------
                          812           CKPT  01                 CHECKPOINT 01
001C26  4020 180C 0001    813+          MVWI  X'01',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                          814+*-------------------------------------------------------------------------*
001C2C  6F03 35F0         815           BAL   CPMSG,R7           PRINT RTN, CKPT MSG
001C30  6F03 353A         816           BAL   DTREN,R7           DTR ENABLE IF NECESSARY
                          817 ************ PRINT RDY, DELAY BEFORE TRANSMIT **************************
                          818 *--------------------------
                          819 *       CKPT  02          *
                          820 *--------------------------
                          821           CKPT  02                 CHECKPOINT 02
001C34  4020 180C 0002    822+          MVWI  X'02',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                          823+*-------------------------------------------------------------------------*
                          824           MSG   E8A5,80            PRINT RDY MSG
001C3A  6F03 2EFC         825+          BAL   MSG,R7             GENERAL DISPLAY MESSAGE
001C3E  3790              826+          DC    A(E8A5)            MSG ADDR,FLAG
001C40  80                827+          DC    X'80'
001C41  00                828+          ALIGN WORD
                          829           DELAY 2000               DELAY
001C42  6F03 2DA6         830+          BAL   DELAY,R7           DELAY MILLISECONDS
001C46  07D0              831+          DC    A(2000)
                          832 ************** SET UP TO RCV REQ MSG ********************************
                          833 *--------------------------
                          834 *       CKPT  03          *
                          835 *--------------------------
                          836 RFTBR     CKPT  03                 CHECKPOINT 03
001C48  4020 180C 0003    837+RFTBR     MVWI  X'03',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                          838+*-------------------------------------------------------------------------*
001C4E  4020 3024 30BA    839           MVA   TCPADDR+2,REGSAV   RESTORE STACK POINTERS
001C54  6F08 252E         840 GRFT      MVW   X2740FL,R7         TRANSMIT CONTROL ?
001C58  1005              841           JZ    GRFTX              IF NOT, CONTINUE
001C5A  6F03 338C         842           BAL   XMITRCV,R7         IF SO, SEND / SPACE
001C5E  24E0              843           DC    A(XMTCTL)          DATA ADDRESS
001C60  247A              844           DC    A(RCTSTDCB)        CHAIN ADDRESS
001C62  5002              845           J     GRFT1              CONTINUE
001C64  6F03 321A         846 GRFTX     BAL   TCIRC,R7           SEND EOT / CHAIN TO RECEIVE
                          847 ************** DECODE INFORMATION **********************************
                          848 *--------------------------
                          849 *       CKPT  04          *
                          850 *--------------------------
                          851 GRFT1     CKPT  04                 CKPT 04
001C68  4020 180C 0004    852+GRFT1     MVWI  Y'04',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                          853+*-------------------------------------------------------------------------*
001C6E  6F03 27A6         854           BAL   CHECKRFT,R7        GO DECODE RFT
001C72  CF25 2516         855           MVWZ  SENDCFL,R7         FLAG SET TO SEND (C), RCV RFT ?
001C76  18EE              856           JNZ   GRFT               JUMP IF SO
001C78  CF25 2512         857           MVWZ  RFTERR,R7          RFT ERROR FLAG SET ?
001C7C  1025              858           JZ    CKTEST             IF NOT, CONTINUE
                          859 *
001C7E  4020 1CB2 2592    860           MVA   RFTMSG,ADDRS       SET PTTC MSG
001C84  4020 1CBC 2592    861           MVA   RFTMSG,ADDRS20     SET PTTC MSG
001C8A  6F08 2524         862           MVW   CORRFL,R7          CORR CODE?
001C8E  1006              863           JZ    GETRFT1            IF NOT, CONTINUE
001C90  4020 1CB2 266E    864           MVA   RFTMSG2,ADDRS      OTHERWISE, SET CORR MSG
001C96  4020 1CBC 266E    865           MVA   RFTMSG2,ADDRS20    SET CORR MSG
001C9C  4124 3348         866 GETRFT1   MVA   RSPWD,R1           EOB RECEIVED ?
001CA0  4904              867           TBT   (R1,EOBR)          *
001CA2  1002              868           JOFF  GETRFT12           IF NOT, GO SEND MSG
001CA4  6F03 31F2         869           BAL   TCIRV,R7           OTHERWISE, SEND (Y), RCV RSP (EOT)
001CA8  6F08 252E         870 GETRFT12  MVW   X2740FL,R7         TRANSMIT CONTROL ?
001CAC  1805              871           JNZ   GETRFT10           JUMP IF SO
001CAE  6F03 338C         872           BAL   XMITRCV,R7         OTHERWISE, GET RFT AGAIN
001CB2  0000              873 ADDRS     DC    A(*-*)             DATA ADDRESS TO TRANSMIT
001CB4  247A              874           DC    A(RCTSTDCB)        CHAIN ADDRESS
001CB6  50D8              875           J     GRFT1              GO DECODE RFT
001CB8  6F03 341C         876 GETRFT10  BAL   XMIT,R7           SEND RFT MSG
001CBC  0000              877 ADDRS20   DC    A(*-*)             DATA ADDRESS
001CBE  6F03 338C         878           BAL   XMITRCV,R7         OTHERWISE, GET RFT AGAIN
001CC2  24E0              879           DC    A(XMTCTL)          DATA ADDRESS TO TRANSMIT (/ SPACE)
001CC4  247A              880           DC    A(RCTSTDCB)        CHAIN ADDRESS
001CC6  50D0              881           J     GRFT1              GO DECODE RFT
                          882 *
001CC8  402F 2514 0002    883 CKTEST    CWI   2,TESTFL           WAS TEST 2 REQUESTED ?
001CCE  6800 1DF6         884           BE    TEST2              IF SO, GO TO TEST 2
                          885 *                                  OTHERWISE, GO TO TEST 1
                          886 *************** XMIT ENTER TEST DATA MSG ******************************
                          887 *--------------------------
                          888 *       CKPT  05          *
                          889 *--------------------------
                          890 TEST1     CKPT  05                 CKPT 05
001CD2  4020 180C 0005    891+TEST1     MVWI  X'05',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                          892+*-------------------------------------------------------------------------*
001CD8  4124 3348         893           MVA   RSPWD,R1           EOB RECEIVED ?
001CDC  4904              894           TBT   (R1,EOBR)          *
001CDE  1008              895           JOFF  XMTMSG11           IF NOT, CONTINUE
001CE0  6F03 31F2         896           BAL   TCIRV,R7           IF SO, SEND (Y) / RCV RESPONSE
001CE4  4124 3348         897           MVA   RSPWD,R1           GET RESPONSE WORD FOR TEST
001CE8  4903              898           TBT   (R1,EOTR)          EOT RECEIVED?
001CEA  1202              899           JN    XMTMSG11           CONTINUE IF SO
001CEC  6802 1C54         900           B     GRFT               OTHERWISE, SEND (C) AND GET RFT
001CF0                    901 *--------------------------
001CF0  4020 1D12 25C8    902 XMTMSG11  EQU   *
001CF6  4020 25C6 0037    903           MVA   TESTMSG,ADDRS10    STORE DATA ADDRESS
001CFC  6F08 2524         904           MVWI  X'37',TESTCNT      STORE BYTE COUNT - NO COD CHARACTER
001D00  1006              905           MVW   CORRFL,R7          CORR CODE?
001D02  4020 1D12 26A4    906           JZ    SDEOT1             IF NOT, CONTINUE
001D08  4020 26A2 0037    907           MVA   TESTMSG2,ADDRS10   STORE DATA ADDRESS
001D0E  6F03 341C         908           MVWI  X'37',TESTCNT2     STORE BYTE COUNT - NO COD CHARACTER
001D12  0000              909 SDEOT1    BAL   XMIT,R7            GO TRANSMIT
001D14  6F08 252E         910 ADDRS10   DC    A(*-*)             DATA ADDRESS
001D18  1007              911           MVW   X2740FL,R7         TRANSMIT CONTROL ?
001D1A  6F03 3234         912           JZ    GETDATA            JUMP IF NOT
001D1E  6F03 338C         913           BAL   TEEOT,R7           IF SO, SEND EOT
001D22  24E0              914           BAL   XMITRCV,R7         SEND / SPACE, CHAIN TO RECEIVE
001D24  247A              915           DC    A(XMTCTL)          DATA ADDRESS TO TRANSMIT (/ SPACE)
001D26  5002              916           DC    A(RCTSTDCB)        CHAIN ADDRESS
                          917           J     GETTEXT2           GO SAVE DATA
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001D28  6F03 321A           918 GETDATA  BAL   TCIRC,R7            SEND EOT/ CHAIN TO RECEIVE
                            919 ************** RCV ECHO TEXT ***************************************
                            920 *-------------------------
                            921 *        CKPT  06         *
                            922 *-------------------------
                            923 GETTEXT2 CKPT  06                    CKPT 06
001D2C  4020 180C 0006      924+GETTEXT2 MVWI  X'06',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            925+*-------------------------------------------------------------------*
                            926          BAL   SAVEDATA,R7         SAVE RECEIVED DATA
001D32  6F03 290A           927          MVWZ  ERR,R7              DID ERROR OCCUR?
001D36  CF25 2510           928          JZ    CONTXT              IF NOT, CONTINUE
001D3A  1003                929 *-------------------------
                            930          BAL   TREOT,R7            IF SO, SEND (C)
001D3C  6F03 3234           931          J     XMTMSG11            SEND MSG AGAIN
001D40  50D7                932 *-------------------------
                            933 CONTXT   MVA   RSPWD,R1            GET RESPONSE WORD FOR TEST
001D42  4124 3348           934          TBT   (R1,EOBR)           EOB RECEIVED ?
001D46  4904                935          JOFF  GOXMT               IF NOT, CONTINUE
001D48  1009                936          BAL   TCIRY,R7            SEND (Y) / CHAIN TO RCV
001D4A  6F03 31F2           937          MVA   RSPWD,R1            GET RESPONSE WORD FOR TEST
001D4E  4124 3348           938          TBT   (R1,EOTR)           EOT RECEIVED?
001D52  4903                939          JN    GOXMT               IF SO, CONTINUE
001D54  1203                940          BAL   TREOT,R7            IF NOT, SEND (C)
001D56  6F03 3234           941          J     XMTMSG11            SEND MSG AGAIN
001D5A  50CA                942 ************** XMIT ECHO MSG WITH CHECKING ***************************
                            943 *-------------------------
                            944 *        CKPT  07         *
                            945 *-------------------------
                            946 GOXMT    CKPT  07                    CKPT 07
001D5C  4020 180C 0007      947+GOXMT    MVWI  X'07',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            948+*-------------------------------------------------------------------*
001D62  6F08 2528           949          MVW   CHECKFL,R7          RECORD CHECKING?
001D66  1024                950          JZ    SENDCR              JUMP TO CONTINUE IF NOT
                            951 *-------------------------
001D68  6F03 338C           952 XMTAGAIN BAL   XMITRCV,R7          SEND ECHO TEXT
001D6C  3974                953          DC    A(DATSTOR0)         DATA ADDRESS
001D6E  248A                954          DC    A(RCDCB2)           CHAIN ADDRESS
                            955 *-------------------------
001D70  4124 3348           956          MVA   RSPWD,R1            GET RESPONSE WORD FOR TEST
                            957 *-------------------------
001D74  4901                958          TBT   (R1,YAKR)           (Y)?
001D76  120B                959          JN    CONTLOP             IF SO, CONTINUE
001D78  4900                960          TBT   (R1,NAKR)           (N)?
001D7A  12F6                961          JN    XMTAGAIN            IF SO, RETRANSMIT
                            962          MSG   E893,C0             IF NEITHER, PRINT ERR MSG
001D7C  6F03 2EFC           963+         BAL   MSG,R7              GENERAL DISPLAY MESSAGE
001D80  36F0                964+         DC    A(E893)             MSG ADDR,FLAG
001D82  C0                  965+         DC    X'C0'
001D83  00                  966+         ALIGN WORD
001D84  6F03 334A           967          BAL   PRNTBUF,R7          PRINT 50 BYTES OF RVC DATA
001D88  6F03 3234           968          BAL   TREOT,R7            SEND (C) TO RESET
001D8C  50E7                969          J     GOXMT               AND RETRANSMIT
                            970 *-------------------------
001D8E  802B 253B 3974      971 CONTLOP  CB    K16,DATSTOR0        IS (D) FIRST XMIT CHAR ?
001D94  1808                972          JNE   CONTLOOP            IF NOT, CONTINUE
                            973          MOV   DATSTOR0+1,DATEND,DATSTOR0  IF SO, GET RID OF IT
001D96  6F03 2FB4           974+         BAL   MOV,R7      MOVE BYTES. STRT ADDR, END ADDR, TO ADDR.
001D9A  39753A4B3974        975+         DC    A(DATSTOR0+1,DATEND,DATSTOR0)
001DA0  4029 3972 FFFF      976          AWI   -1,DCOUNT           DECREMENT TRANSMIT BYTE COUNT BY ONE
001DA6  4029 250C FFFF      977 CONTLOOP AWI   -1,LOOPCNT          DECREMENT LOOP COUNT
001DAC  18DD                978          JNZ   XMTAGAIN            LOOP TILL DONE
001DAE  5021                979          J     FINISH0             SEND END OF TEST MSG
                            980 ************** XMIT ECHO MSG WITHOUT CHECKING**********************
                            981 *-------------------------
                            982 *        CKPT  08         *
                            983 *-------------------------
                            984 SENDCR   CKPT  08                    CKPT 08
001DB0  4020 180C 0008      985+SENDCR   MVWI  X'08',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            986+*-------------------------------------------------------------------*
001DB6  6F08 252C           987          MVW   T2741FL,R7          2741 ?
001DBA  1808                988          JNZ   SEND2741            IF SO, SKIP SO DON'T SEND (C)
001DBC  6F03 341C           989 GOXMT1   BAL   XMIT,R7             SEND ECHO TEXT
001DC0  3974                990          DC    A(DATSTOR0)         DATA ADDRESS
001DC2  4029 250C FFFF      991          AWI   -1,LOOPCNT          DECREMENT LOOP COUNT
001DC8  18F9                992          JNZ   GOXMT1              LOOP TILL DONE
001DCA  5013                993          J     FINISH0             SEND END OF TEST MSG
                            994 *-------------------------
001DCC  6F03 341C           995 SEND2741 BAL   XMIT,R7             SEND ECHO TEXT
001DD0  3974                996          DC    A(DATSTOR0)         DATA ADDRESS
001DD2  802B 253B 3974      997          CB    K16,DATSTOR0        IS (D) FIRST XMIT CHAR ?
001DD8  1808                998          JNE   CONTLOP0            IF NOT, CONTINUE
                            999          MOV   DATSTOR0+1,DATEND,DATSTOR0  IF SO, GET RID OF IT
001DDA  6F03 2FB4          1000+         BAL   MOV,R7      MOVE BYTES. STRT ADDR, END ADDR, TO ADDR.
001DDE  39753A4B3974       1001+         DC    A(DATSTOR0+1,DATEND,DATSTOR0)
001DE4  4029 3972 FFFF     1002          AWI   -1,DCOUNT           DECREMENT TRANSMIT BYTE COUNT BY ONE
001DEA  4029 250C FFFF     1003 CONTLOP0 AWI   -1,LOOPCNT          DECREMENT LOOP COUNT
001DF0  18ED               1004          JNZ   SEND2741            LOOP TILL DONE
001DF2  6802 1EFA          1005 FINISH0  B     SENDEND0            SEND END OF TEST MSG
                           1006 ************** XMIT CANNED ECHO MSG WITH CHECKING ******************
                           1007 *-------------------------
                           1008 *        CKPT  09         *
                           1009 *-------------------------
                           1010 TEST2    CKPT  09                    CKPT 09
001DF6  4020 180C 0009     1011+TEST2    MVWI  X'09',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                           1012+*-------------------------------------------------------------------*
001DFC  4020 390C 0032     1013          MVWI  X'0032',TEXTCNT     SET BYTE COUNT FOR TEXTSAVE AREA
001E02  6F08 2528          1014          MVW   CHECKFL,R7          RECORD CHECKING?
001E06  1003               1015          JZ    CNTCHECK            IF NOT, CONTINUE
001E08  4020 390C 0033     1016          MVWI  X'0033',TEXTCNT     SET BYTE COUNT FOR RECORD CHECKING
001E0E  4020 1E30 2639     1017 CNTCHECK MVA   ECHOTST+1,STADDR    SET PTTC MESSAGE
001E14  4020 1E32 266B     1018          MVA   ECHOE,EADDR           *
001E1A  6F08 2524          1019          MVW   CORRFL,R7           CORR CODE?
001E1E  1006               1020          JZ    GOMOV               IF NOT, CONTINUE
001E20  4020 1E30 2715     1021          MVA   ECHOTST2+1,STADDR   OTHERWISE, SET CORR MESSAGE
001E26  4020 1E32 2747     1022          MVA   ECHOE2,EADDR          *
                           1023 *-------------
                           1024 *  DATA IS MOVED TO TEXTSAVE FOR TRANSMIT AFTER FIRST TRANSMIT.
                           1025 *  THERE IS NO (D) PRECEEDING TEXT IN TEXTSAVE AREA.
                           1026 *  THE FIRST TRANSMIT WILL COME FROM ECHOTST/ECHOTST2 AREA.
                           1027 *-------------
001E2C  6F03 2FB4          1028 GOMOV    BAL   MOV,R7              MOVE DATA TO TEXTSAVE AREA
001E30  0000               1029 STADDR   DC    A(*-*)              START ADDRESS
001E32  0000               1030 EADDR    DC    A(*-*)              END ADDRESS
001E34  390E               1031          DC    A(TEXTSAVE)         TO ADDRESS
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
001E36  4124 3348           1032          MVA   RSPWD,R1            GET RESPONSE WORD FOR TEST
001E3A  4904                1033          TBT   (R1,EOBR)           EOB RECEIVED ?
001E3C  1008                1034          JOFF  XMTMORE2            IF NOT, CONTINUE
001E3E  6F03 31F2           1035          BAL   TCIRY,R7            IF SO, SEND (Y)
001E42  4124 3348           1036          MVA   RSPWD,R1            GET RESPONSE WORD FOR TEST
001E46  4903                1037          TBT   (R1,EOTR)           EOT RECEIVED?
001E48  1202                1038          JN    XMTMORE2            IF SO, CONTINUE
001E4A  6802 27E6           1039          B     SENDCC              OTHERWISE, SEND (C) AND GET RFT
001E4E  6F08 2528           1040 XMTMORE2 MVW   CHECKFL,R7          RECORD CHECKING?
001E52  1031                1041          JZ    NORC                IF NOT, CONTINUE
001E54  4020 1E76 2638      1042          MVA   ECHOTST,ADDRS4      SET DCB DATA ADDR-PTTC
001E5A  4020 2636 0034      1043          MVWI  X'34',ECHCNT        STORE BYTE COUNT FOR RECORD CHECKING
001E60  6F08 2524           1044          MVW   CORRFL,R7           CORR CODE?
001E64  1006                1045          JZ    XMTMORE1            IF NOT, CONTINUE
001E66  4020 1E76 2714      1046          MVA   ECHOTST2,ADDRS4     SET DCB DATA ADDR-CORR
001E6C  4020 2712 0034      1047          MVWI  X'34',ECHCNT2       STORE BYTE COUNT FOR RECORD CHECKING
001E72  6F03 338C           1048 XMTMORE1 BAL   XMITRCV,R7          GO SEND DATA
001E76  0000                1049 ADDRS4   DC    A(*-*)              DATA ADDRESS
001E78  248A                1050          DC    A(RCDCB2)           CHAIN ADDRESS
001E7A  4124 3348           1051          MVA   RSPWD,R1            GET RESPONSE WORD FOR TEST
                            1052 *-------------------------
001E7E  4901                1053          TBT   (R1,YAKR)           (Y)?
001E80  1212                1054          JN    COUNTLP             IF SO, CONTINUE
001E82  4900                1055          TBT   (R1,NAKR)           (N)?
001E84  1A07                1056          JNN   CKERR               IF NOT, PRINT ERR MSG
001E86  4029 2520 0001      1057          AWI   1,ERRCT             INCREMENT ERROR COUNT
001E8C  402F 2520 000A      1058          CWI   10,ERRCT            DOES ERR COUNT EXCEED MAX ?
001E92  14DD                1059          JLT   XMTMORE2            IF NOT, RETRANSMIT
                            1060 CKERR    MSG   E893,C0             IF NEITHER, PRINT ERR MSG
001E94  6F03 2EFC           1061+CKERR    BAL   MSG,R7              GENERAL DISPLAY MESSAGE
001E98  36F0                1062+         DC    A(E893)             MSG ADDR,FLAG
001E9A  C0                  1063+         DC    X'C0'
001E9B  00                  1064+         ALIGN WORD
001E9C  6F03 334A           1065          BAL   PRNTBUF,R7          PRINT 50 BYTES OF RVC DATA
001EA0  6F03 3234           1066          BAL   TREOT,R7            SEND EOT TO RESET
001EA4  50D4                1067          J     XMTMORE2            AND RETRANSMIT
001EA6  4020 1E76 390E      1068 COUNTLP  MVA   TEXTSAVE,ADDRS4     MOVE ADDRESS OF DATA FOR TRANSMIT
001EAC  4029 250C FFFF      1069          AWI   -1,LOOPCNT          DECREMENT LOOP COUNT
001EB2  18DF                1070          JNZ   XMTMORE1            LOOP TILL DONE
001EB4  5022                1071          J     SENDEND0            SEND END MESSAGE
                            1072 **********TRANSMIT CANNED ECHO MESSAGE WITHOUT CHECKING ************
                            1073 *-------------------------
                            1074 *        CKPT  0A         *
                            1075 *-------------------------
                            1076 NORC     CKPT  0A                    CKPT 0A
001EB6  4020 180C 000A      1077+NORC     MVWI  X'0A',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            1078+*-------------------------------------------------------------------*
001EBC  4020 1EDE 2638      1079          MVA   ECHOTST,ADDRS11     SET DCB DATA ADDR-PTTC
001EC2  4020 2636 0033      1080          MVWI  X'33',ECHCNT        STORE BYTE COUNT TO SEND (D) FIRST
001EC8  6F08 2524           1081          MVW   CORRFL,R7           CORR CODE?
001ECC  1006                1082          JZ    XMTMORE3            IF NOT, CONTINUE
001ECE  4020 1EDE 2714      1083          MVA   ECHOTST2,ADDRS11    SET DCB DATA ADDR-CORR
001ED4  4020 2712 0033      1084          MVWI  X'33',ECHCNT2       STORE BYTE COUNT TO SEND (D) FIRST
001EDA  6F03 341C           1085 XMTMORE3 BAL   XMIT,R7             GO SEND DATA
001EDE  0000                1086 ADDRS11  DC    A(*-*)              DATA ADDRESS
001EE0  6F08 252C           1087          MVW   T2741FL,R7          2741 ?
001EE4  1004                1088          JZ    XMEOT               IF NOT, GO SEND (C)
001EE6  4020 1EDE 390E      1089          MVA   TEXTSAVE,ADDRS11    MOVE ADDRESS OF DATA FOR TRANSMIT
001EEC  5002                1090          J     LOOPCK              CONTINUE
001EEE  6F03 3234           1091 XMEOT    BAL   TREOT,R7            SEND (C)
001EF2  4029 250C FFFF      1092 LOOPCK   AWI   -1,LOOPCNT          DECREMENT LOOP COUNT
001EF8  18F0                1093          JNZ   XMTMORE3            LOOP TILL DONE
                            1094 ************** XMIT END OF TEST MSG ********************************
                            1095 *-------------------------
                            1096 *        CKPT  0B         *
                            1097 *-------------------------
                            1098 SENDEND0 CKPT  0B                    CKPT 0B
001EFA  4020 180C 000B      1099+SENDEND0 MVWI  X'0B',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            1100+*-------------------------------------------------------------------*
001F00  6F08 2528           1101          MVW   CHECKFL,R7          CHECKING ?
001F04  1806                1102          JNZ   END0                IF SO, CONINUE
001F06  6F08 252C           1103          MVW   T2741FL,R7          2741 ?
001F0A  1803                1104          JNZ   END0                IF SO, CONINUE
001F0C  6F03 341C           1105          BAL   XMIT,R7             OTHERWISE, SEND (D) IN FRONT
001F10  2458                1106          DC    A(CIRCD)            *
001F12  4020 1F28 2602      1107 END0     MVA   ENDTEST,ADDRS3      SET DCB DATA ADDR-PTTC
001F18  6F08 2524           1108          MVW   CORRFL,R7           CORR CODE?
001F1C  1003                1109          JZ    SENDEND1            IF NOT, CONTINUE
001F1E  4020 1F28 26DE      1110          MVA   ENDTEST2,ADDRS3     SET DCB DATA ADDR-CORR
001F24  6F03 341C           1111 SENDEND1 BAL   XMIT,R7             TRANSMIT END MSG
001F28  0000                1112 ADDRS3   DC    A(*-*)              DATA ADDRESS
001F2A  CF25 250C           1113          MVWZ  LOOPCNT,R7          RESET LOOP COUNTER
001F2E  6F03 2A1A           1114          BAL   PRNTLOG,R7          GO PRINT LOG IF OPTION SET
001F32  402B 180E 0008      1115          TWI   8,OPTN1             DO NOT LOOP OPTION ON?
001F38  6A01 1C54           1116          BNN   GRPTT               BRANCH IF NOT
001F3C  6802 30E8           1117          B     ABORT               OTHERWISE, TERMINATE
                            1119 ***************************************************************
                            1120 *                                                             *
                            1121 *       ROUTINE 03                                            *
                            1122 *                                                             *
                            1123 ***************************************************************
                            1124 *                                                             *
                            1125 *       NAME:  DOWNLINE TEST FOR 2740-1 TERMINALS WITH        *
                            1126 *              STATION CONTROL, WITH/WITHOUT RECORD CHECKING  *
                            1127 *              AND FOR 2740-2 TERMINALS WITHOUT BUFFERED RECEIVE *
                            1128 *                                                             *
                            1129 *       PURPOSE: START STOP OVER THE LINE EXERCISER            *
                            1130 *                                                             *
                            1131 *       METHOD:                                               *
                            1132 *       RECEIVE ECHO TEXT                                     *
                            1133 *       TRANSMIT ECHO TEXT                                    *
                            1134 *                                                             *
                            1135 ***************************************************************
001F40  4020 180A 0003      1136 RT03     MVWI  3,RTNE                SET RTN 03
                            1137 *-------------------------
                            1138 *        CKPT  1          *          DTR ENABLE
                            1139 *-------------------------
                            1140          CKPT  01                    CKPT 1
001F46  4020 180C 0001      1141+         MVWI  X'01',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                            1142+*-------------------------------------------------------------------*
001F4C  6F03 35B0           1143          BAL   CPMSG,R7            PRINT RTN, CKPT MSG
001F50  6F03 353A           1144          BAL   DTREN,R7            DTR ENABLE IF NECESSARY
                            1145          MSG   E0A5,60             RDY MSG
001F54  6F03 2EFC           1146+         BAL   MSG,R7              GENERAL DISPLAY MESSAGE
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
001F58  3790            1147+         DC    A(E8A5)             MSG ADDR,FLAG
001F5A  80              1148+         DC    X'80'
001F5B  00              1149+         ALIGN WORD
                        1150 *-------------------------
                        1151 *        CKPT  2           *       XMIT POLLING LIST
                        1152 *-------------------------
                        1153 GOPOLL   CKPT  02                  CKPT 2
001F5C  4020 180C 0002  1154+GOPOLL   MVWI  X'02',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                        1155+*----------------------------------------------------------------------*
001F62  6F03 2754       1156          BAL   POLLT,R7            GO POLL TERMINAL
                        1157 *-------------------------
                        1158 *        CKPT  3           *       DECODE RFT RECEIVED
                        1159 *-------------------------
                        1160          CKPT  03                  CKPT 3
001F66  4020 180C 0003  1161+         MVWI  X'03',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                        1162+*----------------------------------------------------------------------*
001F6C  6F03 27A6       1163          BAL   CHECKRFT,R7         GO DECODE RFT
001F70  CF25 2516       1164          MVWZ  SENDCFL,R7          FLAG SET TO POLL AGAIN ?
001F74  18F3            1165          JNZ   GOPOLL              JUMP IF SO
001F76  4124 3348       1166          MVA   RSPWD,R1            GET RESPONSE WORD FOR TEST
001F7A  4904            1167          TBT   (R1,EOBR)           EOB RECEIVED ?
001F7C  1006            1168          JOFF  CKRFTER             IF NOT, CONTINUE
001F7E  6F03 31F2       1169          BAL   TCIRV,R7            IF SO, SEND (Y)
001F82  4124 3348       1170          MVA   RSPWD,R1            GET RESPONSE WORD FOR TEST
001F86  4903            1171          TBT   (R1,EOTH)           EOT RECEIVED?
001F88  1003            1172          JOFF  CK04                IF NOT, SEND REENTER MSG
001F8A  CF25 2512       1173 CKRFTER  MVWZ  RFTERR,R7           RFT ERROR FLAG SET ?
001F8E  1012            1174          JZ    CKTST               IF NOT, CONTINUE
                        1175 *
                        1176 *-------------------------
                        1177 *        CKPT  4           *       SEND REENTER RFT MSG TO TERMINAL
                        1178 *-------------------------
                        1179 CK04     CKPT  04                  CKPT 4
001F90  4020 180C 0004  1180+CK04     MVWI  X'04',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                        1181+*----------------------------------------------------------------------*
001F96  6F03 2780       1182          BAL   ADDRT,R7            ADDRESS TERMINAL
001F9A  4020 1FB0 2592  1183          MVA   RFTMSG,ADDRES       SET PTTC MSG
001FA0  6F08 2524       1184          MVW   CORRFL,R7           CORR CODE?
001FA4  1003            1185          JZ    GETRFT2             IF NOT, CONTINUE
001FA6  4020 1FB0 266E  1186          MVA   RFTMSG2,ADDRES      OTHERWISE, SET CORR MSG
001FAC  6F03 341C       1187 GETRFT2  BAL   XMIT,R7             TRANSMIT MSG
001FB0  0000            1188 ADDRES   DC    A(*-*)              DATA ADDRESS TO TRANSMIT
001FB2  50D4            1189          J     GOPOLL              GO POLL TERMINAL
                        1190 *-------------------------
                        1191 *        CKPT  5           *       ADDRESS TERMINAL,GO TO REQUESTED TEST
                        1192 *-------------------------
                        1193 CKTST    CKPT  05                  CKPT 5
001FB4  4020 180C 0005  1194+CKTST    MVWI  X'05',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                        1195+*----------------------------------------------------------------------*
001FBA  6F03 2780       1196          BAL   ADDRT,R7            ADDRESS TERMINAL
001FBE  402F 2514 0002  1197          CWI   2,TESTFL            TEST 2 REQUESTED ?
001FC4  6800 2098       1198          BE    TST2                IF SO, GO TO TEST 2
                        1199 *                                  OTHERWISE, GO TO TEST 1
                        1200 *-------------------------
                        1201 *        CKPT  6           *       SEND ENTER DATA MESSAGE
                        1202 *-------------------------
                        1203 TST1     CKPT  06                  CKPT 6
001FC8  4020 180C 0006  1204+TST1     MVWI  X'06',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                        1205+*----------------------------------------------------------------------*
001FCE  4020 1FF0 25C8  1206          MVA   TESTMSG,DATADR      ADDRESS OF MESSAGE IF EECD
001FD4  4020 25C6 0038  1207          MVWI  X'38',TESTCNT       BYTE COUNT
001FDA  6F08 2524       1208          MVW   CORRFL,R7           CORRESPONDENCE ?
001FDE  1006            1209          JZ    SDMSG               IF NOT, CONTINUE
001FE0  4020 1FF0 26A4  1210          MVA   TESTMSG2,DATADR     IF SO, SEND CORRESPONDENCE CODE
001FE6  4020 26A2 0038  1211          MVWI  X'38',TESTCNT2      BYTE COUNT
001FEC  6F03 341C       1212 SDMSG    BAL   XMIT,R7             GO SEND MSG
001FF0  0000            1213 DATADR   DC    A(*-*)              DATA ADDRESS
                        1214 *-------------------------
                        1215 *        CKPT  7           *       GET ECHO TEXT
                        1216 *-------------------------
                        1217 XMTPOL   CKPT  07                  CKPT 7
001FF2  4020 180C 0007  1218+XMTPOL   MVWI  X'07',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                        1219+*----------------------------------------------------------------------*
001FF8  6F03 2754       1220          BAL   POLLT,R7            POLL TERMINAL
001FFC  6F03 290A       1221          BAL   SAVEDATA,R7         GO SAVE ECHO TEXT
002000  CF25 2510       1222          MVWZ  ERR,R7              ERR RECEIVED ?
002004  18F6            1223          JNZ   XMTPOL              IF SO, GO POLL AGAIN
002006  4124 3348       1224          MVA   RSPWD,R1            CHECK RESPONSE WORD
00200A  4904            1225          TBT   (R1,EOBR)           EOB RCVD ?
00200C  1005            1226          JOFF  SENECH              IF NOT, GO TO SEND ECHO TEXT
00200E  6F03 31F2       1227          BAL   TCIRV,R7            GO SEND (Y), RCV RESPONSE
002012  4903            1228          TBT   (R1,EOTR)           EOT RCVD ?
002014  1201            1229          JON   SENECH              IF SO, GO TO SEND ECHO TEXT
002016  50ED            1230          J     XMTPOL              IF NOT, GO POLL AGAIN
                        1231 *-------------------------
                        1232 *        CKPT  8           *       SEND ECHO TEXT WITH CHECKING
                        1233 *-------------------------
                        1234 SENECH   CKPT  08                  CKPT 8
002018  4020 180C 0008  1235+SENECH   MVWI  X'08',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                        1236+*----------------------------------------------------------------------*
002018  4020 180C 0008  1237          BAL   ADDRT,R7            ADDRESS TERMINAL
00201E  6F03 2780       1238          MVW   CHECKFL,R7          RECORD CHECKING ?
002022  6F08 2528       1239          JZ    TWEOT               JUMP IF NOT
002026  102A            1240 TRANSM   EQU   *
002028                  1241 *-------------------------
                        1242          BAL   XMITRCV,R7          SEND ECHO TEXT
002028  6F03 338C       1243          DC    A(DATSTORO)         DATA ADDRESS
00202C  3974            1244          DC    A(RCDCB2)           CHAIN ADDRESS
00202E  248A            1245 *-------------------------
                        1246          MVA   RSPWD,R1            GET RESPONSE WORD FOR TEST
002030  4124 3348       1247 *-------------------------
                        1248          TBT   (R1,YAKR)           (Y)?
002034  4901            1249          JON   CONTLP1             IF SO, CONTINUE
002036  1210            1250          TBT   (R1,NAKR)           (N)?
002038  4900            1251          JOFF  ERCK                IF NOT, PRINT ERR MSG
00203A  1007            1252          AWI   1,ERRCT             INCREMENT ERROR COUNT
00203C  4029 2520 0001  1253          CWI   10,ERRCT            DOES ERR COUNT EXCEED MAX ?
002042  402F 2520 000A  1254          JLT   TRANSM              IF NOT, RETRANSMIT
002048  14EF            1255 ERCK     MSG   E893,C0             IF NEITHER, PRINT ERR MSG
                        1256+ERCK     BAL   MSG,R7              GENERAL DISPLAY MESSAGE
00204A  6F03 2EFC       1257+         DC    A(E893)             MSG ADDR,FLAG
00204E  36F0            1258+         DC    X'C0'
002050  C0              1259+         ALIGN WORD
002051  00              1260          BAL   PRNTBUF,R7          PRINT 50 BYTES OF RVC DATA
002052  6F03 334A
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
002056  50E0            1261          J     SENECH              ADR TERMINAL AGAIN TO SEND ECHO TEXT
                        1262 *-------------------------
002058  802B 253B 3974  1263 CTLOOP    CB    K16,DATSTORO        IS (D) FIRST XMIT CHAR ?
00205E  1808            1264          JNE   CTLOOP1             IF NOT, CONTINUE
                        1265          MOV   DATSTORO+1,DATEND,DATSTORO   IF SO, GET RID OF IT
002060  6F03 2FB4       1266+         BAL   MOV,R7              MOVE BYTES. STRT ADDR, END ADDR, TO ADDR.
002064  39753A4B3974    1267+         DC    A(DATSTORO+1,DATEND,DATSTORO)
00206A  4029 3972 FFFF  1268          AWI   -1,DCOUNT           DECREMENT TRANSMIT BYTE COUNT BY ONE
002070  4029 250C FFFF  1269 CTLOOP1  AWI   -1,LOOPCNT         DECREMENT LOOP COUNT
002076  18D8            1270          JNZ   TRANSM              LOOP TILL DONE
002078  6802 2178       1271          B     SENDEND2            SEND END OF TEST MSG
                        1272 *-------------------------
                        1273 *        CKPT  9           *       SEND ECHO TXT WITHOUT CHECKING
                        1274 *-------------------------
                        1275 TWEOT    CKPT  09                  CKPT 9
00207C  4020 180C 0009  1276+TWEOT    MVWI  X'09',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                        1277+*----------------------------------------------------------------------*
002082  6F03 341C       1278          BAL   XMIT,R7             SEND ECHO TEXT
002086  3974            1279          DC    A(DATSTORO)         DATA ADDRESS
002088  6F03 2780       1280          BAL   ADDRT,R7            ADDRESS TERMINAL AGAIN
00208C  4029 250C FFFF  1281          AWI   -1,LOOPCNT          DECREMENT LOOP COUNT
002092  18F4            1282          JNZ   TWEOT               LOOP TILL DONE
002094  6802 2178       1283          B     SENDEND2            SEND END OF TEST MESSAGE IF DONE
                        1284 *-------------------------
                        1285 *        CKPT  A           *       SEND CANNED ECHO TXT WITH CHECKING
                        1286 *-------------------------
                        1287 TST2     CKPT  0A                  CKPT A
002098  4020 180C 000A  1288+TST2     MVWI  X'0A',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                        1289+*----------------------------------------------------------------------*
00209E  4020 390C 0032  1290          MVWI  X'0032',TEXTCNT     SET BYTE COUNT FOR TEXTSAVE AREA
0020A4  6F08 2528       1291          MVW   CHECKFL,R7          RECORD CHECKING?
0020A8  1003            1292          JZ    CTCHECK             IF NOT, CONTINUE
0020AA  4020 390C 0033  1293          MVWI  X'0033',TEXTCNT     SET BYTE COUNT FOR RECORD CHECKING
0020B0  4020 20D2 2639  1294 CTCHECK  MVA   ECHOTST+1,STADDR1   SET PTTC MESSAGE
0020B6  4020 20D4 266B  1295          MVA   ECHOE,EADDR1          *
0020BC  6F08 2524       1296          MVW   CORRFL,R7           CORR CODE?
0020C0  1006            1297          JZ    GOMOVE              IF NOT, CONTINUE
0020C2  4020 20D2 2715  1298          MVA   ECHOTST2+1,STADDR1  OTHERWISE, SET CORR MESSAGE
0020C8  4020 20D4 2747  1299          MVA   ECHOE2,EADDR1         *
                        1300 *-------------------------
                        1301 *  DATA IS MOVED TO TEXTSAVE FOR TRANSMIT AFTER FIRST TRANSMIT.
                        1302 *  THERE IS NO (D) PRECEEDING TEXT IN TEXTSAVE AREA.
                        1303 *  THE FIRST TRANSMIT WILL COME FROM ECHOTST/ECHOTST2 AREA.
                        1304 *-------------------------
0020CE  6F03 2FB4       1305 GOMOVE   BAL   MOV,R7              MOVE DATA TO TEXTSAVE AREA
0020D2  0000            1306 STADDR1  DC    A(*-*)              START ADDRESS
0020D4  0000            1307 EADDR1   DC    A(*-*)              END ADDRESS
0020D6  390E            1308          DC    A(TEXTSAVE)         TO ADDRESS
0020D8  6F08 2528       1309 XMTMORE4 MVW   CHECKFL,R7          RECORD CHECKING?
0020DC  1030            1310          JZ    NORC1               IF NOT, CONTINUE
0020DE  4020 2100 2638  1311          MVA   ECHOTST,ADRS        SET DCB DATA ADDR-PTTC
0020E4  4020 2636 0034  1312          MVWI  X'34',ECHCNT        STORE BYTE COUNT FOR RECORD CHECKING
0020EA  6F08 2524       1313          MVW   CORRFL,R7           CORR CODE?
0020EE  1006            1314          JZ    XMTMORE5            IF NOT, CONTINUE
0020F0  4020 2100 2714  1315          MVA   ECHOTST2,ADRS       SET DCB DATA ADDR-CORR
0020F6  4020 2712 0034  1316          MVWI  X'34',ECHCNT2       STORE BYTE COUNT FOR RECORD CHECKING
0020FC  6F03 338C       1317 XMTMORE5 BAL   XMITRCV,R7          GO SEND DATA
002100  0000            1318 ADRS     DC    A(*-*)              DATA ADDRESS
002102  248A            1319          DC    A(RCDCB2)           CHAIN ADDRESS
002104  4124 3348       1320          MVA   RSPWD,R1            GET RESPONSE WORD FOR TEST
                        1321 *-------------------------
002108  4901            1322          TBT   (R1,YAKR)           (Y)?
00210A  1211            1323          JON   COUNTLP1            IF SO, CONTINUE
00210C  4900            1324          TBT   (R1,NAKR)           (N)?
00210E  1007            1325          JOFF  CKERR1              IF NOT, PRINT ERR MSG
002110  4029 2520 0001  1326          AWI   1,ERRCT             INCREMENT ERROR COUNT
002116  402F 2520 000A  1327          CWI   10,ERRCT            DOES ERR COUNT EXCEED MAX ?
00211C  14DD            1328          JLT   XMTMORE4            IF NOT, RETRANSMIT
00211E  6F03 2EFC       1329 CKERR1   MSG   E893,C0             IF NEITHER, PRINT ERR MSG
                        1330+CKERR1   BAL   MSG,R7              GENERAL DISPLAY MESSAGE
002122  36F0            1331+         DC    A(E893)             MSG ADDR,FLAG
002124  C0              1332+         DC    X'C0'
002125  00              1333+         ALIGN WORD
002126  6F03 334A       1334          BAL   PRNTBUF,R7          PRINT 50 BYTES OF RCV DATA
                        1335 *
00212A  6802 1FB4       1336          B     CKTST               ADDRESS TERMINAL AGAIN
                        1337 *
                        1338 *-------------------------
00212E  4020 2100 390E  1339 COUNTLP1 MVA   TEXTSAVE,ADRS       MOVE ADDRESS OF DATA FOR TRANSMIT
002134  4029 250C FFFF  1340          AWI   -1,LOOPCNT          DECREMENT LOOP COUNT
00213A  18B0            1341          JNZ   XMTMORE5            LOOP TILL DONE
00213C  501D            1342          J     SENDEND2            SEND END MESSAGE
                        1343 *-------------------------
                        1344 *        CKPT  0B          *       SEND CANNED ECHO MSG WITHOUT CHECKING
                        1345 *-------------------------
                        1346 NORC1    CKPT  0B                  CKPT 0B
00213E  4020 180C 000B  1347+NORC1    MVWI  X'0B',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                        1348+*----------------------------------------------------------------------*
002144  4020 2166 2638  1349          MVA   ECHOTST,ADRS1       SET DCB DATA ADDR-PTTC
00214A  4020 2636 0033  1350          MVWI  X'33',ECHCNT        STORE BYTE COUNT TO SEND (D) FIRST
002150  6F08 2524       1351          MVW   CORRFL,R7           CORR CODE?
002154  1006            1352          JZ    XMTMORE6            IF NOT, CONTINUE
002156  4020 2166 2714  1353          MVA   ECHOTST2,ADRS1      SET DCB DATA ADDR-CORR
00215C  4020 2712 0033  1354          MVWI  X'33',ECHCNT2       STORE BYTE COUNT TO SEND (D) FIRST
002162  6F03 341C       1355 XMTMORE6 BAL   XMIT,R7             GO SEND DATA
002166  0000            1356 ADRS1    DC    A(*-*)              DATA ADDRESS
002168  6F03 3234       1357          BAL   TREOT,R7            SEND (C)
00216C  6F03 2780       1358          BAL   ADDRT,R7            ADDRESS TERMINAL AGAIN
002170  4029 250C FFFF  1359          AWI   -1,LOOPCNT          DECREMENT LOOP COUNT
002176  18F5            1360          JNZ   XMTMOPE6            LOOP TILL DONE
                        1361 *-------------------------
                        1362 *        CKPT  0C          *       SEND END OF TEST MESSAGE
                        1363 *-------------------------
                        1364 SENDEND2 CKPT  0C                  CKPT 0C
002178  4020 180C 000C  1365+SENDEND2 MVWI  X'0C',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                        1366+*----------------------------------------------------------------------*
00217E  6F08 2528       1367          MVW   CHECKFL,R7          CHECKING ?
002182  1803            1368          JNZ   END1                IF SO, CONINUE
002184  6F03 341C       1369          BAL   XMIT,R7             OTHERWISE, SEND (D) IN FRONT
002188  24D8            1370          DC    A(CIRCD)            *
00218A  4020 21A0 2602  1371 END1     MVA   ENDTEST,ADRS3       SET DCB DATA ADDR-PTTC
002190  6F08 2524       1372          MVW   CORRFL,R7           CORR CODE?
002194  1003            1373          JZ    SENEND              IF NOT, CONTINUE
002196  4020 21A0 26DE  1374          MVA   ENDTEST2,ADRS3      SET DCB DATA ADDR-CORR
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
00219C  6F03 341C          1375 SENEND   BAL   XMIT,R7             TRANSMIT END MSG
0021A0  0000               1376 ADRS3    DC    A(*-*)              DATA ADDRESS
0021A2  CF25 250C          1377          MVWZ  LOOPCNT,R7          RESET LOOP COUNTER
0021A6  6F03 2A1A          1378          BAL   PRNTLOG,R7          GO PRINT LOG IF OPTION SET
0021AA  402B 180E 0008     1379          TWI   8,OPTN1             DO NOT LOOP OPTION ON?
0021B0  6A01 1F5C          1380          BNN   GOPOLL              BRANCH IF NOT
0021B4  6802 30E8          1381          B     ABORT               OTHERWISE, TERMINATE
                           1383 ********************************************************************
                           1384 *                                                                  *
                           1385 *       ROUTINE 04                                                 *
                           1386 *                                                                  *
                           1387 ********************************************************************
                           1388 *                                                                  *
                           1389 *       NAME:  DOWNLINE TEST FOR 2740-2 TERMINALS WITH             *
                           1390 *              BUFFERED RECEIVE, WITH OR WITHOUT RECORD CHECKING   *
                           1391 *                                                                  *
                           1392 *       PURPOSE: START STOP OVER THE LINE EXERCISER                 *
                           1393 *                                                                  *
                           1394 *       METHOD:                                                    *
                           1395 *       RECEIVE ECHO TEXT                                          *
                           1396 *       TRANSMIT ECHO TEXT                                         *
                           1397 *                                                                  *
                           1398 ********************************************************************
0021B8  4020 180A 0004     1399 RT04     MVWI  4,RTNE              SET RTN 04
                           1400 *-------------------------
                           1401 *        CKPT  1            *      DTR ENABLE
                           1402 *-------------------------
                           1403          CKPT  01                  CKPT 1
0021BE  4020 180C 0001     1404+         MVWI  X'01',CKPT <<<<<< C H E C K P O I N T <<<<<<<<******
                           1405+*-------------------------------------------------------------------*
0021C4  6F03 35B0          1406          BAL   CPMSG,R7            PRINT RTN, CKPT MSG
0021C8  6F03 353A          1407          BAL   DTREN,R7            DTR ENABLE IF NECESSARY
                           1408          MSG   E8A5,80             PRINT RDY MSG
0021CC  6F03 2EFC          1409+         BAL   MSG,R7              GENERAL DISPLAY MESSAGE
0021D0  3790               1410+         DC    A(E8A5)             MSG ADDR,FLAG
0021D2  80                 1411+         DC    X'80'
0021D3  00                 1412+         ALIGN WORD
                           1413 *-------------------------
                           1414 *        CKPT  2            *      POLL TERMINAL
                           1415 *-------------------------
                           1416 GOPOL    CKPT  02                  CKPT 2
0021D4  4020 180C 0002     1417+GOPOL    MVWI  X'02',CKPT <<<<<< C H E C K P O I N T <<<<<<<<******
                           1418+*-------------------------------------------------------------------*
0021DA  6F03 2754          1419          BAL   POLLT,R7            GO POLL TERMINAL
                           1420 *-------------------------
                           1421 *        CKPT  3            *      DECODE RFT RECEIVED
                           1422 *-------------------------
                           1423          CKPT  03                  CKPT 3
0021DE  4020 180C 0003     1424+         MVWI  X'03',CKPT <<<<<< C H E C K P O I N T <<<<<<<<******
                           1425+*-------------------------------------------------------------------*
0021E4  6F03 27A6          1426          BAL   CHECKRFT,R7         GO DECODE RFT
0021E8  CF25 2516          1427          MVWZ  SENDCFL,R7          FLAG SET TO POLL AGAIN ?
0021EC  18F3               1428          JNZ   GOPOL               JUMP IF SO
0021EE  4124 3348          1429          MVA   RSPWD,R1            GET RESPONSE WORD FOR TEST
0021F2  4904               1430          TBT   (R1,EOBR)           EOB RECEIVED ?
0021F4  1006               1431          JOFF  CKRFTERR            IF NOT, CONTINUE
0021F6  6F03 31F2          1432          BAL   TCIRY,R7            IF SO, SEND (Y)
0021FA  4124 3348          1433          MVA   RSPWD,R1            GET RESPONSE WORD FOR TEST
0021FE  4903               1434          TBT   (R1,EOTR)           EOT RECEIVED?
002200  1003               1435          JOFF  CK004               IF NOT, SEND REENTER MSG
002202  CF25 2512          1436 CKRFTERR MVWZ  RFTERR,R7           RFT ERROR FLAG SET ?
002206  1012               1437          JZ    CHKTST              IF NOT, CONTINUE
                           1438 *-------------------------
                           1439 *        CKPT  4            *      SEND REENTER RFT MSG TO TERMINAL
                           1440 *-------------------------
                           1441 CK004    CKPT  04                  CKPT 4
002208  4020 180C 0004     1442+CK004    MVWI  X'04',CKPT <<<<<< C H E C K P O I N T <<<<<<<<******
                           1443+*-------------------------------------------------------------------*
00220E  6F03 2780          1444          BAL   ADDRT,R7            ADDRESS TERMINAL
002212  4020 2228 2592     1445          MVA   RFTMSG,ADRES        SET PTTC MSG
002218  6F08 2524          1446          MVW   CORRFL,R7           CORR CODE?
00221C  1003               1447          JZ    GTRFT               IF NOT, CONTINUE
00221E  4020 2228 266E     1448          MVA   RFTMSG2,ADRES       OTHERWISE, SET CORR MSG
002224  6F03 341C          1449 GTRFT    BAL   XMIT,R7             TRANSMIT MSG
002228  0000               1450 ADRES    DC    A(*-*)              DATA ADDRESS TO TRANSMIT
00222A  50D4               1451          J     GOPOL               GO POLL TERMINAL
                           1452 *-------------------------
                           1453 *        CKPT  5            *      ADDRESS TERMINAL,GO TO REQUESTED TEST
                           1454 *-------------------------
                           1455 CHKTST   CKPT  05                  CKPT 5
00222C  4020 180C 0005     1456+CHKTST   MVWI  X'05',CKPT <<<<<< C H E C K P O I N T <<<<<<<<******
                           1457+*-------------------------------------------------------------------*
002232  6F03 2780          1458          BAL   ADDRT,R7            ADDRESS TERMINAL
002236  402F 2514 0002     1459          CWI   2,TESTFL            TEST 2 REQUESTED ?
00223C  6800 230C          1460          BE    TES2                IF SO, GO TO TEST 2
                           1461 *                                  OTHERWISE, GO TO TEST 1
                           1462 *-------------------------
                           1463 *        CKPT  6            *      SEND ENTER DATA MESSAGE
                           1464 *-------------------------
                           1465 TES1     CKPT  06                  CKPT 6
002240  4020 180C 0006     1466+TES1     MVWI  X'06',CKPT <<<<<< C H E C K P O I N T <<<<<<<<******
                           1467+*-------------------------------------------------------------------*
002246  4020 2268 25C8     1468          MVA   TESTMSG,DATADR1     ADDRESS OF MESSAGE IF EBCD
00224C  4020 25C6 0038     1469          MVWI  X'38',TESTCNT       BYTE COUNT
002252  6F08 2524          1470          MVW   CORRFL,R7           CORRESPONDENCE ?
002256  1006               1471          JZ    SDMSG1              IF NOT, CONTINUE
002258  4020 2268 26A4     1472          MVA   TESTMSG2,DATADR1    IF SO,SEND CORRESPONDENCE CODE
00225E  4020 26A2 0038     1473          MVWI  X'38',TESTCNT2      BYTE COUNT
002264  6F03 341C          1474 SDMSG1   BAL   XMIT,R7             GO SEND MSG
002268  0000               1475 DATADR1  DC    A(*-*)              DATA ADDRESS
                           1476 *-------------------------
                           1477 *        CKPT  7            *      GET ECHO TEXT
                           1478 *-------------------------
                           1479 XMTPOL1  CKPT  07                  CKPT 7
00226A  4020 180C 0007     1480+XMTPOL1  MVWI  X'07',CKPT <<<<<< C H E C K P O I N T <<<<<<<<******
                           1481+*-------------------------------------------------------------------*
002270  6F03 2754          1482          BAL   POLLT,R7            POLL TERMINAL
002274  6F03 290A          1483          BAL   SAVEDATA,R7         GO SAVE ECHO TEXT
002278  CF25 2510          1484          MVWZ  ERR,R7              ERR RECEIVED ?
00227C  18F6               1485          JNZ   XMTPOL1             IF SO, GO POLL AGAIN
00227E  4124 3348          1486          MVA   RSPWD,R1            CHECK RESPONSE WORD
002282  4904               1487          TBT   (R1,EOBR)           EOB RCVD ?
002284  1005               1488          JOFF  SENECH1             IF NOT, GO TO SEND ECHO TEXT
002286  6F03 31F2          1489          BAL   TCIRY,R7            GO SEND (Y), RCV RESPONSE
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 LOCTR   OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
00228A  4903               1490          TBT   (R1,EOTR)           EOT RCVD ?
00228C  1201               1491          JON   SENECH1             IF SO, GO TO SEND ECHO TEXT
00228E  50ED               1492          J     XMTPOL1             GO POLL TERMINAL AGAIN
                           1493 *-------------------------
                           1494 *        CKPT  8            *      SEND ECHO TEXT WITH CHECKING
                           1495 *-------------------------
                           1496 SENECH1  CKPT  08                  CKPT 8
002290  4020 180C 0008     1497+SENECH1  MVWI  X'08',CKPT <<<<<< C H E C K P O I N T <<<<<<<<******
                           1498+*-------------------------------------------------------------------*
002296  6F03 2780          1499          BAL   ADDRT,R7            ADDRESS TERMINAL
00229A  6F08 2528          1500          MVW   CHECKFL,R7          RECORD CHECKING ?
00229E  1025               1501          JZ    TWEOT1              JUMP IF NOT
                           1502 *-------------------------
0022A0  6F03 338C          1503 TRANSM1  BAL   XMITRCV,R7           SEND ECHO TEXT
0022A4  3974               1504          DC    A(DATSTOR0)         DATA ADDRESS
0022A6  248A               1505          DC    A(RCDCB2)           CHAIN ADDRESS
                           1506 *-------------------------
0022A8  4124 3348          1507          MVA   RSPWD,R1            GET RESPONSE WORD FOR TEST
0022AC  4901               1508          TBT   (R1,YAKR)           (Y)?
0022AE  1210               1509          JON   CLOOP               IF SO, CONTINUE
0022B0  4900               1510          TBT   (R1,NAKR)           (N)?
0022B2  1007               1511          JOFF  ERCK1               IF NOT, PRINT ERR MSG
0022B4  4029 2520 0001     1512          AWI   1,ERRCT             INCREMENT ERROR COUNT
0022BA  402F 2520 000A     1513          CWI   10,ERRCT            DOES ERR COUNT EXCEED MAX ?
0022C0  14EF               1514          JLT   TRANSM1             IF NOT, RETRANSMIT
                           1515 ERCK1    MSG   E893,C0             IF NEITHER, PRINT ERR MSG
0022C2  6F03 2EFC          1516+ERCK1    BAL   MSG,R7              GENERAL DISPLAY MESSAGE
0022C6  36F0               1517+         DC    A(E893)             MSG ADDR,FLAG
0022C8  C0                 1518+         DC    X'C0'
0022C9  00                 1519+         ALIGN WORD
0022CA  6F03 334A          1520          BAL   PRNTBUF,R7          PRINT 50 BYTES OF RVC DATA
0022CE  50E0               1521          J     SENECH1             ADR TERMINAL AGAIN TO SEND ECHO TEXT
                           1522 *-------------------------
0022D0  6F03 3234          1523 CLOOP    BAL   TREOT,R7            SEND EOT FOR BUFFER PRINTOUT
                           1524          DELAY 5000                WAIT 5 SECONDS
0022D4  6F03 2DA6          1525+         BAL   DELAY,R7            DELAY MILLISECONDS
0022D8  1388               1526+         DC    A(5000)
0022DA  6F03 2780          1527          BAL   ADDRT,R7            ADDRESS TERMINAL AGAIN
0022DE  4029 250C FFFF     1528          AWI   -1,LOOPCNT           DECREMENT LOOP COUNT
0022E4  18DD               1529          JNZ   TRANSM1             LOOP TILL DONE
0022E6  6802 23FA          1530          B     SENDEND3            SEND END OF TEST MSG IF DONE
                           1531 *-------------------------
                           1532 *        CKPT  9            *      SEND ECHO TXT WITHOUT CHECKING
                           1533 *-------------------------
                           1534 TWEOT1   CKPT  09                  CKPT 9
0022EA  4020 180C 0009     1535+TWEOT1   MVWI  X'09',CKPT <<<<<< C H E C K P O I N T <<<<<<<<******
                           1536+*-------------------------------------------------------------------*
0022F0  6F03 341C          1537          BAL   XMIT,R7             SEND ECHO TEXT
0022F4  3974               1538          DC    A(DATSTOR0)         DATA ADDRESS
                           1539 *-------------------------
                           1540          DELAY 5000                WAIT 5 SECONDS FOR BUFFER PRINTOUT
0022F6  6F03 2DA6          1541+         BAL   DELAY,R7            DELAY MILLISECONDS
0022FA  1388               1542+         DC    A(5000)
0022FC  6F03 2780          1543          BAL   ADDRT,R7            ADDRESS TERMINAL AGAIN
002300  4029 250C FFFF     1544          AWI   -1,LOOPCNT          DECREMENT LOOP COUNT
002306  18F1               1545          JNZ   TWEOT1              LOOP TILL DONE
002308  6802 23FA          1546          B     SENDEND3            SEND END OF TEST MESSAGE IF DONE
                           1547 *-------------------------
                           1548 *        CKPT  A            *      SEND CANNED ECHO TEXT WITH CHECKING
                           1549 *-------------------------
                           1550 TES2     CKPT  0A                  CKPT A
00230C  4020 180C 000A     1551+TES2     MVWI  X'0A',CKPT <<<<<< C H E C K P O I N T <<<<<<<<******
                           1552+*-------------------------------------------------------------------*
002312  4020 390C 0032     1553          MVWI  X'0032',TEXTCNT     SET BYTE COUNT FOR TEXTSAVE AREA
002318  6F08 2528          1554          MVW   CHECKFL,R7          RECORD CHECKING?
00231C  1003               1555          JZ    CTCHEK              IF NOT, CONTINUE
00231E  4020 390C 0033     1556          MVWI  X'0033',TEXTCNT     SET BYTE COUNT FOR RECORD CHECKING
002324  4020 2346 2639     1557 CTCHEK   MVA   ECHOTST+1,STADDR0   SET PTTC MESSAGE
00232A  4020 2348 266B     1558          MVA   ECHOE,EADDR0          *
002330  6F08 2524          1559          MVW   CORRFL,R7           CORR CODE?
002334  1006               1560          JZ    GOMOVE1             IF NOT, CONTINUE
002336  4020 2346 2715     1561          MVA   ECHOTST2+1,STADDR0  OTHERWISE, SET CORR MESSAGE
00233C  4020 2348 2747     1562          MVA   ECHOE2,EADDR0         *
                           1563 *-------------------------
                           1564 *  DATA IS MOVED TO TEXTSAVE FOR TRANSMIT AFTER FIRST TRANSMIT.
                           1565 *  THERE IS NO (D) PRECEEDING TEXT IN TEXTSAVE AREA.
                           1566 *  THE FIRST TRANSMIT WILL COME FROM ECHOTST/ECHOTST2 AREA.
                           1567 *-------------------------
002342  6F03 2FB4          1568 GOMOVE1  BAL   MOV,R7              MOVE DATA TO TEXTSAVE AREA
002346  0000               1569 STADDR0  DC    A(*-*)              START ADDRESS
002348  0000               1570 EADDR0   DC    A(*-*)              END ADDRESS
00234A  390E               1571          DC    A(TEXTSAVE)         TO ADDRESS
00234C  6F08 2528          1572 XMTMOR4  MVW   CHECKFL,R7          RECORD CHECKING?
002350  1034               1573          JZ    NORC0               IF NOT, CONTINUE
002352  4020 2374 2638     1574          MVA   ECHOTST,ADRS0       SET DCB DATA ADDR-PTTC
002358  4020 2636 0034     1575          MVWI  X'34',ECHCNT        STORE BYTE COUNT FOR RECORD CHECKING
00235E  6F08 2524          1576          MVW   CORRFL,R7           CORR CODE?
002362  1006               1577          JZ    XMTMOR5             IF NOT, CONTINUE
002364  4020 2374 2714     1578          MVA   ECHOTST2,ADRS0      SET DCB DATA ADDR-CORR
00236A  4020 2712 0034     1579          MVWI  X'34',ECHCNT2       STORE BYTE COUNT FOR RECORD CHECKING
002370  6F03 338C          1580 XMTMOR5  BAL   XMITRCV,R7          GO SEND DATA
002374  0000               1581 ADRS0    DC    A(*-*)              DATA ADDRESS
002376  248A               1582          DC    A(RCDCB2)           CHAIN ADDRESS
002378  4124 3348          1583          MVA   RSPWD,R1            GET RESPONSE WORD FOR TEST
                           1584 *-------------------------
00237C  4901               1585          TBT   (R1,YAKR)           (Y)?
00237E  1211               1586          JON   CLP1                IF SO, CONTINUE
002380  4900               1587          TBT   (R1,NAKR)           (N)?
002382  1007               1588          JOFF  CKER1               IF NOT, PRINT ERR MSG
002384  4029 2520 0001     1589          AWI   1,ERRCT             INCREMENT ERROR COUNT
00238A  402F 2520 000A     1590          CWI   10,ERRCT            DOES ERR COUNT EXCEED MAX ?
002390  14DD               1591          JLT   XMTMOR4             IF NOT, RETRANSMIT
                           1592 CKER1    MSG   E893,C0             IF NEITHER, PRINT ERR MSG
002392  6F03 2EFC          1593+CKER1    BAL   MSG,R7              GENERAL DISPLAY MESSAGE
002396  36F0               1594+         DC    A(E893)             MSG ADDR,FLAG
002398  C0                 1595+         DC    X'C0'
002399  00                 1596+         ALIGN WORD
00239A  6F03 334A          1597          BAL   PRNTBUF,R7          PRINT 50 BYTES OF RCV DATA
                           1598 *
00239E  6802 222C          1599          B     CHKTST              GO ADDRESS TERMINAL AGAIN
                           1600 *
                           1601 *-------------------------
0023A2  6F03 3234          1602 CLP1     BAL   TREOT,R7            SEND EOT FOR BUFFER PRINTOUT
                           1603          DELAY 5000                WAIT 5 SECONDS
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
0023A6  6F03 2DA6       1604+          BAL   DELAY,R7           DELAY MILLISECONDS
0023AA  1388            1605+          DC    A(5000)
0023AC  6F03 2780       1606           BAL   ADDRT,R7           ADDRESS TERMINAL AGAIN
0023B0  4029 250C FFFF  1607           AWI   -1,LOOPCNT         DECREMENT LOOP COUNT
0023B6  18DC            1608           JNZ   XMTMOR5            LOOP TILL DONE
0023B8  5020            1609           J     SENDEND3           SEND END MESSAGE IF DONE
                        1610 *-------------------------
                        1611 *         CKPT  0B          *     SEND CANNED ECHO TEXT WITHOUT CHECKING
                        1612 *-------------------------
                        1613 NORC0     CKPT  0B                 CKPT 0B
0023BA  4020 180C 000B  1614+NORC0     MVWI  X'0B',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                        1615+*-------------------------------------------------------------------*
0023C0  4020 23E2 2638  1616           MVA   ECHOTST,ADR1       SET DCB DATA ADDR-PTTC
0023C6  4020 2636 0033  1617           MVWI  X'33',ECHCNT       STORE BYTE COUNT TO SEND (D) FIRST
0023CC  6F08 2524       1618           MVW   CORRFL,R7          CORR CODE?
0023D0  1006            1619           JZ    XMTMOR6            IF NOT, CONTINUE
0023D2  4020 23E2 2714  1620           MVA   ECHOTST2,ADR1      SET DCB DATA ADDR-CORR
0023D8  4020 2712 0033  1621           MVWI  X'33',ECHCNT2      STORE BYTE COUNT TO SEND (D) FIRST
0023DE  6F03 341C       1622 XMTMOR6   BAL   XMIT,R7            GO SEND DATA
0023E2  0000            1623 ADR1      DC    A(*-*)             DATA ADDRESS
0023E4  6F03 3234       1624           BAL   TREOT,R7           SEND EOT FOR BUFFER PRINTOUT
                        1625           DELAY 5000               WAIT 5 SECONDS
0023E8  6F03 2DA6       1626+          BAL   DELAY,R7           DELAY MILLISECONDS
0023EC  1388            1627+          DC    A(5000)
0023EE  6F03 2780       1628           BAL   ADDRT,R7           ADDRESS TERMINAL AGAIN
0023F2  4029 250C FFFF  1629           AWI   -1,LOOPCNT         DECREMENT LOOP COUNT
0023F8  18F2            1630           JNZ   XMTMOR6            LOOP TILL DONE
                        1631 *-------------------------
                        1632 *         CKPT  0C          *     SEND END OF TEST MESSAGE
                        1633 *-------------------------
                        1634 SENDEND3  CKPT  0C                 CKPT 0C
0023FA  4020 180C 000C  1635+SENDEND3  MVWI  X'0C',CKPT <<<<<< C H E C K P O I N T <<<<<<<<********
                        1636+*-------------------------------------------------------------------*
002400  4020 241C 2602  1637           MVA   ENDTEST,ADR3       SET DCB DATA ADDR-PTTC
002406  6F08 2524       1638           MVW   CORRFL,R7          CORR CODE?
00240A  1003            1639           JZ    SENEND0            IF NOT, CONTINUE
00240C  4020 241C 26DE  1640           MVA   ENDTEST2,ADR3      SET DCB DATA ADDR-CORR
002412  6F03 341C       1641 SENEND0   BAL   XMIT,R7            SEND EOA FIRST
002416  24D8            1642           DC    A(CIRCD)           DATA ADDRESS
002418  6F03 341C       1643           BAL   XMIT,R7            TRANSMIT END MSG
00241C  0000            1644 ADR3      DC    A(*-*)             DATA ADDRESS
                        1645           DELAY 5000               WAIT 5 SECONDS FOR BUFFER PRINTOUT
00241E  6F03 2DA6       1646+          BAL   DELAY,R7           DELAY MILLISECONDS
002422  1388            1647+          DC    A(5000)
002424  CF25 250C       1648           MVWZ  LOOPCNT,R7         RESET LOOP COUNTER
002428  6F03 2A1A       1649           BAL   PRNTLOG,R7         GO PRINT LOG IF OPTION SET
00242C  402B 180E 0008  1650           TWI   8,OPTN1            DO NOT LOOP OPTION ON?
002432  6A01 21D4       1651           BNN   GOPOL              BRANCH IF NOT
002436  6802 30E8       1652           B     ABORT              OTHERWISE, TERMINATE
                        1654 ************************************************************************
                        1655 *                    INTERRUPT CONTROL BLOCK                           *
                        1656 ************************************************************************
00243A  1814            1657 INTCB     DC    A(DEVAD)           DEVICE ADDRESS POINTER
00243C  2E5E            1658           DC    A(GINT)            ADDRESS OF INTERRUPT ROUTINE
00243E  2E5E            1659           DC    A(GINT)            ADDRESS OF ERROR INTERRUPT ROUTINE
002440  0003            1660           DC    X'0003'            EXPECTED INTERRUPT CONDITION CODE
                        1661 ************************************************************************
                        1662 *                    OIO CONTROL BLOCK                                 *
                        1663 ************************************************************************
002442  1814            1664 CTRLBLOK  DC    A(DEVAD)       0/1 DEVICE ADDRESS POINTER
002444  2ADE            1665           DC    A(CCERR)       2/3 ERROR RETURN ADDRESS
002446  0000            1666 DATAWORD  DC    A(*-*)         4/5 VARIABLE(USUALLY DCB ADDRESS)
002448  0000            1667           DC    A(*-*)         6/7 VARIABLE DEPENDENT ON OP
00244A  0000            1668 LASTSVC   DC    A(*-*)         8/9 ADDRESS OF LAST SVC
00244C  0000            1669 DEVID     DC    A(*-*)       10/11 SECOND WORD OF IDCB (DEVICE ID)
                        1670 *                                  OR ADDR OF DCB
                        1671 ************************************************************************
                        1672 *                    CYCLE STEAL BUFFER DATA AREA                      *
                        1673 ************************************************************************
00244E                  1674 CSBFR     EQU   *
00244E  0000            1675 STATUS0   DC    X'0000'            STATUS WORD 0
002450  0000            1676 STATUS1   DC    X'0000'            STATUS WORD 1
002452  0000            1677 STATUS2   DC    X'0000'            STATUS WORD 2
                        1678 ************************************************************************
                        1679 *                    STORE AREA FOR TRANSMIT RESPONSE                  *
                        1680 ************************************************************************
002454  0000            1681 CRBFRCT   DC    A(*-*)
002456  00000000000000000 1682 CRBFR     DC    20X'00'            STORE AREA FOR TRANSMIT
                        1683 ************************************************************************
                        1684 *                    DCB'S                                             *
                        1685 ************************************************************************
00246A  8003            1686 TRDCB     DC    X'8003'   CONTROL WORD - TRANSMIT END ALLOW BREAK/CHAIN
00246C  0000            1687           DC    A(*-*)             RESERVED
00246E  0002            1688           DC    A(2)               TIMER 1
002470  03DE            1689           DC    A(990)             TIMER 2
002472  0000            1690           DC    A(*-*)             BIT RATE CONSTANT
002474  247A            1691 CHAINAD   DC    A(RCTSTDCB)  CHAIN ADDRESS MAY CHANGE DURING PROGRAM
002476  0000            1692 DATACNT   DC    A(*-*)             COUNT
002478  0000            1693 DATADDR   DC    A(*-*)             DATA ADDRESS (TRANSMIT TEXT)
                        1694 ************************************************************************
00247A  2004            1695 RCTSTDCB  DC    X'2004'            RECEIVE WITHOUT TIMEOUT
00247C  0000            1696           DC    X'0000'            RESERVED
00247E  0000            1697           DC    X'0000'            TIMER 1
002480  0000            1698           DC    X'0000'            TIMER 2
002482  0000            1699           DC    X'0000'            RESERVED
002484  0000            1700           DC    X'0000'            RESERVED
002486  00C8            1701           DC    X'00C8'            BYTE COUNT - 200
002488  3842            1702           DC    A(RBUF)            DATA ADDRESS
                        1703 ************************************************************************
00248A  2024            1704 RCDCB2    DC    X'2024'            RECEIVE RESPONSE WITHOUT TIMEOUT
00248C  0000            1705           DC    A(0)               RESERVED
00248E  0000            1706           DC    A(0)               TIMER 1
002490  0000            1707           DC    A(0)               TIMER 2
002492  0000            1708           DC    A(0)               BIT RATE CONSTANT
002494  0000            1709           DC    A(0)               CHAIN ADDRESS
002496  0010            1710           DC    X'0010'            16  BYTE COUNT MAXIMUM
002498  3842            1711           DC    A(RBUF)            DATA ADDRESS
                        1712 ************************************************************************
00249A  000D            1713 CDCB      DC    X'000D'            CONTROL WORD- SET PTTC CONTROL
00249C  0016            1714           DC    X'0016'            BIT RATE CONSTANT AND EOA CHAR
00249E  3D40            1715           DC    X'3D40'            EOB AND COD CHARACTER
0024A0  761F            1716           DC    X'761F'            COD - COD
0024A2  1C7C            1717           DC    X'1C7C'            UPSHIFT- DOWNSHIFT
0024A4  0000            1718           DC    A(0)               CHAIN ADDRESS
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
0024A6  0000            1719           DC    A(0)               BYTE COUNT
0024A8  0000            1720           DC    A(0)               DATA ADDRESS WORD
                        1721 ************************************************************************
0024AA  2000            1722 DCB3      DC    X'2000'            START CYCLE STEAL STATUS ONLY DCB
0024AC  0000            1723           DC    A(0)               NOT USED
0024AE  0000            1724           DC    A(0)               NOT USED
0024B0  0000            1725           DC    A(0)               NOT USED
0024B2  0000            1726           DC    A(0)               NOT USED
0024B4  0000            1727           DC    A(0)               NOT USED
0024B6  0006            1728           DC    A(6)               BYTE COUNT
0024B8  244E            1729           DC    A(CSBFR)           STATUS WORD 1,2,3 ADDRESS START
                        1730 ************************************************************************
0024BA  0000            1731 DTRDCB    DC    A(*-*)             DTR CONTROL WORD
0024BC  0000            1732           DC    A(0)               RESERVED
0024BE  0000            1733           DC    A(0)               TIMER 1
0024C0  0000            1734           DC    A(0)               TIMER 2
0024C2  0000            1735           DC    A(0)               BIT RATE CONSTANT
0024C4  0000            1736           DC    A(0)               CHAIN ADDRESS
0024C6  0000            1737           DC    A(0)               BYTE COUNT
0024C8  0000            1738           DC    A(0)               DATA ADDRESS
                        1739 *
                        1740 ********** LINE CONTROL CHARACTERS **************************
0024CA  0001            1741           DC    A(1)
0024CC  3D              1742 CIRCB     DC    X'3D'              END OF BLOCK (B)
0024CE  0001            1743           DC    A(1)
0024D0  40              1744 CIRCN     DC    X'40'              NEGATIVE RESPONSE (N)
0024D2  0001            1745           DC    A(1)
0024D4  76              1746 CIRCY     DC    X'76'              POSITIVE RESPONSE (Y)
0024D6  0001            1747           DC    A(1)
0024D8  16              1748 CIRCD     DC    X'16'              END OF ADDRESS (D)
0024DA  0001            1749           DC    A(1)               COUNT
0024DC  1F              1750 CIRCC     DC    X'1F'              END OF TRANSMISSION
0024DE  0002            1751           DC    A(2)               COUNT
0024E0  2301            1752 XMTCTL    DC    X'2301'            / SPACE, TRANSMIT CONTROL SEQUENCE
                        1753           ALIGN WORD
                        1754 *
                        1755 ************************************************************************
0024E2  0002            1756           DC    A(CIRCE-CIRCDC)
0024E4  161F            1757 CIRCDC    DC    X'161F'            (D) (C)
0024E6                  1758 CIRCE     EQU   *
                        1759 *
                        1760 ************************************************************************
0024E6                  1761 PTTCTABL  EQU   *
0024E6  15020407080B0D0E1 1762         DC    XL10'15020407080B0D0E1013'       0 - 9
0024F0                  1763 DECITABL  EQU   *
0024F0  00010203040506070 1764         DC    XL10'00010203040506070809'       0 - 9
0024FA                  1765 CORRTABL  EQU   *
0024FA  1302040710080D0B0 1766         DC    XL10'1302040710080D0B0E16'       0 - 9
                        1767 ************************************************************************
                        1768 *                                                                      *
                        1769 *          STORAGE BUFFER LOCATIONS                                    *
                        1770 *                                                                      *
                        1771 ************************************************************************
002504  0000            1772 CONF1     DC    A(*-*)             STORE BYTE 3 FROM CONFIG TABLE HERE
002506  0000            1773 INTSW     DC    A(*-*)             INTERRUPT SWITCH
002508  0000            1774 IDSAV     DC    A(*-*)             SAVE READ ID
00250A  0000            1775 XMNAKFL   DC    A(*-*)             INDICATES NAK TRANSMITTED
00250C  0000            1776 LOOPCNT   DC    A(*-*)             MAX LOOP COUNT FOR LOOP OPTN
00250E  0000            1777 HITIT     DC    A(*-*)             ALREADY DECODED FIRST ECHO #
002510  0000            1778 ERR       DC    A(*-*)             SET IF ECHO TEXT NOT RCVD CORRECTLY
002512  0000            1779 RFTERR    DC    A(*-*)             RFT ERROR FLAG
002514  0000            1780 TESTFL    DC    A(*-*)             CONTAINS 1 OR 2 (TEST REQUESTED)
002516  0000            1781 SENDCFL   DC    A(*-*)             SEND (C), GET RFT WHEN SET
002518  0000            1782 DECVAL    DC    A(*-*)             SAVE DECIMAL ECHO COUNT FROM RFT
00251A  0000            1783 CSSBYPAS  DC    A(*-*)             FLAG TO PREVENT CSS READ LOOP
                        1784 *
                        1785 * DO NOT RESET THE FOLLOWING IN RT01, CKPT 01
00251C  0000            1786 FLAGO     DC    A(*-*)             FIRST TIME THRU FLAG
00251E  0000            1787 PASSCNT1  DC    A(*-*)             TOTAL # OF PASSES COMPLETED
002520  0000            1788 ERRCT     DC    A(*-*)             ERROR COUNTER
002522  0000            1789 BPSFL     DC    A(*-*)             BPS RATE HAS BEEN SET ALREADY
002524  0000            1790 CORRFL    DC    A(*-*)             CORRESPONDENCE CODE FLAG
002526  0000            1791 QUESTFL   DC    A(*-*)             INITIAL QUESTIONS ANSWERED FLAG
                        1792 *
                        1793 * DO RESET THE FOLLOWING IN RT01, CKPT 09 AT LABEL ASKQUEST
002528  0000            1794 CHECKFL   DC    A(*-*)             RECORD CHECKING FLAG
00252A  0000            1795 STCTRL    DC    A(*-*)             STATION CONTROL FLAG
00252C  0000            1796 T2741FL   DC    A(*-*)             2741 FLAG
00252E  0000            1797 X2740FL   DC    A(*-*)             2740 TRANSMIT CONTROL FLAG
002530  0000            1798 RT3FL     DC    A(*-*)             ROUTINE 03 FLAG
002532  0000            1799 RT4FL     DC    A(*-*)             ROUTINE 04 FLAG
                        1800 ************************************************************************
                        1801 *                    CONSTANTS                                         *
                        1802 ************************************************************************
002534  00              1803 K00       DC    X'00'              CONSTANT
002535  02              1804 K02       DC    X'02'              CONSTANT
002536  04              1805 K04       DC    X'04'              CONSTANT
002537  09              1806 K09       DC    X'09'              CONSTANT
002538  0F              1807 K0F       DC    X'0F'              CONSTANT
002539  13              1808 K13       DC    X'13'              CONSTANT
00253A  15              1809 K15       DC    X'15'              CONSTANT
00253B  16              1810 K16       DC    X'16'              CONSTANT
00253C  1F              1811 K1F       DC    X'1F'              CONSTANT
00253D  22              1812 K22       DC    X'22'              CONSTANT
00253E  44              1813 K44       DC    X'44'              CONSTANT
00253F  46              1814 K46       DC    X'46'              CONSTANT
002540  4F              1815 K4F       DC    X'4F'              CONSTANT
002541  5B              1816 K5B       DC    X'5B'              CONSTANT
002542  7C              1817 K7C       DC    X'7C'              CONSTANT
002543  7F              1818 K7F       DC    X'7F'              CONSTANT
002544  80              1819 K80       DC    X'80'              CONSTANT
002545  88              1820 K88       DC    X'88'              CONSTANT
002546  99              1821 K99       DC    X'99'              CONSTANT
002547  E8              1822 KE8       DC    X'E8'              CONSTANT
002548  E9              1823 KE9       DC    X'E9'              CONSTANT
002549  FF              1824 KFF       DC    X'FF'              CONSTANT
00254A  64              1825 HUN       DC    X'64'              CONSTANT
00254B  0A              1826 TENS      DC    X'0A'              CONSTANT
                        1827           ALIGN WORD
00254C  0021            1828 LVL       DC    X'0021'            LVL 2 WITH ''I'' BIT ON
                        1829 ************************************************************************
00254E  000F            1830           DC    A(CREND-CRETURN)   BYTE COUNT
002550  16              1831 CRETURN   DC    X'16'              EOA          CARRIAGE RETURN
002551  5B              1832           DC    X'5B'              RETURN
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

002552  5E                1833          DC    X'5E'               IDLE
002553  5E                1834          DC    X'5E'               IDLE
002554  5E                1835          DC    X'5E'               IDLE
002555  5E                1836          DC    X'5E'               IDLE
002556  5E                1837          DC    X'5E'               IDLE
002557  5E                1838          DC    X'5E'               IDLE
002558  5E                1839          DC    X'5E'               IDLE
002559  5E                1840          DC    X'5E'               IDLE
00255A  5E                1841          DC    X'5E'               IDLE
00255B  5E                1842          DC    X'5E'               IDLE
00255C  5E                1843          DC    X'5E'               IDLE
00255D  5E                1844          DC    X'5E'               IDLE
00255E  1F                1845          DC    X'1F'               EOT
00255F                    1846 CREND    EQU   *
                          1847 ********************************************************************************
002560  000E              1848          DC    A(CRLFEND-CRLF)     BYTE COUNT
002562  16                1849 CRLF     DC    X'16'               EOA          CARRIAGE RETURN
002563  5B                1850          DC    X'5B'               RETURN
002564  5E                1851          DC    X'5E'               IDLE
002565  5E                1852          DC    X'5E'               IDLE
002566  5E                1853          DC    X'5E'               IDLE
002567  5E                1854          DC    X'5E'               IDLE
002568  5E                1855          DC    X'5E'               IDLE
002569  5E                1856          DC    X'5E'               IDLE
00256A  5E                1857          DC    X'5E'               IDLE
00256B  5E                1858          DC    X'5E'               IDLE
00256C  5E                1859          DC    X'5E'               IDLE
00256D  5E                1860          DC    X'5E'               IDLE
00256E  5E                1861          DC    X'5E'               IDLE
00256F  5E                1862          DC    X'5E'               IDLE
002570                    1863 CRLFEND  EQU   *
                          1864 ********************************************************************************
002570  000E              1865          DC    A(CRLFE-CRLF1)      BYTE COUNT
002572  5B                1866 CRLF1    DC    X'5B'               RETURN
002573  5E                1867          DC    X'5E'               IDLE
002574  5E                1868          DC    X'5E'               IDLE
002575  5E                1869          DC    X'5E'               IDLE
002576  5E                1870          DC    X'5E'               IDLE
002577  5E                1871          DC    X'5E'               IDLE
002578  5E                1872          DC    X'5E'               IDLE
002579  5E                1873          DC    X'5E'               IDLE
00257A  5E                1874          DC    X'5E'               IDLE
00257B  5E                1875          DC    X'5E'               IDLE
00257C  5E                1876          DC    X'5E'               IDLE
00257D  5E                1877          DC    X'5E'               IDLE
00257E  5E                1878          DC    X'5E'               IDLE
00257F  1F                1879          DC    X'1F'               EOT
002580                    1880 CRLFE    EQU   *
                          1881 ********************************************************************************
002580  000D              1882          DC    A(CREEND-CRETUR)    BYTE COUNT
002582  5B                1883 CRETUR   DC    X'5B'               RETURN          CARRIAGE RETURN
002583  5E                1884          DC    X'5E'               IDLE
002584  5E                1885          DC    X'5E'               IDLE
002585  5E                1886          DC    X'5E'               IDLE
002586  5E                1887          DC    X'5E'               IDLE
002587  5E                1888          DC    X'5E'               IDLE
002588  5E                1889          DC    X'5E'               IDLE
002589  5E                1890          DC    X'5E'               IDLE
00258A  5E                1891          DC    X'5E'               IDLE
00258B  5E                1892          DC    X'5E'               IDLE
00258C  5E                1893          DC    X'5E'               IDLE
00258D  5E                1894          DC    X'5E'               IDLE
00258E  5E                1895          DC    X'5E'               IDLE
00258F                    1896 CREEND   EQU   *
                          1897 ********************************************************************************
002590  0034              1898          DC    A(RFTE-RFTMSG)      BYTE COUNT
002592  16                1899 RFTMSG   DC    X'16'               EOA          REENTER RFT MSG
002593  5B                1900          DC    X'5B'               RETURN
002594  5E                1901          DC    X'5E'               IDLE
002595  5E                1902          DC    X'5E'               IDLE
002596  5E                1903          DC    X'5E'               IDLE
002597  5E                1904          DC    X'5E'               IDLE
002598  5E                1905          DC    X'5E'               IDLE
002599  5E                1906          DC    X'5E'               IDLE
00259A  5E                1907          DC    X'5E'               IDLE
00259B  5E                1908          DC    X'5E'               IDLE
00259C  5E                1909          DC    X'5E'               IDLE
00259D  5E                1910          DC    X'5E'               IDLE
00259E  5E                1911          DC    X'5E'               IDLE
00259F  5E                1912          DC    X'5E'               IDLE
0025A0  52                1913          DC    X'52'               R
0025A1  6B                1914          DC    X'6B'               E
0025A2  6B                1915          DC    X'6B'               E
0025A3  4A                1916          DC    X'4A'               N
0025A4  26                1917          DC    X'26'               T
0025A5  6B                1918          DC    X'6B'               E
0025A6  52                1919          DC    X'52'               R
0025A7  01                1920          DC    X'01'               SPACE
0025A8  52                1921          DC    X'52'               R
0025A9  6B                1922          DC    X'6B'               E
0025AA  51                1923          DC    X'51'               Q
0025AB  29                1924          DC    X'29'               U
0025AC  6E                1925          DC    X'6E'               E
0025AD  25                1926          DC    X'25'               S
0025AE  26                1927          DC    X'26'               T
0025AF  01                1928          DC    X'01'               SPACE
0025B0  6D                1929          DC    X'6D'               F
0025B1  4C                1930          DC    X'4C'               O
0025B2  52                1931          DC    X'52'               R
0025B3  01                1932          DC    X'01'               SPACE
0025B4  26                1933          DC    X'26'               T
0025B5  6B                1934          DC    X'6B'               E
0025B6  25                1935          DC    X'25'               S
0025B7  26                1936          DC    X'26'               T
0025B8  5B                1937          DC    X'5B'               RETURN
0025B9  5E                1938          DC    X'5E'               IDLE
0025BA  5E                1939          DC    X'5E'               IDLE
0025BB  5E                1940          DC    X'5E'               IDLE
0025BC  5E                1941          DC    X'5E'               IDLE
0025BD  5E                1942          DC    X'5E'               IDLE
0025BE  5E                1943          DC    X'5E'               IDLE
0025BF  5E                1944          DC    X'5E'               IDLE
0025C0  5E                1945          DC    X'5E'               IDLE
0025C1  5E                1946          DC    X'5E'               IDLE
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

0025C2  5E                1947          DC    X'5E'               IDLE
0025C3  5E                1948          DC    X'5E'               IDLE
0025C4  5E                1949          DC    X'5E'               IDLE
0025C5  1F                1950          DC    X'1F'               EOT
0025C6                    1951 RFTE     EQU   *
                          1952 ********************************************************************************
0025C6  0038              1953 TESTCNT  DC    A(TESEND-TESTMSG)   BYTE COUNT
0025C8  16                1954 TESTMSG  DC    X'16'               EOA          ENTER TEST MSG
0025C9  5B                1955          DC    X'5B'               RETURN
0025CA  5E                1956          DC    X'5E'               IDLE
0025CB  5E                1957          DC    X'5E'               IDLE
0025CC  5E                1958          DC    X'5E'               IDLE
0025CD  5E                1959          DC    X'5E'               IDLE
0025CE  5E                1960          DC    X'5E'               IDLE
0025CF  5E                1961          DC    X'5E'               IDLE
0025D0  5E                1962          DC    X'5E'               IDLE
0025D1  5E                1963          DC    X'5E'               IDLE
0025D2  5E                1964          DC    X'5E'               IDLE
0025D3  5E                1965          DC    X'5E'               IDLE
0025D4  5E                1966          DC    X'5E'               IDLE
0025D5  5E                1967          DC    X'5E'               IDLE
0025D6  6B                1968          DC    X'6B'               E
0025D7  4A                1969          DC    X'4A'               N
0025D8  26                1970          DC    X'26'               T
0025D9  6B                1971          DC    X'6B'               E
0025DA  52                1972          DC    X'52'               R
0025DB  01                1973          DC    X'01'               SPACE
0025DC  02                1974          DC    X'02'               1
0025DD  07                1975          DC    X'07'               3
0025DE  15                1976          DC    X'15'               0
0025DF  01                1978          DC    X'01'               SPACE
0025E0  67                1979          DC    X'67'               C
0025E1  70                1980          DC    X'70'               H
0025E2  62                1981          DC    X'62'               A
0025E3  52                1982          DC    X'52'               R
0025E4  62                1983          DC    X'62'               A
0025E5  67                1984          DC    X'67'               C
0025E6  26                1985          DC    X'26'               T
0025E7  6B                1986          DC    X'6B'               E
0025E8  52                1987          DC    X'52'               R
0025E9  25                1988          DC    X'25'               S
0025EA  01                1989          DC    X'01'               SPACE
0025EB  4C                1990          DC    X'4C'               O
0025EC  52                1991          DC    X'52'               R
0025ED  01                1992          DC    X'01'               SPACE
0025EE  46                1993          DC    X'46'               L
0025EF  6B                1994          DC    X'6B'               E
0025F0  25                1995          DC    X'25'               S
0025F1  25                1996          DC    X'25'               S
0025F2  5B                1997          DC    X'5B'               RETURN
0025F3  5E                1998          DC    X'5E'               IDLE
0025F4  5E                1999          DC    X'5E'               IDLE
0025F5  5E                2000          DC    X'5E'               IDLE
0025F6  5E                2001          DC    X'5E'               IDLE
0025F7  5E                2002          DC    X'5E'               IDLE
0025F8  5E                2003          DC    X'5E'               IDLE
0025F9  5E                2004          DC    X'5E'               IDLE
0025FA  5E                2005          DC    X'5E'               IDLE
0025FB  5E                2006          DC    X'5E'               IDLE
0025FC  5E                2007          DC    X'5E'               IDLE
0025FD  5E                2008          DC    X'5E'               IDLE
0025FE  5E                2009          DC    X'5E'               IDLE
0025FF  1F                2010          DC    X'1F'               EOT
002600                    2011 TESEND   EQU   *
                          2012 ********************************************************************************
002600  0033              2013          DC    A(ENDE-ENDTEST)     BYTE COUNT
002602  5B                2014 ENDTEST  DC    X'5B'               RETURN          END OF TEST
002603  5E                2015          DC    X'5E'               IDLE
002604  5E                2016          DC    X'5E'               IDLE
002605  5E                2017          DC    X'5E'               IDLE
002606  5E                2018          DC    X'5E'               IDLE
002607  5E                2019          DC    X'5E'               IDLE
002608  5E                2020          DC    X'5E'               IDLE
002609  5E                2021          DC    X'5E'               IDLE
00260A  5E                2022          DC    X'5E'               IDLE
00260B  5E                2023          DC    X'5E'               IDLE
00260C  5E                2024          DC    X'5E'               IDLE
00260D  5E                2025          DC    X'5E'               IDLE
00260E  5E                2026          DC    X'6B'               E
00260F  6B                2027          DC    X'4A'               N
002610  4A                2028          DC    X'68'               D
002611  68                2029          DC    X'01'               SPACE
002612  01                2030          DC    X'4C'               O
002613  4C                2031          DC    X'6D'               F
002614  6D                2032          DC    X'01'               SPACE
002615  01                2033          DC    X'26'               T
002616  26                2034          DC    X'6B'               E
002617  6B                2035          DC    X'25'               S
002618  25                2036          DC    X'26'               T
002619  26                2037          DC    X'5B'               RETURN
00261A  5B                2038          DC    X'5E'               IDLE
00261B  5E                2039          DC    X'5E'               IDLE
00261C  5E                2040          DC    X'5E'               IDLE
00261D  5E                2041          DC    X'5E'               IDLE
00261E  5E                2042          DC    X'5E'               IDLE
00261F  5E                2043          DC    X'5E'               IDLE
002620  5E                2044          DC    X'5E'               IDLE
002621  5E                2045          DC    X'5E'               IDLE
002622  5E                2046          DC    X'5E'               IDLE
002623  5E                2047          DC    X'5E'               IDLE
002624  5E                2048          DC    X'5E'               IDLE
002625  5E                2049          DC    X'5E'               IDLE
002626  5E                2050          DC    X'5B'               RETURN
002627  5B                2051          DC    X'5E'               IDLE
002628  5E                2052          DC    X'5E'               IDLE
002629  5E                2053          DC    X'5E'               IDLE
00262A  5E                2054          DC    X'5E'               IDLE
00262B  5E                2055          DC    X'5E'               IDLE
00262C  5E                2056          DC    X'5E'               IDLE
00262D  5E                2057          DC    X'5E'               IDLE
00262E  5E                2058          DC    X'5E'               IDLE
00262F  5E                2059          DC    X'5E'               IDLE
002630  5E                2060          DC    X'5E'               IDLE
002631  5E
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002632  5E              2061          DC    X'5E'                 IDLE
002633  5E              2062          DC    X'5E'                 IDLE
002634  1F              2063          DC    X'1F'                 EOT
002635                  2064 ENDE     EQU   *
                        2065 ********************************************************************************
002636  0034            2066 ECHCNT   DC    A(ECHE-ECHOTST)       BYTE COUNT
002638  16              2067 ECHOTST  DC    X'16'                 EOA          CANNED ECHO MESSAGE
002639  5B              2068          DC    X'5B'                 RETURN
00263A  5E              2069          DC    X'5E'                 IDLE
00263B  5E              2070          DC    X'5E'                 IDLE
00263C  5E              2071          DC    X'5E'                 IDLE
00263D  5E              2072          DC    X'5E'                 IDLE
00263E  5E              2073          DC    X'5E'                 IDLE
00263F  5E              2074          DC    X'5E'                 IDLE
002640  5E              2075          DC    X'5E'                 IDLE
002641  5E              2076          DC    X'5E'                 IDLE
002642  5E              2077          DC    X'5E'                 IDLE
002643  5E              2078          DC    X'5E'                 IDLE
002644  5E              2079          DC    X'5E'                 IDLE
002645  5E              2080          DC    X'5E'                 IDLE
002646  62              2081          DC    X'62'                 A
002647  64              2082          DC    X'64'                 B
002648  67              2083          DC    X'67'                 C
002649  68              2084          DC    X'68'                 D
00264A  6B              2085          DC    X'6B'                 E
00264B  6D              2086          DC    X'6D'                 F
00264C  6E              2087          DC    X'6E'                 G
00264D  70              2088          DC    X'70'                 H
00264E  73              2089          DC    X'73'                 I
00264F  43              2090          DC    X'43'                 J
002650  45              2091          DC    X'45'                 K
002651  46              2092          DC    X'46'                 L
002652  49              2093          DC    X'49'                 M
002653  4A              2094          DC    X'4A'                 N
002654  4C              2095          DC    X'4C'                 O
002655  4F              2096          DC    X'4F'                 P
002656  51              2097          DC    X'51'                 Q
002657  52              2098          DC    X'52'                 R
002658  25              2099          DC    X'25'                 S
002659  26              2100          DC    X'26'                 T
00265A  29              2101          DC    X'29'                 U
00265B  2A              2102          DC    X'2A'                 V
00265C  2C              2103          DC    X'2C'                 W
00265D  2F              2104          DC    X'2F'                 X
00265E  31              2105          DC    X'31'                 Y
00265F  32              2106          DC    X'32'                 Z
002660  01              2107          DC    X'01'                 SPACE
002661  15              2108          DC    X'15'                 0
002662  02              2109          DC    X'02'                 1
002663  04              2110          DC    X'04'                 2
002664  07              2111          DC    X'07'                 3
002665  08              2112          DC    X'08'                 4
002666  0B              2113          DC    X'0B'                 5
002667  0D              2114          DC    X'0D'                 6
002668  0E              2115          DC    X'0E'                 7
002669  10              2116          DC    X'10'                 8
00266A  13              2117          DC    X'13'                 9
00266B  3D              2118 ECHOE    DC    X'3D'                 EOB
00266C                  2119 ECHE     EQU   *
                        2120 ********************************************************************************
00266C  0034            2121          DC    A(RFT2E-RFTMSG2)      BYTE COUNT
00266E  16              2122 RFTMSG2  DC    X'16'                 EOA          REENTER RFT MSG
00266F  5B              2123          DC    X'5B'                 RETURN
002670  5E              2124          DC    X'5E'                 IDLE
002671  5E              2125          DC    X'5E'                 IDLE
002672  5E              2126          DC    X'5E'                 IDLE
002673  5E              2127          DC    X'5E'                 IDLE
002674  5E              2128          DC    X'5E'                 IDLE
002675  5E              2129          DC    X'5E'                 IDLE
002676  5E              2130          DC    X'5E'                 IDLE
002677  5E              2131          DC    X'5E'                 IDLE
002678  5E              2132          DC    X'5E'                 IDLE
002679  5E              2133          DC    X'5E'                 IDLE
00267A  5E              2134          DC    X'5E'                 IDLE
00267B  5E              2135          DC    X'5E'                 IDLE
00267C  4A              2136          DC    X'4A'                 R
00267D  29              2137          DC    X'29'                 E
00267E  29              2138          DC    X'29'                 E
00267F  25              2139          DC    X'25'                 N
002680  20              2140          DC    X'20'                 T
002681  29              2141          DC    X'29'                 E
002682  4A              2142          DC    X'4A'                 R
002683  01              2143          DC    X'01'                 SPACE
002684  4A              2144          DC    X'4A'                 R
002685  29              2145          DC    X'29'                 E
002686  6D              2146          DC    X'6D'                 Q
002687  26              2147          DC    X'26'                 U
002688  29              2148          DC    X'29'                 E
002689  52              2149          DC    X'52'                 S
00268A  20              2150          DC    X'20'                 T
00268B  01              2151          DC    X'01'                 SPACE
00268C  67              2152          DC    X'67'                 F
00268D  51              2153          DC    X'51'                 O
00268E  4A              2154          DC    X'4A'                 R
00268F  01              2155          DC    X'01'                 SPACE
002690  20              2156          DC    X'20'                 T
002691  29              2157          DC    X'29'                 E
002692  52              2158          DC    X'52'                 S
002693  20              2159          DC    X'20'                 T
002694  5B              2160          DC    X'5B'                 RETURN
002695  5E              2161          DC    X'5E'                 IDLE
002696  5E              2162          DC    X'5E'                 IDLE
002697  5E              2163          DC    X'5E'                 IDLE
002698  5E              2164          DC    X'5E'                 IDLE
002699  5E              2165          DC    X'5E'                 IDLE
00269A  5E              2166          DC    X'5E'                 IDLE
00269B  5E              2167          DC    X'5E'                 IDLE
00269C  5E              2168          DC    X'5E'                 IDLE
00269D  5E              2169          DC    X'5E'                 IDLE
00269E  5E              2170          DC    X'5E'                 IDLE
00269F  5E              2171          DC    X'5E'                 IDLE
0026A0  5E              2172          DC    X'5E'                 IDLE
0026A1  1F              2173          DC    X'1F'                 EOT
0026A2                  2174 RFT2E    EQU   *
```



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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

                        2175 ********************************************************************************
0026A2  0038            2176 TESTCNT2 DC    A(TEST2E-TESTMSG2)    BYTE COUNT
0026A4  16              2177 TESTMSG2 DC    X'16'                 EOA          ENTER DATA
0026A5  5B              2178          DC    X'5B'                 RETURN
0026A6  5E              2179          DC    X'5E'                 IDLE
0026A7  5E              2180          DC    X'5E'                 IDLE
0026A8  5E              2181          DC    X'5E'                 IDLE
0026A9  5E              2182          DC    X'5E'                 IDLE
0026AA  5E              2183          DC    X'5E'                 IDLE
0026AB  5E              2184          DC    X'5E'                 IDLE
0026AC  5E              2185          DC    X'5E'                 IDLE
0026AD  5E              2186          DC    X'5E'                 IDLE
0026AE  5E              2187          DC    X'5E'                 IDLE
0026AF  5E              2188          DC    X'5E'                 IDLE
0026B0  5E              2189          DC    X'5E'                 IDLE
0026B1  5E              2190          DC    X'5E'                 IDLE
0026B2  29              2191          DC    X'29'                 E
0026B3  25              2192          DC    X'25'                 N
0026B4  20              2193          DC    X'20'                 T
0026B5  29              2194          DC    X'29'                 E
0026B6  4A              2195          DC    X'4A'                 R
0026B7  01              2196          DC    X'01'                 SPACE
0026B8  02              2197          DC    X'02'                 1
0026B9  07              2198          DC    X'07'                 3
0026BA  13              2199          DC    X'13'                 0
0026BB  01              2200          DC    X'01'                 SPACE
0026BC  2F              2201          DC    X'2F'                 C
0026BD  32              2202          DC    X'32'                 H
0026BE  4F              2203          DC    X'4F'                 A
0026BF  4A              2204          DC    X'4A'                 R
0026C0  4F              2205          DC    X'4F'                 A
0026C1  2F              2206          DC    X'2F'                 C
0026C2  20              2207          DC    X'20'                 T
0026C3  29              2208          DC    X'29'                 E
0026C4  4A              2209          DC    X'4A'                 R
0026C5  52              2210          DC    X'52'                 S
0026C6  01              2211          DC    X'01'                 SPACE
0026C7  51              2212          DC    X'51'                 O
0026C8  4A              2213          DC    X'4A'                 R
0026C9  01              2214          DC    X'01'                 SPACE
0026CA  31              2215          DC    X'31'                 L
0026CB  29              2216          DC    X'29'                 E
0026CC  52              2217          DC    X'52'                 S
0026CD  52              2218          DC    X'52'                 S
0026CE  5B              2219          DC    X'5B'                 RETURN
0026CF  5E              2220          DC    X'5E'                 IDLE
0026D0  5E              2221          DC    X'5E'                 IDLE
0026D1  5E              2222          DC    X'5E'                 IDLE
0026D2  5E              2223          DC    X'5E'                 IDLE
0026D3  5E              2224          DC    X'5E'                 IDLE
0026D4  5E              2225          DC    X'5E'                 IDLE
0026D5  5E              2226          DC    X'5E'                 IDLE
0026D6  5E              2227          DC    X'5E'                 IDLE
0026D7  5E              2228          DC    X'5E'                 IDLE
0026D8  5E              2229          DC    X'5E'                 IDLE
0026D9  5E              2230          DC    X'5E'                 IDLE
0026DA  5E              2231          DC    X'5E'                 IDLE
0026DB  1F              2232          DC    X'1F'                 EOT
0026DC                  2233 TEST2E   EQU   *
                        2234 ********************************************************************************
0026DC  0033            2235          DC    A(END2-ENDTEST2)      BYTE COUNT
0026DE  5B              2236 ENDTEST2 DC    X'5B'                 RETURN               END OF TEST
0026DF  5E              2237          DC    X'5E'                 IDLE
0026E0  5E              2238          DC    X'5E'                 IDLE
0026E1  5E              2239          DC    X'5E'                 IDLE
0026E2  5E              2240          DC    X'5E'                 IDLE
0026E3  5E              2241          DC    X'5E'                 IDLE
0026E4  5E              2242          DC    X'5E'                 IDLE
0026E5  5E              2243          DC    X'5E'                 IDLE
0026E6  5E              2244          DC    X'5E'                 IDLE
0026E7  5E              2245          DC    X'5E'                 IDLE
0026E8  5E              2246          DC    X'5E'                 IDLE
0026E9  5E              2247          DC    X'5E'                 IDLE
0026EA  5E              2248          DC    X'5E'                 IDLE
0026EB  29              2249          DC    X'29'                 E
0026EC  25              2250          DC    X'25'                 N
0026ED  2A              2251          DC    X'2A'                 D
0026EE  01              2252          DC    X'01'                 SPACE
0026EF  51              2253          DC    X'51'                 O
0026F0  67              2254          DC    X'67'                 F
0026F1  01              2255          DC    X'01'                 SPACE
0026F2  20              2256          DC    X'20'                 T
0026F3  29              2257          DC    X'29'                 E
0026F4  52              2258          DC    X'52'                 S
0026F5  20              2259          DC    X'20'                 T
0026F6  5B              2260          DC    X'5B'                 RETURN
0026F7  5E              2261          DC    X'5E'                 IDLE
0026F8  5E              2262          DC    X'5E'                 IDLE
0026F9  5E              2263          DC    X'5E'                 IDLE
0026FA  5E              2264          DC    X'5E'                 IDLE
0026FB  5E              2265          DC    X'5E'                 IDLE
0026FC  5E              2266          DC    X'5E'                 IDLE
0026FD  5E              2267          DC    X'5E'                 IDLE
0026FE  5E              2268          DC    X'5E'                 IDLE
0026FF  5E              2269          DC    X'5E'                 IDLE
002700  5E              2270          DC    X'5E'                 IDLE
002701  5E              2271          DC    X'5E'                 IDLE
002702  5E              2272          DC    X'5E'                 IDLE
002703  5B              2273          DC    X'5B'                 RETURN
002704  5E              2274          DC    X'5E'                 IDLE
002705  5E              2275          DC    X'5E'                 IDLE
002706  5E              2276          DC    X'5E'                 IDLE
002707  5E              2277          DC    X'5E'                 IDLE
002708  5E              2278          DC    X'5E'                 IDLE
002709  5E              2279          DC    X'5E'                 IDLE
00270A  5E              2280          DC    X'5E'                 IDLE
00270B  5E              2281          DC    X'5E'                 IDLE
00270C  5E              2282          DC    X'5E'                 IDLE
00270D  5E              2283          DC    X'5E'                 IDLE
00270E  5E              2284          DC    X'5E'                 IDLE
00270F  5E              2285          DC    X'5E'                 IDLE
002710  1F              2286          DC    X'1F'                 EOT
002711                  2287 END2     EQU   *
                        2288 ********************************************************************************
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

002712  0034              2289 ECHCNT2  DC    A(ECH2E-ECHOTST2)  BYTE COUNT
002714  16                2290 ECHOTST2 DC    X'16'              EOA          CANNED ECHO MESSAGE
002715  5B                2291          DC    X'5B'              RETURN
002716  5E                2292          DC    X'5E'              IDLE
002717  5E                2293          DC    X'5E'              IDLE
002718  5E                2294          DC    X'5E'              IDLE
002719  5E                2295          DC    X'5E'              IDLE
00271A  5E                2296          DC    X'5E'              IDLE
00271B  5E                2297          DC    X'5E'              IDLE
00271C  5E                2298          DC    X'5E'              IDLE
00271D  5E                2299          DC    X'5E'              IDLE
00271E  5E                2300          DC    X'5E'              IDLE
00271F  5E                2301          DC    X'5E'              IDLE
002720  5E                2302          DC    X'5E'              IDLE
002721  5E                2303          DC    X'5E'              IDLE
002722  4F                2304          DC    X'4F'              A
002723  37                2305          DC    X'37'              B
002724  2F                2306          DC    X'2F'              C
002725  2A                2307          DC    X'2A'              D
002726  29                2308          DC    X'29'              E
002727  67                2309          DC    X'67'              F
002728  62                2310          DC    X'62'              G
002729  32                2311          DC    X'32'              H
00272A  4C                2312          DC    X'4C'              I
00272B  61                2313          DC    X'61'              J
00272C  2C                2314          DC    X'2C'              K
00272D  31                2315          DC    X'31'              L
00272E  43                2316          DC    X'43'              M
00272F  25                2317          DC    X'25'              N
002730  51                2318          DC    X'51'              O
002731  68                2319          DC    X'68'              P
002732  6D                2320          DC    X'6D'              Q
002733  4A                2321          DC    X'4A'              R
002734  52                2322          DC    X'52'              S
002735  20                2323          DC    X'20'              T
002736  26                2324          DC    X'26'              U
002737  46                2325          DC    X'46'              V
002738  57                2326          DC    X'57'              W
002739  23                2327          DC    X'23'              X
00273A  73                2328          DC    X'73'              Y
00273B  15                2329          DC    X'15'              Z
00273C  01                2330          DC    X'01'              SPACE
00273D  13                2331          DC    X'13'              0
00273E  02                2332          DC    X'02'              1
00273F  04                2333          DC    X'04'              2
002740  07                2334          DC    X'07'              3
002741  10                2335          DC    X'10'              4
002742  08                2336          DC    X'08'              5
002743  0D                2337          DC    X'0D'              6
002744  0B                2338          DC    X'0B'              7
002745  0E                2339          DC    X'0E'              8
002746  16                2340          DC    X'16'              9
002747  3D                2341 ECHOE2   DC    X'3D'              EOB
002748                    2342 ECH2E    EQU   *
                          2343 ********************************************************************
                          2344 *
                          2345 *
002748  0003              2346          DC    A(TERME-POLLTERM)  BYTE COUNT
00274A  1F                2347 POLLTERM DC    X'1F'              EOT          POLLING LIST
00274B  00                2348 TERMAD1  DC    X'00'              TERMINAL ADDPESS
00274C  01                2349          DC    X'01'              SPACE
00274D                    2350 TERME    EQU   *
00274D  00                2351          ALIGN WORD
                          2352 *
                          2353 *
00274E  0004              2354          DC    A(ADRTERME-ADRTERM) BYTE COUNT
002750  1F                2355 ADRTERM  DC    X'1F'              EOT          TERMINAL ADDRESSING
002751  37                2356          DC    X'37'              SOA
002752  00                2357 TERMAD2  DC    X'00'              TERMINAL ADDRESS
002753  01                2358          DC    X'01'              SPACE
002754                    2359 ADRTERME EQU   *
                          2360          ALIGN WORD
                          2362 ********************************************************************
                          2363 * LIST OF SUBROUTINES IN THIS PROGRAM
                          2364 *  POLLT
                          2365 *  ADDRT
                          2366 *  CHECKRFT
                          2367 *  DECTOHEX
                          2368 *  RCVRSP
                          2369 *  SAVEDATA
                          2370 *  LOGR / LOGT / PRNTLOG
                          2371 *  CCERR
                          2372 *  PREPD
                          2373 *  UNPREP
                          2374 *  RSET
                          2375 *  CSTAT
                          2376 *  WINT
                          2377 *  WINTS
                          2378 *  DELAY
                          2379 *  DISAB
                          2380 *  GINT
                          2381 *  MSK
                          2382 *  SCANW / SCANB
                          2383 *  TMSG, LMSG, MSG
                          2384 *  QUEST
                          2385 *  ETH
                          2386 *  HTE
                          2387 *  GDSR
                          2388 *  MOV
                          2389 *  ODD
                          2390 *  TMR
                          2391 *  ABORT
                          2392 *  DSRCHK / DSRCHKR
                          2393 *  LINE CONTROL
                          2394 *  DRESP
                          2395 *  PRNTBUF
                          2396 *  XMITRCV
                          2397 *  XMIT
                          2398 *  RECEIVE
                          2399 *  RECV
                          2400 *  DTREN
                          2401 *  READD
                          2402 *  CPMSG
                          2404 ********************************************************************
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

                          2405 *                                                              *
                          2406 *    NAME - POLLT SUBROUTINE                                   *
                          2407 *                                                              *
                          2408 *    PURPOSE - TO POLL TERMINAL(S)                             *
                          2409 *                                                              *
                          2410 ********************************************************************
002754  4028 3024 C000    2411 POLLT    STM   R6,REGSAV          SAVE REGS
                          2412 XMTPOLL  DELAY 5000               WAIT 5 SECONDS
002758  6F03 2DA6         2413+XMTPOLL  BAL   DELAY,R7           DELAY MILLISECONDS
00275C  1388              2414+         DC    A(5000)
00275E  6F03 338C         2415          BAL   XMITRCV,R7         GO TRANSMIT/RECEIVE
002762  274A              2416          DC    A(POLLTERM)        DATA ADDRESS
002764  247A              2417          DC    A(RCTSTDCB)        CHAIN ADDRESS
                          2418 *-------------------------
002766  4124 3348         2419          MVA   RSPWD,R1           CHECK RESPONSE WORD
00276A  4900              2420          TBT   (R1,NAKR)          NAK RECEIVED ?
00276C  12F5              2421          JON   XMTPOLL            IF SO, GO POLL TERMINAL AGAIN
00276E  4902              2422          TBT   (R1,EOAR)          EOA RCVD ?
002770  10F3              2423          JOFF  XMTPOLL            IF NOT,GO POLL TERMINAL AGAIN
002772  4903              2424          TBT   (R1,EOTR)          EOT RCVD ?
002774  1202              2425          JON   RETURN             IF SO, RETURN
002776  4904              2426          TBT   (R1,EOBR)          EOB RCVD ?
002778  10EF              2427          JOFF  XMTPOLL            IF NOT, GO POLL AGAIN
00277A  402A 3024  RETURN 2428          LMB   REGSAV             RETURN TO CALLER AND RESTORE REGS
                          2429 ********************************************************************
                          2430 *                                                              *
                          2431 *    NAME - ADDRT SUBROUTINE                                   *
                          2432 *                                                              *
                          2433 *    PURPOSE - TO ADDRESS TERMINAL(S)                          *
                          2434 *                                                              *
                          2435 ********************************************************************
00277C  4028 3024 C000    2436 ADDRT    STM   R6,REGSAV          SAVE REGS
002780  6F03 338C         2437 SENDAD   BAL   XMITRCV,R7         ADDRESS TERMINAL
002784  2750              2438          DC    A(ADRTERM)         DATA ADDRESS
002786  247A              2439          DC    A(RCTSTDCB)        CHAIN ADDRESS
                          2440 *-------------------------
002788  4124 3348         2441          MVA   RSPWD,R1           CHECK RESPONSE WORD
00278C  4901              2442          TBT   (R1,YAKR)          YAK RECEIVED ?
00278E  1206              2443          JON   RETURN1            IF SO, RETURN
002790  4900              2444          TBT   (R1,NAKR)          NAK RECEIVED ?
002792  10F6              2445          JOFF  SENDAD             IF NOT, GO ADDRESS TERMINAL AGAIN
002794                    2446          DELAY 5000               IF SO, DELAY 5 SEC
002794  6F03 2DA6         2447+         BAL   DELAY,R7           DELAY MILLISECONDS
002798  1388              2448+         DC    A(5000)
00279A  50F2              2449          J     SENDAD             GO ADDRESS TERMINAL AGAIN
00279C  402A 3024  RETURN1 2450        LMB   REGSAV             RETURN TO CALLER AND RESTORE REGS
                          2451 ********************************************************************
                          2452 *                                                              *
                          2453 *    NAME - CHECKRFT SUBROUTINE                                *
                          2454 *                                                              *
                          2455 *   TO DECODE ''REQUEST FOR TEST'' SENT FROM TERMINAL          *
                          2456 *                                                              *
                          2457 ********************************************************************
0027A0  4028 3024 C000    2458 CHECKRFT STM   R6,REGSAV          SAVE REGS
0027A6  D620 3842         2459          MVD   RBUF,R6            MOVE RBUF TO R6, RBUF+2 TO R7
0027AC  C624 24DC         2460          CB    CIRCC,R6           (C) ?
0027B0  1018              2461          JE    SENDCC             IF SO, GO SEND (C)
0027B2  7E06 161F         2462          CWI   X'161F',R6         (D) & (C) ?
0027B6  1015              2463          JE    SENDCC             IF SO, GO SEND (C)
0027B8  7E06 165B         2464          CWI   X'165B',R6         (D) CR?
0027BC  1004              2465          JNE   CHKEOB             IF NOT, CONTINUE DECODE
0027BE  C724 24DC         2466          CB    CIRCC,R7           (C) AFTER (D)CR?
0027C2  1801              2467          JNE   CHKEOB             IF NOT, CONTINUE DECODE
0027C4  500E              2468          J     SENDCC             JUMP
0027C6  C624 24CC         2469 CHKEOB   CB    CIRCB,R6           (B) ?
0027CA  1009              2470          JE    SENDYCC            IF SO, GO SEND (Y) (C)
0027CC  7E06 163D         2471          CWI   X'163D',R6         (D) & (B) ?
0027D0  1006              2472          JE    SENDYCC            IF SO, GO SEND (Y) (C)
0027D2  7E06 165B         2473          CWI   X'165B',R6         (D) CR?
0027D6  1809              2474          JNE   CODECK             IF NOT, CONTINUE DECODE
0027D8  C724 24CC         2475          CB    CIRCB,R7           (B) ?
0027DC  1806              2476          JNE   CODECK             IF NOT, CONTINUE DECODE
0027DE  6F03 31F2         2477 SENDYCC  BAL   TCIRY,R7           SEND (Y), THEN SET FLAG TO SEND (C)
0027E2  4020 2516 0001    2478 SENDCC   MVWI  1,SENDCFL          SET FLAG TO SEND (C)
                          2479 *
0027E6  5031              2480          J     CKEND              RETURN
                          2481 *
0027E8  4020 282A 2539    2482 CODECK   MVA   K13,CKNINE+2       SET PTTC VALUES
0027EE  4020 2832 2539    2483          MVA   K13,CKNINE3+2      *
0027F4  4020 283A 253A    2484          MVA   K15,CKZERO+2       *
0027FA  6F08 2524         2485          MVW   CORRFL,R7          CORR CODE?
0027FE  1009              2486          JZ    CONTCK             IF NOT, CONTINUE
002800  4020 282A 253B    2487          MVA   K16,CKNINE+2       OTHERWISE, SET CORR VALUES
002806  4020 2832 253B    2488          MVA   K16,CKNINE3+2      *
00280C  4020 283A 2539    2489          MVA   K13,CKZERO+2       *
002812  4124 3842         2490 CONTCK   MVA   RBUF,R1            ADDR OF DATA IN R1
002818  8063 24D8         2491          CB    CIRCD,(R1)         EOA FIRST IN BUFFER?
00281C  1801              2492          JNE   CKNINE2            IF NOT, CONTINUE
00281E  0101              2493          ABI   1,R1               OTHERWISE, INCREMENT BUFFER
002820  4224 0004         2494 CKNINE2  MVWI  4,R2               SET UP COUNTER
002824  8067 2539         2495 CKNINE   CB    K13,(R1)+          CHECK FOR 4 NINE'S
002828  180E              2496          JNE   SETERR             IF NOT 4 NINE'S, THEN REENTER
00282A  BAFC              2497          JCT   CKNINE,R2          LOOP TILL DONE
00282C  8063 2539         2498 CKNINE3  CB    K13,(R1)           ANOTHER NINE?
002830  1801              2499          JNE   CKZERO             IF NOT, CHECK FOR ZERO
002832  0101              2500          ABI   1,R1               OTHERWISE, INCREMENT R1 AND CHK FOR 0
002834  8067 253A         2501 CKZERO   CB    K15,(R1)+          ZERO NEXT?
002838  1806              2502          JNE   SETERR             IF NOT, THEN REENTER
00283A  8063 2535         2503          CB    K02,(R1)           TEST 1?
00283E  1008              2504          JE    SETEST1            JUMP IF SO
002840  8063 2536         2505          CB    K04,(R1)           TEST 2?
002844  1009              2506          JE    SETEST2            JUMP IF SO
002846  4020 2512 0001    2507 SETERR   MVWI  1,RFTERR           SET FLAG TO SEND REENTER MSG
                          2508 *
00284A  402A 3024  CKEND  2509          LMB   REGSAV             RETURN TO CALLER AND RESTORE REGS
                          2510 *
00284E  4020 2514 0001    2511 SETEST1  MVWI  1,TESTFL           TEST 1 REQUESTED
002852  5003              2512          J     XLATE                *
002854  4020 2514 0002    2513 SETEST2  MVWI  2,TESTFL           TEST 2 REQUESTED
                          2514 *
002858                    2515 XLATE    EQU   *
002858  4020 287C 24E6    2516          MVA   PTTCTABL,XLAT+2    COMPARE WITH PTTC TABLE
00285E  6F08 2524         2517          MVW   CORRFL,R7          CORR CODE?
002862  1003              2518          JZ    XLATE2             IF NOT, CONTINUE
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 LOCTR   OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                          2519         MVA   CORRTABL,XLAT+2     OTHERWISE, COMPARE WITH CORR TABLE
                          2520 XLATE2  ABI   1,R1                 CHECK NEXT BYTE
                          2521         MVWI  9,R2                 DECODE LOOP COUNT
                          2522 XLAT    CB    (R2,PTTCTABL),(R1)   *
                          2523         JE    HIT                  *
                          2524         AWI   -1,R2                *
                          2525         JNN   XLAT                 *
                          2526         MVWZ  HITIT,R0             SECOND TIME THRU?
                          2527         JNZ   SETERR               IF SO, ERROR OCCURRED - GET RFT
                          2528         CB    K5B,(R1)             RETURN CHARACTER?
                          2529         JE    SETCNT               IF SO, DEFAULT COUNT IS ONE
                          2530         CB    CIRCC,(R1)           EOT?
                          2531         JE    SETCNT               IF SO, DEFAULT COUNT IS ONE
                          2532         CB    CIRCB,(R1)           EOB?
                          2533         JE    SETCNT               IF SO, DEFAULT COUNT IF ONE
                          2534 *
                          2535         J     SETERR               SET RFT ERROR FLAG
                          2536 *
                          2537 HIT     MVWZ  HITIT,R0             CONTINUE DECODE
                          2538         JNZ   HIT2                 *
                          2539         MVWI  1,HITIT              *
                          2540         MVB   (R2,DECITABL),R5     *
                          2541         SLL   4,R5                 *
                          2542         J     XLATE2               *
                          2543 HIT2    MVB   (R2,DECITABL),R6     *
                          2544         OW    R6,R5                *
                          2545         MVW   R5,DECVAL            STORE DECIMAL VALUE IN DECVAL
                          2546         BAL   DECTOHEX,R7          RETURN WITH HEX ECHO CNT IN LOOPCNT
                          2547 GOBACK  MVWZ  HITIT,R0             RESET 1ST XLATE FLAG
                          2548         J     CKEND                RETURN TO CALLER AND RESTORE REGS
                          2549 SETCNT  MVWI  1,LOOPCNT            SET DEFAULT COUNT
                          2550         J     GOBACK               RETURN TO CALLER
                          2551 *
                          2552 ********************************************************************
                          2553 *                                                                  *
                          2554 *    NAME - DECIMAL TO HEX CONVERSION                              *
                          2555 *                                                                  *
                          2556 *   TO CONVERT DECIMAL ENTRY TO HEX FOR ECHO COUNT                 *
                          2557 *   ENTER WITH DECIMAL VALUE IN DECVAL                             *
                          2558 *   EXIT WITH HEX VALUE IN LOOPCNT                                 *
                          2559 *                                                                  *
                          2560 ********************************************************************
 0028D0   4028 3024 C000 2561 DECTOHEX STM   R6,REGSAV           SAVE RETURN ADDRESS AND REGS
 0028D6   6D08 2518       2562         MVW   DECVAL,R5           DECIMAL VALUE
 0028DA   3546            2563         SRLD  8,R5                SAVE TENS AND UNITS
 0028DC   ED21 254A       2564         MB    HUN,R5              MULTIPLY BY 100
 0028E0   3642            2565         SRL   8,R6                PLACE TENS AND UNITS IN LAST 8 BITS
 0028E2   3626            2566         SRLD  4,R6                PLACE UNITS DIGIT IN R7
 0028E4   3762            2567         SRL   12,R7               PLACE UNITS IN PROPER POSITION
 0028E6   77A8            2568         AW    R7,R5               ADD IN UNITS VALUE
 0028E8   EE21 254B       2569         MB    TENS,R6             MULTIPLY BY 10
 0028EC   76A8            2570         AW    R6,R5               ADD IN TENS VALUE
 0028EE   6D0D 250C       2571         MVW   R5,LOOPCNT          STORE VALUE IN LOOPCNT
 0028F2   402A 3024       2572         LMB   REGSAV              RESTORE REGS AND RETURN TO CALLER
                          2573 ********************************************************************
                          2574 *     NAME -  RECEIVE RESPONSE SUBROUTINE
                          2575 *     PURPOSE -  TO RECEIVE A RESPONSE FROM THE TERMINAL.
                          2576 *
                          2577 ********************************************************************
 0028F6   4028 3024 C000 2578 RCVRSP  STM   R6,REGSAV           SAVE RETURN ADDRESS AND REGS
 0028FC   4020 2446 248A  2579         MVA   RCVCB2,DATAWORD     RCV RESPONSE
 002902   6F03 34A2       2580         BAL   RECEIVE,R7          *
 002906   402A 3024       2581         LMB   REGSAV              RETURN TO CALLER AND RESTORE REGS
                          2582 ********************************************************************
                          2583 *     NAME -  SAVE DATA SUBROUTINE
                          2584 *     PURPOSE -  TO SAVE RECEIVED ECHO DATA FROM TERMINAL
                          2585 *                TO COUNT NUMBER OF RECEIVED BYTES
                          2586 *
                          2587 *        CALLING SEQUENCE  BAL SAVEDATA,R7
                          2588 *        RETURN -  NEXT INSTRUCTION
                          2589 ********************************************************************
 00290A   4028 3024 C000 2590 SAVEDATA STM   R6,REGSAV           SAVE REGS AND RETURN ADDRESS
 002910   6F03 2E70       2591         MSK   DATSTORO,DATEND,00 CLEAR AREA TO STORE DATA
 002914   39743A4B        2592         BAL   MSK,R7      START ADDR, END ADDR, BYTE VALUE TO STORE
 002918   00              2593+        DC    A(DATSTORO,DATEND)
 002919   00              2594+        DC    X'00'
                          2595+        ALIGN WORD
 00291A   4124 3842       2596         MVA   RBUF,R1             ADDRESS OF DATA IN R1
 00291E   4224 008C       2597         MVWI  140,R2              HOW MANY BYTES RCVD
 002922   4024 0000       2598         MVWI  0,R0                *
 002926   8067 2534       2599 FINDEND CB    K00,(R1)+          IS THIS END (00)?
 00292A   100B            2600         JE    SAVE                BRANCH IF SO
 00292C   7801 0001       2601         AWI   1,R0                OTHERWISE, UPDATE COUNTER
 002930   BAFA            2602         JCT   FINDEND,R2          AND CONTINUE
                          2603         MSG   E885,C0             PRINT MSG IF END (00) NOT FOUND
 002932   6F03 2EFC       2604+        BAL   MSG,R7              GENERAL DISPLAY MESSAGE
 002936   3622            2605+        DC    A(E885)             MSG ADDR,FLAG
 002938   C0              2606+        DC    X'C0'
 002939   00              2607+        ALIGN WORD
 00293A   4020 2510 0001  2608 TERMERR MVWI  1,ERR               ERR - GO GET ECHO TEXT AGAIN
 002940   5025            2609         J     RETOCAL             *
 002942                   2610 SAVE    EQU   *
 002942   7921 FFFE       2611         AWI   -2,R1               ADJUST ADDRESS FOR CHARACTER STORE
 002946   7801 FFFF       2612         AWI   -1,R0               ADJUST BYTE COUNT - DON'T SEND (D)
 00294A   19F7            2613         JNP   TERMERR             IF NOT POSITIVE, GO GET DATA AGAIN
 00294C   6F08 2528       2614         MVW   CHECKFL,R7          RECORD CHECKING ?
 002950   1809            2615         JNZ   SETEOB              JUMP IF SO
 002952   6F08 252C       2616         MVW   T2741FL,R7          2741 ?
 002956   1803            2617         JNZ   SETDS               JUMP IF SO
 002958   8060 24DC       2618         MVB   CIRCC,(R1)          PUT (C) AT END OF DATA TO SEND
 00295C   5005            2619         J     SETDCNT             CONTINUE
 00295E   8060 2542       2620 SETDS   MVB   K7C,(R1)            PUT DOWNSHIFT CHAR AT END
 002962   5002            2621         J     SETDCNT             CONTINUE
 002964   8060 24CC       2622 SETEOB  MVB   CIRCB,(R1)          PUT (B) AT END OF DATA TO SEND
 002968   7801 000E       2623 SETDCNT AWI   14,R0               ADD TO BYTE COUNT (D), CRLF, IDLES
 00296C   6D0D 3972       2624         MVW   R0,DCOUNT           SAVE NUMBER OF BYTES RECEIVED
 002970   4724 3843       2625         MVA   RBUF+1,R7           BEGIN MOVE FROM RBUF+1 TO SKIP (D)
 002974   6F0D 2986       2626         MVW   R7,FROMAD           *
                          2627 *-------------------
                          2628         MOV   CRLF,CRLF+13,DATSTORO   MOVE (D), CRLF FOR TRANSMIT
 002978   6F03 2FB4       2629         BAL   MOV,R7          MOVE BYTES. STRT ADDR, END ADDR, TO ADDR.
 00297C   2562256F3974     2630+        DC    A(CRLF,CRLF+13,DATSTORO)
 002982   6F03 2FB4       2631         BAL   MOV,R7              MOVE ECHO DATA AFTER (D),CRLF
 002986   0000            2632 FROMAD  DC    A(*-*)              FROM ADDRESS - START
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 LOCTR   OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
 002988   390A            2633         DC    A(RBUFEND)          END ADDRESS
 00298A   3982            2634         DC    A(DATASTOR)         TO ADDRESS
 00298C   402A 3024       2635 RETOCAL LMB   REGSAV              RESTORE REGS AND RETURN TO CALLER
                          2636 ********************************************************************
                          2637 * SUBROUTINE
                          2638 *    NAME - LOGR / LOGT / PRNTLOG
                          2639 *    PURPOSE :
                          2640 * TO LOG AND IDENTIFY THE DATA TRANSMITTED AND RECEIVED
                          2641 * AND TO GENERATE CORRECT BYTE COUNT FOR TRANSMIT DCB TO
                          2642 * PREVENT FALSE 'INCORRECT LENGTH RECORD.
                          2643 * TO DISPLAY THE CONTENTS OF THE LOG
                          2644 ********************************************************************
                          2645 * SUBROUTINE
                          2646 * ENTRY TO SAVE RECEIVE DATA
 002990   4028 3024 C000 2647 LOGR    STM   R6,REGSAV     SAVE THE CALLERS REGISTERS
                          2648 ********************************************************************
 002996   6F08 3842       2649         MVW   RBUF,R7             IF NO DATA RECEIVED, EXIT
 00299A   102A            2650         JZ    XLGR
                          2651 ********************************************************************
                          2652 * STATUS0 SHOULD ALWAYS BE EQUAL TO(1 BYTE RCVD) OR GREATER THAN
                          2653 * THE ADDR OF 'RBUF'. IF LESS THAN, NO DATA WAS RECEIVED AT ALL.
 00299C   6C08 244E       2654         MVW   STATUS0,R4          POINTS TO LAST BYTE ADDR ACCESSED(CS)
 0029A0   4624 3842       2655         MVA   RBUF,R6
 0029A4   768A            2656         SW    R6,R4               SEE IF ANY DATA RECEIVED AT ALL
 0029A6   1224            2657         JN    XLGR                IF RESIDUAL LESS THAN START, EXIT
 0029A8   0401            2658         ABI   1,R4                ADJUST COUNT
 0029AA   6A08 2A18       2659         MVW   LOGPT,R2            GET LOG POINTER ('TO')
 0029AE   9E22            2660         JAL   LOGCK,R6            CHECK FOR END OF LOG
 0029B0   80A4 253D       2661         MVB   K22,(R2)+           SET UP FOR ENGLISH 'RCV ' IN DISPLAY
 0029B4   80A4 253D       2662         MVB   K22,(R2)+           STORE TWO BYTES OF '22'
 0029B8   4324 3842       2663         MVA   RBUF,R3             SET DATA POINTER
 0029BC   9E1B            2664 GBPT    JAL   LOGCK,R6            CHECK FOR END OF LOG
 0029BE   8394            2665         MVB   (R3)+,(R2)+         MOVE FROM RBUF(R3) TO LOG AREA (R2)
 0029C0   BCFD            2666         JCT   GBPT,R4             JUMP IF COUNT NOT FINISHED
 0029C2   5010            2667         J     FINISH
                          2668 ********************************************************************
                          2669 * ENTRY TO SAVE TRANSMIT DATA                                      *
                          2670 * ENTER WITH XMIT BYTE COUNT IN DATACNT AND                        *
                          2671 * XMIT DATA ADDRESS IN DATACNT                                     *
                          2672 ********************************************************************
 0029C4   4028 3024 C000 2673 LOGT    STM   R6,REGSAV           SAVE THE CALLERS REGISTERS
 0029CA   6808 2476       2674         MVW   DATACNT,R0          MOVE BYTE COUNT TO REG 0
 0029CE   6A08 2A18       2675         MVW   LOGPT,R2            GET LOG POINTER
 0029D2   9E10            2676         JAL   LOGCK,R6            CHECK FOR END OF LOG
 0029D4   0F44            2677         MVBI  X'44',R7            SET UP FOR ENGLISH 'XMT ' IN PRINTOUT
 0029D6   C798            2678         MVB   R7,(R2)+            STORE TWO BYTES OF '44'
 0029D8   C798            2679         MVB   R7,(R2)+
                          2680 *
 0029DA   6B08 2478       2681         MVW   DATADDR,R3          MOVE XMIT DATA ADDR
 0029DE   9E0A            2682 MOVEDATA JAL  LOGCK,R6            CHECK FOR END OF LOG
 0029E0   8394            2683         MVB   (R3)+,(R2)+         MOVE XMIT DATA TO LOG AREA
 0029E2   B8FD            2684         JCT   MOVEDATA,R0         LOOP TILL DONE
                          2685 *     OTHERWISE, FINISHED, EXIT
 0029E4   6A0D 2A18       2686 FINISH  MVW   R2,LOGPT            SAVE LOG POINTER
 0029E8   9E0B            2687         JAL   LOGCK,R6            CHECK FOR END OF LOG
 0029EA   0F99            2688         MVBI  X'99',R7            MOVE END CHAR INTO R7
 0029EC   C798            2689         MVB   R7,(R2)+            MOVE END CHAR INTO LOG
 0029EE   C798            2690         MVB   R7,(R2)+            MOVE END CHAR INTO LOG
 0029F0   402A 3024       2691 XLGR    LMB   REGSAV              RESTORE REGS AND RETURN ON R7
                          2692 *
 0029F4   4724 3C48       2693 LOGCK   MVA   LAST-4,R7
 0029F8   7745            2694         CW    R7,R2               TEST FOR LOG END
 0029FA   6CC0 0000       2695         BLT   (R6)                RETURN IF NOT END
 0029FE   5005            2696         J     SKPCLR              LOG FULL,GO TO BEGINNING,DON'T CLEAR
 002A00   6F03 2E70       2697 CLLOG   MSK   LOGSV,LAST,88        CLEAR DATA LOG IF END
 002A04   3A4C3C4C        2698+CLLOG   BAL   MSK,R7      START ADDR, END ADDR, BYTE VALUE TO STORE
 002A08   88              2699+        DC    A(LOGSV,LAST)
 002A09   00              2700+        DC    X'88'
                          2701+        ALIGN WORD
 002A0A   4020 2A18 3A4C  2702 SKPCLR  MVA   LOGSV,LOGPT         RESET LOG POINTER
 002A10   6A08 2A18       2703         MVW   LOGPT,R2            INITIALIZE LOG POINTER
 002A14   68C2 0000       2704         B     (R6)
 002A18   3A4C            2705 LOGPT   DC    A(LOGSV)            LOG POINTER(INITIAL VALUE)
                          2706 ********************************************************************
                          2707 * SUBROUTINE
                          2708 *  ENTRY TO DISPLAY THE LOG DATA
                          2709 ********************************************************************
 002A1A   4028 3024 C000  2710 PRNTLOG STM   R6,REGSAV     SAVE THE CALLERS REGISTERS
 002A20   4224 3A4C       2711         MVA   LOGSV,R2            GET ADDR OF START OF LOGSV
                          2712 INTPRT  MSK   E8AC,E8AC+63,00     FILL BUFFER AREA WITH 00 (TERMINATE)
 002A24   6F03 2E70       2713+INTPRT  BAL   MSK,R7      START ADDR, END ADDR, BYTE VALUE TO STORE
 002A28   379637D5        2714+        DC    A(E8AC,E8AC+63)
 002A2C   00              2715+        DC    X'00'
 002A2D   00              2716+        ALIGN WORD
 002A2E   4324 3796       2717         MVA   E8AC,R3             GET ADDRESS OF OUTPUT AREA IN R3
 002A32   4524 001E       2718         MVWI  30,R5               SET UP COUNTER(MAX WDS  PER LINE)
 002A36   6A0D 2AD2       2719 LOPNXT  MVW   R2,CVTFROM          GET CONVERT FROM ADDR
 002A3A   6B0D 2AD4       2720         MVW   R3,CVTTO            GET CONVERT 'TO' ADDRESS
 002A3E   820B 253D       2721         CB    (R2),K22            SEE IF ENGLISH DISPLAY FLAGS OCCUR
 002A42   1029            2722         JE    TST22               JUMP IF YES TO SEE IF CONSECUTIVE
 002A44   820B 253E       2723         CB    (R2),K44            SEE IF '44' FLAG DETECTED
 002A48   1020            2724         JE    TST44               JUMP TO SEE IF ANOTHER FOLLOWS
 002A4A   820B 2545       2725         CB    (R2),K88            SEE IF '88' FLAG DETECTED
 002A4E   1031            2726         JE    TST88               JUMP TO SEE IF ANOTHER FOLLOWS
 002A50   820B 2546       2727         CB    (R2),K99            SEE IF '99' FLAG DETECTED
 002A54   1036            2728         JE    TST99               JUMP TO SEE IF ANOTHER FOLLOWS
 002A56   4724 2AD0       2729 CVTDATA MVA   CVTBLK,R7           ADDRESS OF CONVERT CONTROL BLOCK
 002A5A   601A            2730         SVC   HTOE                CONVERT AND STORE DATA
 002A5C   5001            2731         J     INCDTA
 002A5E   0201            2732 ONECT   ABI   1,R2               STEP INPUT BYTE POINTER
 002A60   0201            2733 INCDTA  ABI   1,R2               STEP INPUT POINTER
 002A62   0302            2734         ABI   2,R3               STEP OUTPUT POINTER
 002A64   BDE8            2735         JCT   LOPNXT,R5           STEP # CHAR /LINE COUNTER
 002A66   402B 180E 0800  2736 XPTLIN  TWI   X'0800',OPTN1     SEE IF BYPASS MESSAGES (NOT ERRORS)
 002A6C   120C            2737         JN    XITPRT
                          2738 *-------------------
                          2739         MSG   E8AC,80             DISPLAY THE LINE WITH NO HEADER
 002A6E   6F03 2EFC       2740+        BAL   MSG,R7              GENERAL DISPLAY MESSAGE
 002A72   3796            2741+        DC    A(E8AC)             MSG ADDR,FLAG
 002A74   80              2742+        DC    X'80'
 002A75   00              2743+        ALIGN WORD
                          2744 *-------------------
 002A76   CF25 2ADC       2745         MVWZ  ENDFLG,R7           CLEAR TERMINATE DETECT FLAG
 002A7A   1805            2746         JNZ   XITPRT
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

002A7C  4724 3C4C          2747          MVA   LAST,R7
002A80  7745               2748          CW    R7,R2               SEE IF END OF LOG AREA
002A82  1D01               2749          JGT   XITPRT
002A84  50CF               2750          J     INTPRT              SET UP FOR NEXT LINE
                           2751 ***************************************************************
002A86  402B 180E 0001     2752 * NOTE, THIS IS THE ONLY WAY TO EXIT THIS SUBR
002A8C  1202               2753 XITPRT   TWI   X'0001',OPTN1        SEE IF SKIP CLEAR LOG
002A8E  6E03 2A00          2754          JN    SRAX
002A92  6802 29F0          2755          BAL   CLLOG,R6            AFTER DISPLAYING, CLEAR LOG AREA
                           2756 SRAX     B     XLGR
                           2757 ***************************************************************
002A96  822B 0001 253D     2758 TST22    CB    (R2,1),K22          SEE IF SECOND '22' OCCURS
002A9C  18DC               2759          JNE   CVTDATA             JUMP IF SECOND 22 NOT FOUND
002A9E  88E0 2AD6          2760          MVW   RCVMSG,(R3)         MOVE THE WORD ' R'   TO MSG AREA
002AA2  50DD               2761          J     ONECT               INCREMENT TO ACCOUNT FOR INSERT
002AA4  822B 0001 253E     2762 TST44    CB    (R2,1),K44          SEE IF SECOND '44' OCCURS
002AAA  18D5               2763          JNE   CVTDATA
002AAC  88E0 2AD8          2764          MVW   XMTMSG,(R3)         MOVE THE WORD ' X'   TO MSG AREA
002AB0  50D6               2765          J     ONECT               INCREMENT TO ACCOUNT FOR INSERT
002AB2  822B 0001 2545     2766 TST88    CB    (R2,1),K88          SEE IF SECOND '88' OCCURS
002AB8  18CE               2767          JNE   CVTDATA
002ABA  6F0D 2ADC          2768          MVW   R7,ENDFLG           SET UP TO TERMINATE IF NO MORE DATA
002ABE  6802 2A66          2769          B     XPTLIN              END OF DATA TO CONVERT
002AC2  822B 0001 2546     2770 TST99    CB    (R2,1),K99          SEE IF SECOND '99' OCCURS
002AC8  18C6               2771          JNE   CVTDATA
002ACA  88E0 2ADA          2772          MVW   LASPLG,(R3)         MOVE THE WORD '<-'   TO MSG AREA
002ACE  50C7               2773          J     ONECT               INCREMENT TO ACCOUNT FOR INSERT
                           2774 *---------------------------------------------------------------
                           2775 * CONTROL BLOCK USED ONLY FOR 'PRNTLOG' SUBR
002AD0  0001               2776 CVTBLK   DC    A(1)                # BYTES HEX DATA TO CONVERT
002AD2  0000               2777 CVTFROM  DC    A(*-*)              'FROM' ADDR
002AD4  0000               2778 CVTTO    DC    A(*-*)              'TO' ADDR
                           2779 *---------------------------------------------------------------
002AD6  40D9               2780 RCVMSG   DC    C' R'
002AD8  40E7               2781 XMTMSG   DC    C' X'
002ADA  4C60               2782 LASPLG   DC    C'<-'
002ADC  0000               2783 ENDPLG   DC    A(*-*)
                           2785 ***************************************************************
                           2786 * SUBROUTINE
                           2787 *     NAME  -  CCERR
                           2788 *     PURPOSE  -  TO DETERMINE THE OIO CONDITION CODE RETURNED IF NOT 7
                           2789 * COME HERE ONLY IF CC NOT = 7
                           2790 *
                           2791 * CONDITION CODES BEFORE INTERRUPT ARE
                           2792 *   CC = 0     NOT ATTACHED
                           2793 *   CC = 1     BUSY
                           2794 *   CC = 2     BUSY AFTER RESET
                           2795 *   CC = 3     COMMAND REJECT
                           2796 *   CC = 4     NOT USED
                           2797 *   CC = 5     INTERFACE DATA CHECK
                           2798 *   CC = 6     CONTROLLER BUSY
                           2799 *   CC = 7     GOOD
                           2800 ***************************************************************
002ADE  702E               2801 CCERR    CPLSR R1                    GET INDICATORS
002AE0  316A               2802          SRL   13,R1                 EXTRACT CONDITION CODE
002AE2  690D 2D50          2803          MVW   R1,OIOCC              SAVE CONDITION CODE
                           2804          HTE   OIOCC+1,OIOCCVT,1     *
002AE6  6F03 2F84          2805+         BAL   HTFE,R7               CVT HEX TO EBCDIC  (1:2)
                           2806+         DC    A(OIOCC+1,OIOCCVT,1)                                X
002AF0  4324 2D50          2807          MVA   OIOCC,R3              IF USING PROG CONSOLE, ADDR IN R3
                           2808          MSG   E8A4,C0               DISPLAY COND CODE
002AF4  6F03 2EFC          2809+         BAL   MSG,R7                GENERAL DISPLAY MESSAGE
002AF8  3784               2810+         DC    A(E8A4)               MSG ADDR,FLAG
002AFA  C0                 2811+         DC    X'C0'
002AFB  00                 2812+         ALIGN WORD
002AFC  4029 2520 0001     2813          AWI   1,ERRCT               INCREMENT ERROR COUNTER
002B02  6F08 2D50          2814          MVW   OIOCC,R7              IF ZERO, NOT ATTACHED....
002B06  1808               2815          JNZ   RESCC
                           2816          MSG   NAT,80                DISPLAY 'NOT ATTACHED'
002B08  6F03 2EFC          2817+         BAL   MSG,R7                GENERAL DISPLAY MESSAGE
002B0C  3762               2818+         DC    A(NAT)                MSG ADDR,FLAG
002B0E  80                 2819+         DC    X'80'
002B0F  00                 2820+         ALIGN WORD
002B10  402C 180E 4000     2821          OWI   X'4000',OPTN1         SET ON BIT TO ASK FOR DA/TYP
002B16  5002               2822          J     RESCC1                CONTINUE
002B18  F701               2823 RESCC    CBI   1,R7                  CC=1,BUSY?
002B1A  1002               2824          JE    RETRYCC1              IF SO, RETRY
002B1C                     2825 ENDRETRY EQU   *
002B1C  6802 1868          2826 RESCC1   B     RT01                  BRANCH TO BEGINNING
002B20                     2827 RETRYCC1 EQU   *
002B20  6F03 2BA0          2828          BAL   RSET,R7               IF CC=1, RESET
002B24  4029 2B48 0001     2829          AWI   1,BUSYMAX             INCREMENT RETRY COUNT
002B2A  CF25 2B48          2830          MVWZ  BUSYMAX,R7
002B2E  7F06 000A          2831          CWI   10,R7           MAX RETRY COUNT
002B32  1DF4               2832          JGT   ENDRETRY
002B34  6F0D 2B48          2833          MVW   R7,BUSYMAX
                           2834          DELAY 5000            5 SEC DELAY
002B38  6F03 2DA6          2835+         BAL   DELAY,R7              DELAY MILLISECONDS
002B3C  1388               2836+         DC    A(5000)
002B3E  6F08 2B46          2837          MVW   OIO7,R7
002B42  68E2 0000          2838          B     (R7)
002B46  0000               2839 OIO7     DC    A(*-*)
002B48  0000               2840 BUSYMAX  DC    A(*-*)
                           2842 ***************************************************************
                           2843 *   CONTROL WORD BIT ASSIGNMENTS
                           2844 *
                           2845 * BIT 00       CHAIN BIT
                           2846 * BIT 01       NOT USED
                           2847 * BIT 02       OUT/INPUT BIT (TO ALLOW INPUT TO STG ONLY)
                           2848 * BIT 03       NOT USED
                           2849 *
                           2850 * BIT 04       NOT USED
                           2851 * BIT 05       C.S. ADDR KEY
                           2852 * BIT 06       C.S. ADDR KEY
                           2853 * BIT 07       C.S. ADDR KEY
                           2854 *
                           2855 * BIT 08       HALF RATE (IF INTERNAL CLOCK, IT WILL BE 600)
                           2856 * BIT 09       ASCII   (EBCDIC MODE IF OFF)
                           2857 * BIT 10       ENABLE DTR
                           2858 * BIT 11       DISABLE DTR
                           2859 *
                           2860 * BIT 12       TIMER                 (IF USED ALONE, 2.0 SEC, CC=3, NO T.O
                           2861 * BIT 13       XMIT
                           2862 * BIT 14       EXIT TRANSPARENT MODE
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

                           2863 * BIT 15       ZERO
                           2864 ***************************************************************
                           2865 * SUBROUTINE
                           2866 *     NAME  -  PREPPD
                           2867 *     PREPARE DEVICE
002B4A  4028 3024 C000     2868 PREPD    STM   R6,REGSAV     SAVE THE CALLERS REGISTERS
002B50  4020 374C D7D9     2869          MVWI  C'PR',E89E          STORE ENGLISH WORD
002B56  4020 374E C5D7     2870          MVWI  C'EP',E89E+2        'PREP' IN MESSAGE TO IDENTIFY ERRORS
                           2871          TMSG  E89E,80             DISPLAY OF CMD TO ATTEMPT
002B5C  6F03 2EEA          2872+         BAL   TMSG,R7             SVC TRACE MESSAGES (DIAGNOSTIC)
002B60  374C               2873+         DC    A(E89E)             OPTN1 BIT 11 ON TO DISPLAY
002B62  80                 2874+         DC    X'80'
002B63  00                 2875+         ALIGN WORD
002B64  8828 254C 2446     2876          MVW   LVL,DATAWORD        PUT LVL AT PARAMETER LIST
002B6A  4724 2442          2877          MVA   CTRLBLOK,R7         GET PARAMETER LIST ADDRESS
002B6E  600C               2878          SVC   PREP                PREPARE DEVICE
002B70  5029               2879          J     RTRN                RETURN
                           2880 ***************************************************************
                           2881 * SUBROUTINE
                           2882 *     NAME  -  UNPREP
                           2883 *     UNPREPARE DEVICE
002B72  4028 3024 C000     2884 UNPREP   STM   R6,REGSAV     SAVE THE CALLERS REGISTERS
002B78  4020 374C E4D5     2885          MVWI  C'UN',E89E          STORE ENGLISH WORD
002B7E  4020 374E D7D9     2886          MVWI  C'PR',E89E+2        'UNPR' IN MESSAGE TO IDENTIFY ERRORS
                           2887          TMSG  E89E,80             DISPLAY OF CMD TO ATTEMPT
002B84  6F03 2EEA          2888+         BAL   TMSG,R7             SVC TRACE MESSAGES (DIAGNOSTIC)
002B88  374C               2889+         DC    A(E89E)             OPTN1 BIT 11 ON TO DISPLAY
002B8A  80                 2890+         DC    X'80'
002B8B  00                 2891+         ALIGN WORD
002B8C  8828 254C 2446     2892          MVW   LVL,DATAWORD        PUT LVL AT PARAMETER LIST
002B92  402D 2446 0001     2893          RBTWI X'0001',DATAWORD    OMIT THE 'I' BIT FROM PREP
002B98  4724 2442          2894          MVA   CTRLBLOK,R7         GET PARAMETER LIST ADDRESS
002B9C  600C               2895          SVC   PREP                UNPREPARE DEVICE
002B9E  5012               2896          J     RTRN                RETURN
                           2897 ***************************************************************
                           2898 * SUBROUTINE
                           2899 *     NAME  -  RSET
                           2900 *     PURPOSE- RESET DEVICE
                           2901 * PENDING INTERRUPTS WILL BE CLEARED, PREP REMAINS THE SAME,
                           2902 * DATA TERMINAL READY SIGNAL WILL NOT BE DROPPED.
                           2903 *
002BA0  4028 3024 C000     2904 RSET     STM   R6,REGSAV     SAVE THE CALLERS REGISTERS
002BA6  4020 374C D9E2     2905          MVWI  C'RS',E89E          STORE ENGLISH WORD
002BAC  4020 374E C5E3     2906          MVWI  C'ET',E89E+2        'RSET' IN MESSAGE TO IDENTIFY ERRORS
                           2907          TMSG  E89E,80                   DISPLAY OF CMD TO ATTEMPT
002BB2  6F03 2EEA          2908+         BAL   TMSG,R7             SVC TRACE MESSAGES (DIAGNOSTIC)
002BB6  374C               2909+         DC    A(E89E)             OPTN1 BIT 11 ON TO DISPLAY
002BB8  80                 2910+         DC    X'80'
002BB9  00                 2911+         ALIGN WORD
002BBA  CF25 2446          2912          MVWZ  DATAWORD,R7
002BBE  4724 2442          2913          MVA   CTRLBLOK,R7         GET PARAMETER LIST ADDRESS
                           2914 *-------------------------
002BC2  6008               2915          SVC   RESET               RESET DEVICE
                           2916 *-------------------------
002BC4  402A 3024          2917 RTRN     LMB   REGSAV        RESTORE REGS AND RETURN ON R7
                           2918 ***************************************************************
                           2919 *     START CYCLE STEAL STATUS
                           2920 ***************************************************************
                           2921 * SUBROUTINE
                           2922 *     NAME  -  CSTAT
                           2923 *     PURPOSE- READ CYCLE STEAL STATUS
002BC8  4028 3024 C000     2924 CSTAT    STM   R6,REGSAV     SAVE THE CALLERS REGISTERS
002BCE  4020 374C E2C3     2925          MVWI  C'SC',E89E          STORE ENGLISH WORD
002BD4  4020 374E E2E2     2926          MVWI  C'SS',E89E+2        'SCSS' IN MESSAGE TO IDENTIFY ERRORS
                           2927          TMSG  E89E,80                   DISPLAY OF CMD TO ATTEMPT
002BDA  6F03 2EEA          2928+         BAL   TMSG,R7             SVC TRACE MESSAGES (DIAGNOSTIC)
002BDE  374C               2929+         DC    A(E89E)             OPTN1 BIT 11 ON TO DISPLAY
002BE0  80                 2930+         DC    X'80'
002BE1  00                 2931+         ALIGN WORD
002BE2  4020 2446 24AA     2932          MVA   DCB3,DATAWORD             PUT DCB ADDRESS AT PARAMETER LIST
002BE8  CF25 2506          2933          MVWZ  INTSW,R7            RESET INTERRUPT SWTCH
002BEC  4724 2442          2934          MVA   CTRLBLOK,R7         GET PARAMETER LIST ADDRESS
002BF0  6F0D 251A          2935          MVW   R7,CSSBYPAS         SET FLAG TO PREVENT CSS READ LOOP
                           2936 *-------------------------
002BF4  600B               2937          SVC   STCSS               CYCLE STEAL STATUS
                           2938 *-------------------------
                           2939          WINT  1000                WAIT FOR INTERRUPT
002BF6  6F03 2C00          2940+         BAL   WINT,R7             DELAY MILLISECONDS, WAIT FOR INT.
002BFA  03E8               2941+         DC    A(1000)             RETURN ONLY IF INT OCCURED IN TIME.
002BFC  402A 3024          2942          LMB   REGSAV        RESTORE REGS AND RETURN ON R7
                           2944 ***************************************************************
                           2945 * SUBROUTINE
                           2946 *     NAME  -  WINT
                           2947 *     PURPOSE  -  TO WAIT A SPECIFIED MAXIMUM LENGTH OF TIME FOR
                           2948 *                 AN INTERRUPT
                           2949 *       DISPLAY AN ERROR MESSAGE IF THE INTERRUPT DOES'NT OCCUR
                           2950 *       CALLING SEQUENCE  -
                           2951 *    WINT XXXX     WAIT TIME= 1000 USEC (1 MILLISECOND) PER COUNT
                           2952 *                            EXPECT INTERRUPT
                           2953 *       RETURN  -  NEXT INSTRUCTION AFTER LAST PARAMETER
                           2954 ***************************************************************
                           2955 *-------------------------------
                           2956 *  INTERRUPT CONDITION CODES ARE
                           2957 * CC = 0       CONTROLLER END
                           2958 * CC = 1
                           2959 * CC = 2       EXCEPTION
                           2960 * CC = 3       DEVICE END
                           2961 * CC = 4       ATTENTION (RING INDICATOR LINE FROM MODEM ACTIVE)
                           2962 ***************************************************************
002C00  0702               2963 WINT     ABI   2,R7
002C02  4028 3024 C000     2964          STM   R6,REGSAV     SAVE THE CALLERS REGISTERS
002C08  4324 000A          2965          MVWI  10,R3               RETRY COUNT
002C0C  69E8 FFFE          2966          MVW   (R7,-2),R1          GET COUNT
002C10  6800 2D46          2967          BZ    RETUR               RETURN IF COUNT = ZERO
002C14  690D 2D4A          2968          MVW   R1,DLYCTSV          SAVE COUNT
002C18  CE25 2506          2969 TIME     MVWZ  INTSW,R6            TEST FOR INTERRUPT
002C1C  180F               2970          JNZ   CKFOR3              JUMP IF INTERRUPT
002C1E  6003               2971          SVC   IDLE5                 500 USEC
002C20  CE25 2506          2972          MVWZ  INTSW,R6            TEST FOR INTERRUPT
002C24  180B               2973          JNZ   CKFOR3              JUMP IF INTERRUPT
002C26  6003               2974          SVC   IDLE5                 500 USEC
002C28  B9F7               2975          JCT   TIME,R1             DECREMENT COUNT
002C2A  6908 2D4A          2976          MVW   DLYCTSV,R1
002C2E  BBF4               2977          JCT   TIME,R3             DECREMENT COUNT
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 LOCTR  OBJECT TEXT       STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
                          2978         MSG   E89F,80              DISPLAY 'NO INT'
002C30  6F03 2EFC         2979+        BAL   MSG,R7              GENERAL DISPLAY MESSAGE
002C34  3758              2980+        DC    A(E89F)            MSG ADDR,FLAG
002C36  80                2981+        DC    X'80'
002C37  00                2982+        ALIGN WORD
002C38  6802 1864         2983         B     BEGIN
                          2984 *  INTERRUPT OCCURRED IF YOU CAME HERE
002C3C                    2985 CKFOR3  EQU   *
002C3C  CE25 251A         2986         MVWZ  CSSBYPAS,R6          SEE IF C.S. STATUS IN PROGRESS
002C40  6801 2D46         2987         BNZ   RETUR                RETURN
                          2988         HTE   ISB,ISBPRNT,1      PUT ISB IN MESSAGE FOR POSSIBLE PRINT
002C44  6F03 2F84         2989+        BAL   HTE,R7               CVT HEX TO EBCDIC  (1:2)
002C48  2D4C37720001      2990+        DC    A(ISB,ISBPRNT,1)     FROM ADDR, TO ADDR, SOURCE BYTE COUNT
                          2991         HTE   CC+1,INTCCVT,1     PUT CC IN MESSAGE FOR POSSIBLE PRINT
002C4E  6F03 2F84         2992+        BAL   HTE,R7               CVT HEX TO EBCDIC  (1:2)
002C52  2D53377E0001      2993+        DC    A(CC+1,INTCCVT,1)    FROM ADDR, TO ADDR, SOURCE BYTE COUNT
002C58  6E08 2D52         2994         MVW   CC,R6
002C5C  F603              2995         CBI   3,R6
002C5E  1073              2996         JE    RETUR
                          2997 *---ISB -----------------------------
                          2998 * BIT 00       STATUS AVAILABLE
                          2999 * BIT 01       COMMAND REJECT
                          3000 * BIT 02       INCORRECT LENGTH RECORD
                          3001 * BIT 03       DCB SPECIFICATION CHECK
                          3002 *-----------------------------------
                          3003 * BIT 04       STORAGE DATA CHECK
                          3004 * BIT 05       INVALID STG ADDR
                          3005 * BIT 06       STG PROTECT CHECK
                          3006 * BIT 07       INTERFACE CHECK
                          3007 *-----------------------------------
                          3008 * CAME HERE IF CC NOT = 3
002C60  F602              3009         CBI   2,R6                 TEST FOR CODE 2 (EXCEPTION)
002C62  185E              3010         JNE   PRCC                 IF NOT CC 2 OR 3, PRINT WHAT IT WAS
                          3011 *-----------------------------------
002C64  4124 2D4C         3012         MVA   ISB,R1               CHECK ISB
002C68  4900              3013         TBT   (R1,0)               *
002C6A  105A              3014         JOFF  PRCC                 CC2 BUT STATUS NOT AVAILABLE
                          3015 *-----------------------------------
002C6C  8828 2D52 2D54    3016         MVW   CC,CCSAV             SAVE CC BEFORE READ STATUS
002C72  8828 2D4C 2D4E    3017         MVW   ISB,ISBSAV           SAVE ISB ALSO
002C78  6F03 2BC8         3018         BAL   CSTAT,R7             READ CYCLE STEAL STATUS WORDS
002C7C  8828 2D54 2D52    3019         MVW   CCSAV,CC             RESTORE CC
002C82  8828 2D4E 2D4C    3020         MVW   ISBSAV,ISB           RESTORE ISB
                          3021         MSK   FIELD1,FIELD5,40     CLEAR INPUT BUFFER TO ' '
002C88  6F03 2E70         3022+        BAL   MSK,R7          START ADDR, END ADDR, BYTE VALUE TO STORE
002C8C  379637AE          3023+        DC    A(FIELD1,FIELD5)
002C90  40                3024+        DC    X'40'
002C91  00                3025+        ALIGN WORD
                          3026         HTE   STATUS0,FIELD1,2
002C92  6F03 2F84         3027+        BAL   HTE,R7               CVT HEX TO EBCDIC  (1:2)
                          3028+        DC    A(STATUS0,FIELD1,2)                                  X
                          3029         HTE   STATUS1,FIELD2,2
002C9C  6F03 2F84         3030+        BAL   HTE,R7               CVT HEX TO EBCDIC  (1:2)
                          3031+        DC    A(STATUS1,FIELD2,2)                                  X
                          3032         HTE   STATUS2,FIELD3,2
002CA6  6F03 2F84         3033+        BAL   HTE,R7               CVT HEX TO EBCDIC  (1:2)
                          3034+        DC    A(STATUS2,FIELD3,2)                                  X
002CB0  CF25 37A8         3035         MVWZ  FIELD4,R7            SET 00 IN MSG TO TERMINATE IT THERE
002CB4  4124 2450         3036         MVA   STATUS1,R1           GET ADDRESS OF STATUS WORD
002CB8  4906              3037         TBT   (R1,6)               DID BREAK CONDITION OCCUR?
002CBA  1A02              3038         JNN   CKTIM                IF NOT, CONTINUE
002CBC  6802 1C48         3039         B     RFTBR                IF SO, GO RESET STACK POINTER,
                          3040 *                                  SEND EOT AND WAIT FOR RFT
002CC0  4901              3041 CKTIM   TBT   (R1,1)               SEE IF TIMEOUT IN STATUS WORD
002CC2  1241              3042         JON   RETUR
002CC4  4124 2D4C         3043         MVA   ISB,R1          GET ADDRESS OF ISB
002CC8  4902              3044         TBT   (R1,2)               SEE IF INCORRECT LENGTH RECORD
002CCA  123D              3045         JON   RETUR
002CCC  402B 2450 2500    3046         TWI   X'2500',STATUS1      LRC,VRC,STOP BIT ERROR?
002CD2  1020              3047         JZ    PRSTAT               PRINT STATUS IF NOT
002CD4  402B 2450 2000    3048         TWI   X'2000',STATUS1      LRC ERROR?
002CDA  1A04              3049         JNN   CHKVRC               IF NOT, CONTINUE
                          3050         MSG   LRCERR,80            PRINT *LRC
002CDC  6F03 2EFC         3051+        BAL   MSG,R7               GENERAL DISPLAY MESSAGE
002CE0  382E              3052+        DC    A(LRCERR)            MSG ADDR,FLAG
002CE2  80                3053+        DC    X'80'
002CE3  00                3054+        ALIGN WORD
002CE4  402B 2450 0400    3055 CHKVRC  TWI   X'0400',STATUS1      VRC ERROR?
002CEA  1A04              3056         JNN   CHKSB                IF NOT, CONTINUE
                          3057         MSG   VRCERR,80            PRINT *VRC
002CEC  6F03 2EFC         3058+        BAL   MSG,R7               GENERAL DISPLAY MESSAGE
002CF0  3836              3059+        DC    A(VRCERR)            MSG ADDR,FLAG
002CF2  80                3060+        DC    X'80'
002CF3  00                3061+        ALIGN WORD
002CF4  402B 2450 0100    3062 CHKSB   TWI   X'0100',STATUS1      STOP BIT ERROR?
002CFA  1A04              3063         JNN   XMNAK                IF NOT, CONTINUE
                          3064         MSG   SBERR,80             PRINT *SB
002CFC  6F03 2EFC         3065+        BAL   MSG,R7               GENERAL DISPLAY MESSAGE
002D00  383E              3066+        DC    A(SBERR)             MSG ADDR,FLAG
002D02  80                3067+        DC    X'80'
002D03  00                3068+        ALIGN WORD
002D04  6F0D 250A         3069 XMNAK   MVW   R7,XMNAKFL           SET NAK TRANSMITTED FLAG
002D08  4029 2520 0001    3070         AWI   1,ERRCT              INCREMENT ERROR COUNTER
002D0E  6F03 31CE         3071         BAL   TCIRN,R7             TRANSMIT NAK
002D12  5019              3072         J     RETUR
002D14  4324 244E         3073 PRTSTAT MVA   STATUS0,R3          MOVE INFORMATIONS FOR PROGRAMMER CONS
                          3074         MSG   FIELD1,C0            PRINT MSG
002D18  6F03 2EFC         3075+        BAL   MSG,R7               GENERAL DISPLAY MESSAGE
002D1C  3796              3076+        DC    A(FIELD1)            MSG ADDR,FLAG
002D1E  C0                3077+        DC    X'C0'
002D1F  00                3078+        ALIGN WORD
002D20                    3079 PRCC    EQU   *  PRINT CC & ISB ON ANY CC=2 UNLESS INCORR LGTH RCRD.
002D20  4124 2D4C         3080         MVA   ISB,R1          GET ADDRESS OF ISB
002D24  4902              3081         TBT   (R1,2)               SEE IF INCORRECT LENGTH RECORD
002D26  120F              3082         JON   RETUR
002D28  4029 2520 0001    3083         AWI   1,ERRCT              INCREMENT ERROR COUNTER
002D2E  4324 2D52         3084         MVA   CC,R3           PUT ADDRESS OF CC IN R3
                          3085         MSG   E8A3,C0              PRINT 'CC' ONLY
002D32  6F03 2EFC         3086+        BAL   MSG,R7               GENERAL DISPLAY MESSAGE
002D36  3778              3087+        DC    A(E8A3)              MSG ADDR,FLAG
002D38  C0                3088+        DC    X'C0'
002D39  00                3089+        ALIGN WORD
002D3A  4324 2D4C         3090         MVA   ISB,R3          PUT ADDRESS OF ISB IN R3
                          3091         MSG   E8A2,C0              PRINT 'ISB' ONLY
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 LOCTR  OBJECT TEXT       STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002D3E  6F03 2EFC         3092+        BAL   MSG,R7               GENERAL DISPLAY MESSAGE
002D42  376E              3093+        DC    A(E8A2)              MSG ADDR,FLAG
002D44  C0                3094+        DC    X'C0'
002D45  00                3095+        ALIGN WORD
002D46  402A 3024         3096 RETUR   LMB   REGSAV          RESTORE REGS AND RETURN ON R7
                          3097 ***************************************************************
002D4A  0000              3098 DLYCTSV DC    A(*-*)
002D4C  0000              3099 ISB     DC    A(*-*)               INT STATUS  ( FROM R7 AND = DA(8-15))
002D4E  0000              3100 ISBSAV  DC    A(*-*)
002D50  0000              3101 OIOCC   DC    A(*-*)               OIO CC BEFORE INTERRUPT
002D52  0000              3102 CC      DC    A(*-*)               CONDITION CODE AFTER INTERRUPT
002D54  0000              3103 CCSAV   DC    A(*-*)
                          3104 ***************************************************************
                          3105 *          WAIT FOR INTERRUPT SUBROUTINE IN SECONDS           *
                          3106 *          PURPOSE: WAIT FOR INTERRUPT.                       *
                          3107 *                   IF TIMEOUT OCCURS, PRINT NO INT MESSAGE   *
                          3108 *                                                             *
                          3109 *          CALL IS WINTS  XXXX      SECONDS(DECIMAL)          *
                          3110 *                                                             *
                          3111 *          RETURN: NEXT SEQUENTIAL INSTRUCTION.               *
                          3112 *                  WILL WAIT FOREVER FOR INTERRUPT            *
                          3113 ***************************************************************
002D56  0702              3114 WINTS   ABI   2,R7
002D58  4028 3024 C000    3115         STM   R6,REGSAV      SAVE THE CALLERS REGISTERS
002D5E  8F28 FFFE 2DA2    3116         MVW   (R7,-2),COUNT        GET COUNT
002D64  6F08 2DA2         3117         MVW   COUNT,R7
002D68  1016              3118         JZ    RETUR0               RETURN IF COUNT = ZERO
002D6A  CE25 2506         3119 TIME1   MVWZ  INTSW,R6             CHECK INTSW
002D6E  6801 2C3C         3120         BNZ   CKFOR3               IF RECEIVED, GO CHECK FOR CC3
002D72  4020 2DA4 03E8    3121         MVWI  1000,COUNT1          SET 1 SEC COUNT
002D78  6003              3122 TIME0   SVC   IDLE5                WAIT 500 USEC
002D7A  CE25 2506         3123         MVWZ  INTSW,R6             TEST FOR INTERRUPT
002D7E  6801 2C3C         3124         BNZ   CKFOR3               IF RECEIVED, GO CHECK FOR CC3
002D82  6003              3125         SVC   IDLE5                WAIT 500 USEC
002D84  402E 2DA4 0001    3126         SWI   1,COUNT1             CONTINUE UNTIL 1 SEC IS UP
002D8A  18F6              3127         JNZ   TIME0                *
002D8C  402E 2DA2 0001    3128         SWI   1,COUNT              DECREMENT COUNT
002D92  1003              3129         JZ    TIMEISUP             COUNT DONE,  GO FLAG LOST INTERRUPT
002D94  50E4              3130         J     TIME1                WAIT FOR INTERRUPT
002D96  402A 3024         3131 RETUR0  LMB   REGSAV              RESTORE REGS AND RETURN TO CALLER
002D9A  4020 2DA2 2328    3132 TIMEISUP MVWI 9000,COUNT           RESET COUNTER
002DA0  50E4              3133         J     TIME1                CONTINUE TO WAIT FOR INTERRUPT
002DA2  0000              3134 COUNT   DC    A(*-*)               DELAY COUNT
002DA4  0000              3135 COUNT1  DC    A(*-*)               DELAY COUNT
                          3136 ***************************************************************
                          3137 * SUBROUTINE
                          3138 *     NAME -- DELAY
                          3139 *     PURPOSE - PROGRAM DELAY SPECIFIED BY CALLER IN MILLISECONDS
                          3140 *  CALL IS    DELAY  XXXX          MILLISECOND CALL(DECIMAL)
                          3141 ***************************************************************
002DA6  0702              3142 DELAY   ABI   2,R7                 UPDATE RETURN
002DA8  4028 3024 C000    3143         STM   R6,REGSAV      SAVE THE CALLERS REGISTERS
002DAE  6988 FFFE         3144         MVW   (R7,-2),R1           GET COUNT
002DB2  1003              3145         JZ    DRET                 RETURN IF COUNT = ZERO
002DB4  6003              3146 DLYLOP  SVC   IDLE5
002DB6  6003              3147         SVC   IDLE5
002DB8  B9FD              3148         JCT   DLYLOP,R1
002DBA  402A 3024         3149 DRET    LMB   REGSAV          RESTORE REGS AND RETURN ON R7
                          3150 ***************************************************************
002DBE  6464              3151 PATCH   DC    X'6464'                50 WORD PATCH AREA
002DC0  6464              3152         DC    X'6464'
002DC2  6464              3153         DC    X'6464'
002DC4  6464              3154         DC    X'6464'
002DC6  6464              3155         DC    X'6464'
002DC8  6464              3156         DC    X'6464'
002DCA  6464              3157         DC    X'6464'
002DCC  6464              3158         DC    X'6464'
002DCE  6464              3159         DC    X'6464'
002DD0  6464              3160         DC    X'6464'
002DD2  6464              3161         DC    X'6464'
002DD4  6464              3162         DC    X'6464'
002DD6  6464              3163         DC    X'6464'
002DD8  6464              3164         DC    X'6464'
002DDA  6464              3165         DC    X'6464'
002DDC  6464              3166         DC    X'6464'
002DDE  6464              3167         DC    X'6464'
002DE0  6464              3168         DC    X'6464'
002DE2  6464              3169         DC    X'6464'
002DE4  6464              3170         DC    X'6464'
002DE6  6464              3171         DC    X'6464'
002DE8  6464              3172         DC    X'6464'
002DEA  6464              3173         DC    X'6464'
002DEC  6464              3174         DC    X'6464'
002DEE  6464              3175         DC    X'6464'
002DF0  6464              3176         DC    X'6464'
002DF2  6464              3177         DC    X'6464'
002DF4  6464              3178         DC    X'6464'
002DF6  6464              3179         DC    X'6464'
002DF8  6464              3180         DC    X'6464'
002DFA  6464              3181         DC    X'6464'
002DFC  6464              3182         DC    X'6464'
002DFE  6464              3183         DC    X'6464'
002E00  6464              3184         DC    X'6464'
002E02  6464              3185         DC    X'6464'
002E04  6464              3186         DC    X'6464'
002E06  6464              3187         DC    X'6464'
002E08  6464              3188         DC    X'6464'
002E0A  6464              3189         DC    X'6464'
002E0C  6464              3190         DC    X'6464'
002E0E  6464              3191         DC    X'6464'
002E10  6464              3192         DC    X'6464'
002E12  6464              3193         DC    X'6464'
002E14  6464              3194         DC    X'6464'
002E16  6464              3195         DC    X'6464'
002E18  6464              3196         DC    X'6464'
002E1A  6464              3197         DC    X'6464'
002E1C  6464              3198         DC    X'6464'
002E1E  6464              3199         DC    X'6464'
002E20  6464              3200         DC    X'6464'
                          3201 ***************************************************************
                          3202 * SUBROUTINE
                          3203 *     NAME -  DISAB
                          3204 *     DISABLE DATA TERMINAL READY
                          3205 ***************************************************************
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

002E22  4028 3024 C000  3206 DISAB   STM   R6,REGSAV     SAVE THE CALLERS REGISTERS
002E28  4020 374C C4C4  3207         MVWI  C'DD',E89E          STORE ENGLISH WORD
002E2E  4020 374E E3D9  3208         MVWI  C'TR',E89E+2        'DDTR' IN MESSAGE TO IDENTIFY ERRORS
                        3209 SVC1    TMSG  E89E,80             DISPLAY OF CMD TO ATTEMPT
002E34  6F03 2EEA       3210+SVC1    BAL   TMSG,R7             SVC TRACE MESSAGES (DIAGNOSTIC)
002E38  374C            3211+        DC    A(E89E)             OPTN1 BIT 11 ON TO DISPLAY
002E3A  80              3212+        DC    X'80'
002E3B  00              3213+        ALIGN WORD
002E3C  4020 24BA 000C  3214         MVWI  X'C',DTRDCB         SET UP FOR DTR DISABLE
002E42  4020 2446 24BA  3215         MVA   DTRDCB,DATAWORD     *
002E48  4020 2BA6 2E34  3216         MVA   SVC1,OIOC7          SAVE RETURN ADDRESS FOR OIOCC=1
002E4E  4724 2442       3217         MVA   CTRLBLOK,R7         *
                        3218 *-----------------------
002E52  600A            3219         SVC   START               DISABLE DTR
                        3220         WINT  3000                WAIT FOR INTERRUPT 3 SEC
002E54  6F03 2C00       3221+        BAL   WINT,R7             DELAY MILLISECONDS, WAIT FOR INT.
002E58  0BB8            3222+        DC    A(3000)             RETURN ONLY IF INT OCCURED IN TIME.
002E5A  402A 3024       3223         LMB   REGSAV      RESTORE REGS AND RETURN ON R7
                        3224 ********************************************************************
                        3225 * SUBROUTINE
                        3226 *     NAME  -  GINT
                        3227 *     PURPOSE  -  TO SAVE THE INTERRUPT ID
                        3228 *                 SAVE INTERRUPT CONDITION CODE
                        3229 *                 SAVE LAST SVC ADDRESS
                        3230 *                 SET INTERRUPT SWITCH
                        3231 *                 EXIT LEVEL
                        3232 *        CALLING SEQUENCE  -  NONE
                        3233 *                          ENTERED BY SUPERVISOR FOR ALL INTERRUPTS
                        3234 *        RETURN  -  SVC EXIT
                        3235 ********************************************************************
                        3236 *  COME HERE ONLY IF INTERRUPT CC = 3 AS EXPECTED
002E5E  702E            3237 GINT    CPLSR R1                  GET INDICATORS
002E60  316A            3238         SRL   13,R1               EXTRACT CONDITION CODE
002E62  690D 2D52       3239         MVI   R1,CC               SAVE CONDITION CODE
002E66  6F0D 2D4C       3240         MVW   R7,ISB              SAVE INTERRUPT STATUS BYTE/DEV ADDR
002E6A  6E0D 2506       3241         MVW   R6,INTSW            SET INTERRUPT SWITCH WITH ADDR OF
                        3242 *                                 SVC BEFORE ERROR INT
                        3243 *--------------------------------
002E6E  6006            3244         SVC   EXIT                EXIT LEVEL
                        3245 *--------------------------------
                        3247 ********************************************************************
                        3248 * SUBROUTINE
                        3249 *     NAME  -  MSK
                        3250 *     PURPOSE  -  TO FILL AN AREA OF STORAGE WITH A SPECIFIC BYTE
                        3251 *        CALLING SEQUENCE  BAL   MSK,R7
                        3252 *                          DC    A(START)     FIRST LOCATION TO FILL
                        3253 *                          DC    A(END)       LAST LOCATION TO FILL
                        3254 *                          DC    X'00'        FILL CHARACTER
                        3255 *        RETURN  -  FIRST INSTRUCTION AFTER LAST PARAMETER
                        3256 *(NOTE IF BOTH LABELS ARE SAME, ONE BYTE WILL BE CLEARED)
                        3257 * EXAMPLE OF CALL
                        3258 *     MSK   FIELD1,IE,00        CLEAR INPUT BUFFER
                        3259 ********************************************************************
002E70  7FE1 0006       3260 MSK     AWI   6,R7
002E74  4028 3024 C000  3261         STM   R6,REGSAV     SAVE THE CALLERS REGISTERS
002E7A  69E8 FFFA       3262         MVW   (R7,-6),R1          GET 'START OF FIELD' ADDR'
002E7E  6AE8 FFFC       3263         MVW   (R7,-4),R2          GET 'END' OF FIELD ADDR'
002E82  714A            3264         SW    R1,R2               RESULT BYTE COUNT IN R2
002E84  0201            3265         ABI   1,R2                ADD 1 TO BYTE COUNT TO CORRECT IT.
002E86  68E8 FFFE       3266         MVW   (R7,-2),R0          GET BYTE VALUE TO STORE
002E8A  3042            3267         SRL   8,R0                MOVE TO RIGHT BYTE
002E8C  72E4            3268         MVW   R2,R7               SET UP COUNT FOR 'FFN' INSTR
002E8E  282C            3269         FFN   R0,(R1)             PROPOGATE VALUE IN R0 TO ADDR IN R1
002E90  402A 3024       3270         LMB   REGSAV      RESTORE REGS AND RETURN ON R7
                        3272 ********************************************************************
                        3273 * SUBROUTINE
                        3274 *     NAME  -  SCANW                (LEFT TO RIGHT SCAN ONLY)
                        3275 *     PURPOSE  -  TO SCAN AN AREA OF STORAGE FOR  A SPECIFIC WORD.
                        3276 *     GET TWO BYTES (ODD OR EVEN BOUNDRY) AND COMPARE.
                        3277 *     IF MATCH FOUND, RETURN WITH 'EVEN' INDICATOR ON, AND EXIT WITH
                        3278 *     THE ADDRESS WHERE THE WORD FOUND IN 'XDEND'
                        3279 *  IF WORD NOT FOUND, 'INDICATOR NOT 'EVEN' AND R3 = LAST ADDR TESTED.
                        3280 ********************************************************************
002E94  6F0D 2EC6       3281 SCANW   MVW   R7,SWORD            SET WORD SCAN FLAG
                        3282 ********************************************************************
                        3283 * SUBROUTINE
                        3284 *     NAME  -  SCANB                (LEFT TO RIGHT SCAN ONLY)
                        3285 *     PURPOSE  -  TO SCAN AN AREA OF STORAGE FOR  A SPECIFIC BYTE.
                        3286 *     GET ONE BYTE (ODD OR EVEN BOUNDRY) AND COMPARE.
                        3287 *     IF MATCH FOUND, RETURN WITH 'EVEN' INDICATOR ON, AND EXIT WITH
                        3288 *     THE ADDRESS WHERE THE BYTE FOUND IN 'XDEND'
                        3289 *  IF BYTE NOT FOUND, INDICATOR NOT 'EVEN' AND SCANADD=  ADDR TESTED.
                        3290 ********************************************************************
002E98  0706            3291 SCANB   ABI   6,R7                 SAVE RETURN
002E9A  4028 3024 C000  3292         STM   R6,REGSAV     SAVE THE CALLERS REGISTERS
002EA0  69E8 FFFA       3293         MVW   (R7,-6),R3          GET 'START OF FIELD ADDR'
002EA4  6CE8 FFFC       3294         MVW   (R7,-4),R4          GET 'BYTE COUNT TO SCAN'
002EA8  8F28 FFFE 2EE6  3295         MVW   (R7,-2),WVTS        GET BYTE VALUE TO SCAN
002EAE  CF25 2EC6       3296         MVWZ  SWORD,R7            IF 'SWORD' ON-.....
002EB2  180A            3297         JNZ   SWMOR               DO THE 'WORD' SCAN
002EB4  C7C0            3298 SBMOR   MVB   (R3),R7             MOVE BYTE TO R7
002EB6  6B0D 3416       3299         MVW   R3,XDEND            SAVE ADDRESS OF BYTE
002EBA  C724 2EE6       3300         CB    WVTS,R7             BYTE COMPARE
                        3301 * (0-7 OF 'WVTS' IS COMPARED WITH 8-15 OF R7)
002EBE  1011            3302         JE    MATCH               JUMP IF BYTE MATCHED.
002EC0  0301            3303         ABI   1,R3                INCREMENT DATA ADDRESS
                        3304 *                                 DECREMENT FIELD BYTE COUNT
002EC2  BCF8            3305         JCT   SBMOR,R4            GET NEXT BYTE
002EC4  500E            3306         J     MATCH               RETURN TO CALLER WITH 'NOT EVEN'
002EC6  0000            3307 SWORD   DC    X'0000'             FLAG THAT 'WORD' IS BEING SCANNED
                        3308 *--------------------------------
002EC8  8308 2EE8       3309 SWMOR   MVB   (R3),TWA            MOVE BYTE TO NEW LOCATION
002ECC  6B0D 3416       3310         MVW   R3,XDEND            SAVE ADDRESS OF WORD
002ED0  8328 0001 2EE9  3311         MVB   (R3,1),TWA+1        MOVE BYTE TO NEW LOCATION
002ED6  882B 2EE6 2EE8  3312         CW    WVTS,TWA            WORD COMPARE
002EDC  1002            3313         JE    MATCH               JUMP IF WORD MATCHED AND RETURN
                        3314 *                                 TO CALLER WITH ADDRESS IN XDEND
002EDE  0301            3315         ABI   1,R3                INCREMENT 'FROM' DATA ADDRESS
                        3316 *                                 DECREMENT FIELD BYTE COUNT
002EE0  BCF3            3317         JCT   SWMOR,R4            GET NEXT TWO BYTES
002EE2  402A 3024       3318 MATCH   LMB   REGSAV      RESTORE REGS AND RETURN ON R7
002EE6  0000            3319 WVTS    DC    A(*-*)              WORD VALUE TO SCAN
002EE8  0000            3320 TWA     DC    A(*-*)              2 BYTES FROM STG TO COMPARE
                        3322 ********************************************************************
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976

                        3323 * SUBROUTINE
                        3324 *     NAME  -  TMSG, LMSG, MSG
                        3325 *     PURPOSE  -  TO DISPLAY ALL PROGRAM MESSAGES
                        3326 *        CALLING SEQUENCE  BAL   MSG,R7
                        3327 *                          DC    A(LABEL)     LOCATION OF
                        3328 *                          DC    X'00'          CONTROL FLAG (ONE BYTE)
                        3329 *        RETURN  -  FIRST INSTRUCTION AFTER LAST PARAMETER
                        3330 ********************************************************************
                        3331 *        FORMAT IS:
                        3332 *        DC    X'E8XX'             MESSAGE IDENTIFIER FOR DISPLAY
                        3333 * LABEL  DC    C'MSG TEXT'
                        3334 *        DC    X'00'               END OF STRING FLAG
                        3335 ********************************************************************
                        3336 *   ENTRY FOR
                        3337 ********************************************************************
002EEA  402B 180E 0010  3338 TMSG    TWI   X'0010',OPTN1       DISPLAY SVC TRACE LIST
002EF0  1A1E            3339         JNN   MSGXIT
002EF2  5004            3340         J     MSG
                        3341 *
002EF4  402B 180E 0020  3342 LMSG    TWI   X'0020',OPTN1       SEE IF OMIT 'LINE ACTION' MESSAGES
002EFA  1219            3343         JN    MSGXIT              IF BIT 11 ON,OMIT DISPLAY RESPONSES
                        3344 *
002EFC  402B 180E 0400  3345 MSG     TWI   X'0400',OPTN1       BYPASS DISPLAY ERROR MSGS(BIT 05)
002F02  1215            3346         JN    MSGXIT
002F04  402B 180E 0800  3347         TWI   X'0800',OPTN1       BYPASS DISPLAY ANY MSGS(BIT 04)
002F0A  1211            3348         JN    MSGXIT
002F0C  0704            3349         ABI   4,R7
002F0E  8F28 FFFC 2F34  3350         MVW   (R7,-4),OUTCB       MSG ADDR IN CONTROL BLOCK
002F14  8728 FFFE 2F33  3351         MVB   (R7,-2),OUTCB-1     CONTROL FLAG IN CONTROL BLOCK
002F1A  4028 3024 C000  3352         STM   R6,REGSAV     SAVE THE CALLERS REGISTERS
002F20  4324 3A4C       3353         MVA   LOGSV,R3            ADDRESS OF LOG AREA IN R3
002F24  4724 2F34       3354         MVA   OUTCB,R7            GEN ADDRESS OF CONTROL BLOCK
                        3355 ********************************************************************
002F28  6000            3356         SVC   OUT                 DISPLAY
                        3357 ********************************************************************
002F2A  402A 3024       3358         LMB   REGSAV        RESTORE REGS AND RETURN ON R7
002F2E  68E2 0004       3359 MSGXIT  B     (R7,4)              RETURN
                        3360 *
                        3361 ********************************************************************
                        3362 *          OUTPUT CONTROL BLOCK
002F32  0000            3363         DC    A(*-*)              CONTROL FLAG (RIGHT BYTE ONLY)
002F34  0000            3364 OUTCB   DC    A(*-*)                    ADDRESS
                        3365 ********************************************************************
                        3367 ********************************************************************
                        3368 * SUBROUTINE
                        3369 *     NAME  -  QUEST
                        3370 *     PURPOSE  -  TO REQUEST PROGRAM PARAMETERS
                        3371 *        CALLING SEQUENCE  BAL   QUEST,R7
                        3372 *                          DC    A(LABEL)       MESSAGE ADDRESS
                        3373 *                          DC    X'01'          CODE
                        3374 *                          DC    X'00'          CONTROL FLAG (DISPLAY)
                        3375 *        RETURN  -  FIRST INSTRUCTION PAST LAST PARAMETER
                        3376 *             INPUT DATA WILL BE AT LOCATION LABELED 'FIELD1'.
                        3377 *             A MAXIMUM OF 64 CHARACTERS CAN BE ENTERED
                        3378 ********************************************************************
002F36  0704            3379 QUEST   ABI   4,R7                 SET UP RETURN ADDRESS
002F38  4028 3024 C000  3380         STM   R6,REGSAV     SAVE THE CALLERS REGISTERS
002F3E  8F28 FFFC 2F74  3381         MVW   (R7,-4),OICB        PUT OUTPUT BUFF ADDRESS AT CTRL BL
002F44  8728 FFFE 2F7B  3382         MVB   (R7,-2),CVTFACT     PUT CONVERSION FACTOR AT CTRL BLOC
002F4A  8728 FFFF 2F73  3383         MVB   (R7,-1),OICB-1      PUT CONTROL FLAG
                        3384         MSK   FIELD1,IE,00        CLEAR INPUT BUFFER
002F50  6F03 2E70       3385+        BAL   MSK,R7        START ADDR, END ADDR, BYTE VALUE TO STORE
002F54  379637D5        3386+        DC    A(FIELD1,IE)
002F58  00              3387+        DC    X'00'
002F59  00              3388+        ALIGN WORD
002F5A  4724 2F74       3389         MVA   OICB,R7             GET ADDRESS OF CONTROL BLOCK
002F5E  6001            3390         SVC   OUTIN               DISPLAY
                        3391 *                          R7 HAS  TOTAL BYTE COUNT IF'HEX' ENTERED.
002F60  6F0D 2F7C       3392         MVW   R7,FIELD1CT         SAVE BYTE COUNT FROM OUTIN
002F64  4124 180E       3393         MVA   OPTN1,R1            SEE IF PROGRAM TERMINATE DESIRED
002F68  4900            3394         TBT   (R1,0)              IF SO, GO TERMINATE
002F6A  6A00 30E8       3395         BN    ABORT               RETURN TO CALLER IF NOT
002F6E  402A 3024       3396         LMB   REGSAV        RESTORE REGS AND RETURN ON R7
                        3397 ********************************************************************
                        3398 *        OUTPUT/INPUT CONTROL  BLOCK
002F72  0000            3399         DC    A(*-*)              CONTROL FLAG (RIGHT BYTE ONLY)
002F74  0000            3400 OICB    DC    A(*-*)         0/1  OUTPUT BUFFER ADDRESS
002F76  3796            3401         DC    A(FIELD1)      2/3  INPUT BUFFER ADDRESS
002F78  0040            3402         DC    A(64)          4/5  NUMBER OF CHARACTERS EXPECTED
002F7A  00              3403         DC    X'00'          6/   RETURN CODE(0=NORMAL, -1= IMMED)
002F7B  00              3404 CVTFACT DC    X'00'          7    CONVERSION FACTOR
002F7C  0000            3405 FIELD1CT DC   A(*-*)               BYTE COUNT FROM OUTIN SAVED
                        3407 ********************************************************************
                        3408 * SUBROUTINE
                        3409 *     NAME  -  ETH
                        3410 * EBCDIC TO HEX CONVERSION------->CVT EBCDIC TO HEX  (2:1)
                        3411 ********************************************************************
002F7E  9D09            3412 ETH     JAL   GDSR,R5             GET FROM/TO/BYTES, STEP & SAVE R7
002F80  6019            3413         SVC   ETOH                CONVERT IT
002F82  5002            3414         J     CVRETX              RETURN TO CALLER
                        3415 ********************************************************************
                        3416 * SUBROUTINE
                        3417 *     NAME  -  HTE
                        3418 * HEX TO EBCDIC CONVERSION ------ CVT HEX TO EBCDIC   (1:2)
                        3419 ********************************************************************
002F84  9D06            3420 HTE     JAL   GDSR,R5             GET FROM/TO/BYTES, STEP & SAVE R7
002F86  601A            3421         SVC   HTOE                CONVERT IT
002F88  402A 3024       3422 CVRETX  LMB   REGSAV        RESTORE REGS AND RETURN ON R7
                        3423 *--------------------------------------------------------------------
                        3424 *   COMMON CONTROL BLOCK FOR  ETH /  HTE
002F8C  0000            3425 BYTECNT DC    A(*-*)              # BYTES OF SOURCE DATA
002F8E  0000            3426 FROMADDR DC   A(*-*)              FROM ADDRESS
002F90  0000            3427 TOADDR  DC    A(*-*)              TO   ADDRESS
                        3429 ********************************************************************
                        3430 * SUBROUTINE
                        3431 *     NAME  -  GDSR
                        3432 * TO GET DATA, SAVE RETURN TO +6 BYTES
                        3433 ********************************************************************
                        3434 * CALL THIS SUBR ONLY USING R5
002F92  0706            3435 GDSR    ABI   6,R7
002F94  4028 3024 C000  3436         STM   R6,REGSAV     SAVE THE CALLERS REGISTERS
002F9A  8F28 FFFA 2F8E  3437         MVW   (R7,-6),FROMADDR    GET THE 'FROM' ADDRESS
002FA0  8F28 FFFC 2F90  3438         MVW   (R7,-4),TOADDR      GET THE 'TO' ADDRESS
002FA6  8F28 FFFE 2F8C  3439         MVW   (R7,-2),BYTECNT     GET THE SOURCE BYTE COUNT
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 LOCTR  OBJECT TEXT   STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
002FAC  4724 2F8C     3440         MVA   BYTECNT,R7          ADDRESS OF CONTROL BLOCK
002FB0  68A2 0000     3441         B     (R5)
                      3443 ********************************************************************
                      3444 * SUBROUTINE
                      3445 *     NAME  -  MOV
                      3446 *     PURPOSE  -  TO MOVE A BLOCK OF DATA FROM ONE LOCATION TO ANOTHER
                      3447 *                 WITH ODD OR EVEN BOUNDRY ADDRESS
                      3448 *  CALLING SEQUENCE    MOV  DATA START ADDR, END ADDR, NEW START ADDR
                      3449 ********************************************************************
002FB4  0706          3450 MOV      ABI   6,R7
002FB6  4028 3024 C000 3451         STM   R6,REGSAV       SAVE THE CALLERS REGISTERS
002FBC  69E8 FFFA     3452         MVW   (R7,-6),R1        GET DATA START ADDRESS  (FROM)
002FC0  6BE8 FFFC     3453         MVW   (R7,-4),R3        GET END ADDRESS         (FROM)
002FC4  6AE8 FFFE     3454         MVW   (R7,-2),R2        GET DESTINATION ADDRESS (TO)
002FC8  7165          3455         CW    R1,R3             SEE IF FROM END ADDR LESS THAN START
002FCA  1406          3456         JLT   ERRCODED          IF YES, AN ERROR IN PROGRAM CODEING
002FCC  8194          3457 MDATA    MVB   (R1)+,(R2)+       MOVE BYTE TO NEW LOCATION
002FCE  7165          3458         CW    R1,R3             TEST FOR END ADDRESS
002FD0  1401          3459         JLT   RFMS              RETURN IF END ADDRESS
002FD2  50FC          3460         J     MDATA             MOVE DATA
002FD4  402A 3024     3461 RFMS     LMB   REGSAV          RESTORE REGS AND RETURN ON R7
002FD8  6400          3462 ERRCODED STOP  '               THE ENDING ADDRESS WAS LESS THAN
002FDA  50FE          3463         J     ERRCODED          THE STARTING ADDRESS. PROG CODE ERR
                      3464 ********************************************************************
                      3465 * SUBROUTINE
                      3466 *     NAME  -  ODD
                      3467 *     PURPOSE - TO SET ODD PARITY FOR ALL CHARACTERS.
                      3468 * EXISTING PARITY IS REMOVED, AND CORRECT PARITY GENERATED.
                      3469 *     CALLING SEQUENCE -ODD   START ADDR, END ADDR
                      3470 ********************************************************************
002FDC  0704          3471 ODD      ABI   4,R7
002FDE  4028 3024 C000 3472         STM   R6,REGSAV       SAVE THE CALLERS REGISTERS
002FE4  69E8 FFFC     3473         MVW   (R7,-4),R1        GET 'START OF FIELD ADDR'
002FE8  6AE8 FFFE     3474         MVW   (R7,-2),R2        GET 'END OF FIELD ADDR'
002FEC  714A          3475         SW    R1,R2             RESULT BYTE COUNT IN R2
002FEE  0201          3476         ABI   1,R2
002FF0  C440          3477 ODDLOOP  MVB   (R1),R4           GET DATA BYTE
002FF2  7C80 007F     3478         NWI   X'007F',R4        MASK OFF ANY PROPOGATED BIT
002FF6  CF25 3022     3479         MVWZ  BITCT,R7          ZERO BIT COUNTER
002FFA  4324 0008     3480         MVWI  8,R3              SET SHIFT COUNTER
002FFE  3438          3481         SLC   7,R4              POSITION DATA
003000  3408          3482 MOBIT    SLC   1,R4
003002  1A03          3483         JNN   BPBC              BYPASS BIT COUNT INCR IF BIT NOT ON
003004  4029 3022 0001 3484         AWI   1,BITCT           INCREMENT BIT COUNTER
00300A  BBFA          3485 BPBC     JCT   MOBIT,R3          DECREMENT SHIFT COUNTER
00300C  3408          3486         SLC   1,R4              POSITION DATA
00300E  402B 3022 0001 3487         TWI   1,BITCT           TEST FOR ODD  PARITY
003014  1202          3488         JN    OPRTN             RETURN IF ODD
003016  7C83 0080     3489         OWI   X'0080',R4        SET PARITY BIT ON
00301A  C458          3490 OPRTN    MVB   R4,(R1)+          STORE AT 'TO' ADDRESS, THEN INC. R1
00301C  BAE9          3491         JCT   ODDLOOP,R2        IF ZERO, LAST BYTE WAS DONE IN FIELD
00301E  402A 3024     3492         LMB   REGSAV          RESTORE REGS AND RETURN ON R7
003022  0000          3493 BITCT    DC    A(*-*)            BIT COUNTER
                      3495 ********************************************************************
                      3496 *  SAVE AREA FOR REGISTER STACK OPERATIONS
                      3497 *  A STACK EXCEPTION (PSW 0200) WILL OCCUR IF YOU EXCEED BOUNDARIES
003024  30BA          3498 REGSAV   DC    A(TOPADDR+2)    TOP ENTRY ADDRESS
003026  30BA          3499         DC    A(TOPADDR+2)    HIGH LIMIT ADDRESS
003028  302A          3500         DC    A(LOLIMIT)      LOW LIMIT ADDRESS
                      3501 *-------------------------------------
00302A  0000          3502 LOLIMIT  DC    F'0'            BYTE COUNT
00302C  0000          3503 S7R7     DC    F'0'            REG 7 SAVE
00302E  0000          3504         DC    F'0'            REG 0 SAVE
003030  0000          3505         DC    F'0'            REG 1 SAVE
003032  0000          3506         DC    F'0'            REG 2 SAVE
003034  0000          3507         DC    F'0'            REG 3 SAVE
003036  0000          3508         DC    F'0'            REG 4 SAVE
003038  0000          3509         DC    F'0'            REG 5 SAVE
00303A  0000          3510         DC    F'0'            REG 6 SAVE
                      3511 *-------------------------------------
00303C  0000          3512         DC    F'0'            BYTE COUNT
00303E  0000          3513 S6R7     DC    F'0'            REG 7 SAVE
003040  0000          3514         DC    F'0'            REG 0 SAVE
003042  0000          3515         DC    F'0'            REG 1 SAVE
003044  0000          3516         DC    F'0'            REG 2 SAVE
003046  0000          3517         DC    F'0'            REG 3 SAVE
003048  0000          3518         DC    F'0'            REG 4 SAVE
00304A  0000          3519         DC    F'0'            REG 5 SAVE
00304C  0000          3520         DC    F'0'            REG 6 SAVE
                      3521 *-------------------------------------
00304E  0000          3522         DC    F'0'            BYTE COUNT
003050  0000          3523 S5R7     DC    F'0'            REG 7 SAVE
003052  0000          3524         DC    F'0'            REG 0 SAVE
003054  0000          3525         DC    F'0'            REG 1 SAVE
003056  0000          3526         DC    F'0'            REG 2 SAVE
003058  0000          3527         DC    F'0'            REG 3 SAVE
00305A  0000          3528         DC    F'0'            REG 4 SAVE
00305C  0000          3529         DC    F'0'            REG 5 SAVE
00305E  0000          3530         DC    F'0'            REG 6 SAVE
                      3531 *-------------------------------------
003060  0000          3532         DC    F'0'            BYTE COUNT
003062  0000          3533 S4R7     DC    F'0'            REG 7 SAVE
003064  0000          3534         DC    F'0'            REG 0 SAVE
003066  0000          3535         DC    F'0'            REG 1 SAVE
003068  0000          3536         DC    F'0'            REG 2 SAVE
00306A  0000          3537         DC    F'0'            REG 3 SAVE
00306C  0000          3538         DC    F'0'            REG 4 SAVE
00306E  0000          3539         DC    F'0'            REG 5 SAVE
003070  0000          3540         DC    F'0'            REG 6 SAVE
                      3541 *-------------------------------------
003072  0000          3542         DC    F'0'            BYTE COUNT
003074  0000          3543 S3R7     DC    F'0'            REG 7 SAVE
003076  0000          3544         DC    F'0'            REG 0 SAVE
003078  0000          3545         DC    F'0'            REG 1 SAVE
00307A  0000          3546         DC    F'0'            REG 2 SAVE
00307C  0000          3547         DC    F'0'            REG 3 SAVE
00307E  0000          3548         DC    F'0'            REG 4 SAVE
003080  0000          3549         DC    F'0'            REG 5 SAVE
003082  0000          3550         DC    F'0'            REG 6 SAVE
                      3551 *-------------------------------------
003084  0000          3552         DC    F'0'            BYTE COUNT
003086  0000          3553 S2R7     DC    F'0'            REG 7 SAVE
003088  0000          3554         DC    F'0'            REG 0 SAVE
00308A  0000          3555         DC    F'0'            REG 1 SAVE
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 LOCTR  OBJECT TEXT   STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976
00308C  0000          3556         DC    F'0'            REG 2 SAVE
00308E  0000          3557         DC    F'0'            REG 3 SAVE
003090  0000          3558         DC    F'0'            REG 4 SAVE
003092  0000          3559         DC    F'0'            REG 5 SAVE
003094  0000          3560         DC    F'0'            REG 6 SAVE
                      3561 *-------------------------------------
003096  0000          3562         DC    F'0'            BYTE COUNT
003098  0000          3563 S1R7     DC    F'0'            REG 7 SAVE
00309A  0000          3564         DC    F'0'            REG 0 SAVE
00309C  0000          3565         DC    F'0'            REG 1 SAVE
00309E  0000          3566         DC    F'0'            REG 2 SAVE
0030A0  0000          3567         DC    F'0'            REG 3 SAVE
0030A2  0000          3568         DC    F'0'            REG 4 SAVE
0030A4  0000          3569         DC    F'0'            REG 5 SAVE
0030A6  0000          3570         DC    F'0'            REG 6 SAVE
                      3571 *-------------------------------------
0030A8  0000          3572         DC    F'0'            BYTE COUNT
0030AA  0000          3573 S0R7     DC    F'0'            REG 7 SAVE
0030AC  0000          3574         DC    F'0'            REG 0 SAVE
0030AE  0000          3575         DC    F'0'            REG 1 SAVE
0030B0  0000          3576         DC    F'0'            REG 2 SAVE
0030B2  0000          3577         DC    F'0'            REG 3 SAVE
0030B4  0000          3578         DC    F'0'            REG 4 SAVE
0030B6  0000          3579         DC    F'0'            REG 5 SAVE
0030B8  0000          3580 TOPADDR  DC    F'0'            REG 6 SAVE
                      3581 *-------------------------------------
                      3582 ********************************************************************
                      3583 *            SUBROUTINE TO WAIT FOR DATA SET READY                 *
                      3584 *            CALLING SEQUENCE: BAL  TMR,R7                         *
                      3585 ********************************************************************
0030BA  4028 3024 C000 3586 TMR      STM   R6,REGSAV       SAVE RETURN ADDRESS
                      3587 ********************************************************************
0030C0  4324 0005     3588 SWAIT    MVWI  5,R3              5 MIN COUNTER
0030C4  4224 003C     3589 MDLY     MVWI  60,R2             60 SEC COUNTER
0030C8  4724 07BE     3590 SEC1     MVWI  X'07BE',R7        1 SEC COUNTER
0030CC  6003          3591 DELAY1   SVC   IDLE5               *
0030CE  BFFE          3592         JCT   DELAY1,R7          *
0030D0  CF25 2506     3593         MVWZ  INTSW,R7          SEE IF INTERRUPT OCCURRED
0030D4  1807          3594         JNZ   GO                BRANCH IF INTERRUPT RECVD
0030D6  BAF8          3595         JCT   SEC1,R2           BRANCH IF 60 SEC NOT UP
0030D8  BBF5          3596         JCT   MDLY,R3           BRANCH IF 5 MIN NOT UP
                      3597         MSG   E891,80           PRINT MSG AND WAIT
0030DA  6F03 2EFC     3598+        BAL   MSG,R7            GENERAL DISPLAY MESSAGE
0030DE  36DC          3599+        DC    A(E891)           MSG ADDR,FLAG
0030E0  80            3600+        DC    X'80'
0030E1  00            3601+        ALIGN WORD
0030E2  50EE          3602         J     DSRWAIT           WAIT 5 MIN MORE FOR DSR
0030E4  6802 2C3C     3603 GO       B     CKDR3             CHECK FOR CC
                      3604 ********************************************************************
                      3605 *                                                                  *
                      3606 *         NAME - ABORT SUBROUTINE                                  *
                      3607 *                                                                  *
                      3608 *   TO PRINT LOG, RESET DEVICE, UNPREPARE DEVICE, RELEASE          *
                      3609 *   INTERRUPT CONTROL BLOCK, AND TERMINATE                         *
                      3610 *                                                                  *
                      3611 ********************************************************************
0030E8  4020 3024 30BA 3612 ABORT    MVA   TOPADDR+2,REGSAV  RESTORE STACK POINTERS
0030EE  6F03 2BA0     3613         BAL   RSET,R7           RESET
0030F2  402B 2504 0004 3614         TWI   4,CONF1           LEASED LINE?
0030F8  1202          3615         JN    NODTRDIS          IF SO, SKIP DTR DISABLE
0030FA  6F03 2E22     3616         BAL   DISAB,R7          DISABLE DTR
0030FE  6F03 2F84     3617 NODTRDIS HTE  ERRCT,E894A,2     PRINT # ERRORS THAT OCCURRED
003102  2520371C0002  3618+NODTRDIS BAL  HTE,R7            CVT HEX TO EBCDIC  (1:2)
003108  4324 2520     3619+        DC    A(ERRCT,E894A,2)  FROM ADDR, TO ADDR, SOURCE BYTE COUNT
                      3620         MVA   ERRCT,R5          DATA LOCATION IN R5
                      3621         MSG   E894,C0           PRINT MSG
003110  3710          3622+        BAL   MSG,R7            GENERAL DISPLAY MESSAGE
003112  C0            3623+        DC    A(E894)           MSG ADDR,FLAG
003113  00            3624+        DC    X'C0'
003114  402B 180E 0004 3625+        ALIGN WORD
00311A  1A02          3626         TWI   4,OPTN1           SEE IF OPTN SET TO PRINT LOG
00311C  6F03 2A1A     3627         JNN   SKPLOG            JUMP IF NOT
003120  6F03 2B72     3628         BAL   PRNTLOG,R7        GO PRINT LOG
003124  C720 1814     3629 SKPLOG   BAL   UNPREP,R7         UNPREPARE
003128  C0            3630         MVB   DEVAD,R7          *
003129  6003          3631         SVC   RICB              RELEASE INTERRUPT CONTROL BLOCK
00312A  402B 180E 8000 3632         TWI   X'8000',OPTN1     SEE IF TERMINATE OPTION SET
003130  1206          3633         JN    PREND             IF SO, TERMINATE
003132  4724 1740     3634         MVWI  X'1740',R7        OTHERWISE, 3 SECOND DELAY
003136  6003          3635 DELY1    SVC   IDLE5             *
003138  BFFE          3636         JCT   DELY1,R7          *
00313A  6802 1864     3637         B     BEGIN             THEN BRANCH TO BEGIN
                      3638 PREND    MSG   E890,C0           OTHERWISE, PRINT MESSAGE
00313E  6F03 2EFC     3639+PREND    BAL   MSG,R7            GENERAL DISPLAY MESSAGE
003142  36BA          3640+        DC    A(E890)           MSG ADDR,FLAG
003144  C0            3641+        DC    X'C0'
003145  00            3642+        ALIGN WORD
                      3643         MSK   DATAB,DATAB+5,00  PRESENT PASSING CONTROL TO NEXT DEV
003146  6F03 2E70     3644+        BAL   MSK,R7      START ADDR, END ADDR, BYTE VALUE TO STORE
00314A  18121817      3645+        DC    A(DATAB,DATAB+5)
00314E  80            3646+        DC    X'80'
00314F  00            3647+        ALIGN WORD
003150  6007          3648         SVC   TERM              TERMINATE
                      3649 ********************************************************************
                      3650 *          NAME - DATA SET READY CHECK SUBROUTINE                  *
                      3651 *          PURPOSE - CHECK THAT DATA SET READY AND DATA TERMINAL   *
                      3652 *                    READY ARE ON BEFORE XMIT OR RCV OPERATION.    *
                      3653 ********************************************************************
003152  4028 3024 C000 3654 DSRCHK   STM   R6,REGSAV         SAVE REGISTERS AND RETURN ADDR
003158  402B 2452 C000 3655         TWI   X'C000',STATUS2   CHECK DSR/DTR
00315E  121D          3656         JN    DSROK             IF READY, RETURN
003160  4020 319E 000A 3657 DSWAIT   MVWI  10,COUNTER       WAIT UP TO 1 SEC FOR DSR/DTR
003166  6F03 2BC8     3658 DRLOOP   BAL   CSTAT,R7          READ CYCLE STEAL STATUS
00316A  402B 2452 C000 3659         TWI   X'C000',STATUS2   CHECK DSR/DTR
003170  1214          3660         JN    DSROK             RETURN IF READY
                      3661         DELAY 100               OTHERWISE, DELAY .1 SEC
003172  6F03 2DA6     3662+        BAL   DELAY,R7          DELAY MILLISECONDS
003176  0064          3663+        DC    A(100)
003178  402E 319E 0001 3664         SWI   1,COUNTER         DECREMENT COUNTER
00317E  11F3          3665         JP    DRLOOP            LOOP TILL DONE
                      3666         MSG   E8AF,80           PRINT DSR NOT READY MSG
003180  6F03 2EFC     3667+        BAL   MSG,R7            GENERAL DISPLAY MESSAGE
003184  37DA          3668+        DC    A(E8AF)           MSG ADDR,FLAG
003186  80            3669+        DC    X'80'
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

003187  00              3670+         ALIGN WORD
003188  6802 30E8       3671          B     ABORT                AND ABORT
00318C  4028 3024 C000  3672 DSRCHKR  STM   R6,REGSAV            SAVE REGISTERS AND RETURN ADDR
003192  402B 2452 C000  3673          TWI   X'C000',STATUS2      CHECK DSR/DTR
003198  1AE3            3674          JNN   DSWAIT               GO WAIT IF NOT READY
00319A  402A 3024       3675 DSROK    LMB   REGSAV              RESTORE REGS AND RETURN
00319E  0000            3676 COUNTER  DC    A(*-*)             COUNTER TO WAIT FOR DSR/DTR
                        3677 ********************************************************************
                        3678 *                                                                  *
                        3679 *           LINE CONTROL SUBROUTINES                               *
                        3680 *                                                                  *
                        3681 *          CALLING SEQUENCES                                       *
                        3682 *          BAL   COD,R7    SET PTTC CODE                           *
                        3683 *          BAL   CICB1,R7  CONNECT INTERRUPT CONTROL BLOCK         *
                        3684 *          BAL   TCIRN,R7  TRANSMIT CIRCLE N                       *
                        3685 *          BAL   TCIRY,R7  TRANSMIT CIRCLE Y, RCV RESPONSE         *
                        3686 *          BAL   TCIRD,R7  TRANSMIT CIRCLE D                       *
                        3687 *          BAL   TCIRC,R7  TRANSMIT CIRCLE C, RCV RESPONSE         *
                        3688 *          BAL   TREOT,R7  TRANSMIT CIRCLE C                       *
                        3689 *                                                                  *
                        3690 *          RETURN: NEXT SEQUENTIAL INSTRUCTION                     *
                        3691 *                                                                  *
                        3692 ********************************************************************
                        3693 ************ SET EOA, EOB, COD, BIT RATE, SHIFT CHARACTERS **********
0031A0  4028 3024 C000  3694 COD      STM   R6,REGSAV            SAVE REGISTERS AND RETURN ADDR
0031A6  4020 2446 249A  3695 SVC2     MVA   CDCB,DATAWORD        DCB ADDRESS
0031AC  4020 2B46 31A6  3696          MVA   SVC2,OIO7       SAVE RETURN ADDRESS FOR OIOCC=1
0031B2  4724 2442       3697          MVA   CTRLBLOK,R7          CONTROL BLOCK ADDRESS
0031B6  600A            3698          SVC   START
                        3699          WINT  21000                WAIT 21 SEC FOR INTERRUPT
0031B8  6F03 2C00       3700+         BAL   WINT,R7              DELAY MILLISECONDS, WAIT FOR INT.
0031BC  5208            3701+         DC    A(21000)             RETURN ONLY IF INT OCCURED IN TIME.
0031BE  5017            3702          J     TC002                RESTORE REGS AND RETURN
                        3703 ****************** CONNECT INTERRUPT CONTROL BLOCK ******************
0031C0  4028 3024 C000  3704 CICB1    STM   R6,REGSAV            SAVE REGISTERS AND RETURN ADDR
0031C6  4724 243A       3705          MVA   CICB,R7              ADDRESS OF ICB FOR SVC USE
0031CA  6014            3706          SVC   CICB                 CONNECT INTERRUPT CONTROL BLOCK
0031CC  5010            3707          J     TC002                RESTORE REGS AND RETURN
                        3708 *************** TRANSMIT CIRCLE N  ***********************************
0031CE  4028 3024 C000  3709 TCIRN    STM   R6,REGSAV            SAVE REGISTERS AND RETURN ADDR
                        3710          LMSG  NAKSENT,80           PRINT NAK MSG
0031D4  6F03 2EF4       3711+         BAL   LMSG,R7              LINE ACTION MESSAGES
0031D8  37FA            3712+         DC    A(NAKSENT)           OPTN1 BIT 10 OFF TO DISPLAY
0031DA  80              3713+         DC    X'80'
0031DB  00              3714+         ALIGN WORD
0031DC  8028 24D0 2456  3715          MVB   CIRCN,CRBFR
0031E2  4020 2454 0001  3716 TC001    MVWI  1,CRBFRCT            COUNT TO BE TRANSMITTED
                        3717 *-------------- TRANSMIT TEXT
0031E8  6F03 341C       3718          BAL   XMIT,R7
0031EC  2456            3719          DC    A(CRBFR)
0031EE  402A 3024       3720 TC002    LMB   REGSAV              RESTORE REGS AND RETURN
                        3721 *************** TRANSMIT CIRCLE Y, RECEIVE RESPONSE ******************
0031F2  4028 3024 C000  3722 TCIRY    STM   R6,REGSAV            SAVE REGISTERS AND RETURN ADDR
                        3723          LMSG  YAKSENT,80           PRINT YAK MSG
0031F8  6F03 2EF4       3724+         BAL   LMSG,R7              LINE ACTION MESSAGES
0031FC  37EC            3725+         DC    A(YAKSENT)           OPTN1 BIT 10 OFF TO DISPLAY
0031FE  80              3726+         DC    X'80'
0031FF  00              3727+         ALIGN WORD
                        3728 *-------------- TRANSMIT TEXT
003200  6F03 338C       3729          BAL   XMITRCV,R7           GO TRANSMIT/RECEIVE
003204  24D4            3730          DC    A(CIRCY)             DATA ADDRESS
003206  247A            3731          DC    A(RCTSTDCB)          CHAIN ADDRESS - RECEIVE RESPONSE
003208  402A 3024       3732          LMB   REGSAV               RESTORE REGS AND RETURN
                        3733 *************** TRANSMIT (D) *****************************************
00320C  4028 3024 C000  3734 TCIRD    STM   R6,REGSAV            SAVE REGISTERS AND RETURN ADDR
003212  8028 24D8 2456  3735          MVB   CIRCD,CRBFR
003218  50E4            3736          J     TC001                GO TO XMIT
                        3737 *************** TRANSMIT (C), RECEIVE RESPONSE ************************
00321A  4028 3024 C000  3738 TCIRC    STM   R6,REGSAV            SAVE REGISTERS AND RETURN ADDR
                        3739          LMSG  EOTSENT,80           PRINT EOT MSG
003220  6F03 2EF4       3740+         BAL   LMSG,R7              LINE ACTION MESSAGES
003224  3810            3741+         DC    A(EOTSENT)           OPTN1 BIT 10 OFF TO DISPLAY
003226  80              3742+         DC    X'80'
003227  00              3743+         ALIGN WORD
                        3744 *-------------- TRANSMIT EOT
003228  6F03 338C       3745          BAL   XMITRCV,R7           GO TRANSMIT/RECEIVE
00322C  24DC            3746          DC    A(CIRCC)             DATA ADDRESS
00322E  247A            3747          DC    A(RCTSTDCB)          CHAIN ADDRESS
003230  402A 3024       3748          LMB   REGSAV               RESTORE REGS AND RETURN
                        3749 *************** TRANSMIT CIRCLE C  ***********************************
003234  4028 3024 C000  3750 TREOT    STM   R6,REGSAV            SAVE REGISTERS AND RETURN ADDR
                        3751          LMSG  EOTSENT,80           PRINT EOT MSG
00323A  6F03 2EF4       3752+         BAL   LMSG,R7              LINE ACTION MESSAGES
00323E  3810            3753+         DC    A(EOTSENT)           OPTN1 BIT 10 OFF TO DISPLAY
003240  80              3754+         DC    X'80'
003241  00              3755+         ALIGN WORD
                        3756 *-------------- TRANSMIT TEXT
003242  8028 24DC 2456  3757          MVB   CIRCC,CRBFR          PUT (C) IN BUFFER
003248  50CC            3758          J     TC001                GO TRANSMIT IT
                        3759 ********************************************************************
                        3760 *      NAME  - 'DRESP'    DECODE RESPONSE SUBROUTINE
                        3761 *      PURPOSE  -  TO ANALYZE THE RESPONSE RECEIVED IN THE BUFFER
                        3762 *         CALLING SEQUENCE  -  BAL  DRESP,R7 (AUTOMATIC AFTER EVERY
                        3763 *                                             CALL TO 'RECEIVE')
                        3764 *         RETURN  -  NEXT INSTRUCTION
                        3765 * THE RESULTS ARE PUT IN 'RSPWD' AND ADDR OF 'RSPWD' IN R1.
                        3766 * IN ADDITION, THE ADDRESS OF AN 'ENGLISH' LANGUAGE CODE
                        3767 * OF THE RESPONSE IS SET UP, AND DISPLAYED IF OPTIONS ALLOW. THIS WILL
                        3768 * ALLOW OPERATOR TO OBSERVE THE LINE ACTIONS AS THEY OCCUR.
                        3769 *
                        3770 *NAKR  EQU   0    BIT 0 SET =   (N) NEGATIVE RESPONSE    /8000
                        3771 *YAKR  EQU   1          1     =   (Y) POSITIVE RESPONSE    /4000
                        3772 *EOAR  EQU   2          2     =   (D) END OF ADDR (ENTER TEXT MODE)/2000
                        3773 *EOTR  EQU   3          3     =   (C) EOT (END OF TRANSMISSION),/1000
                        3774 **
                        3775 *EOBR  EQU   4          4     =   (B) EOB (END OF BLOCK) LRC CHECK /0800
                        3776 *TXTR  EQU   5          5     =   TEXT ((D) DATA (B))              /0400
                        3777 *      EQU   6          6     =   SPARE                            /0200
                        3778 *      EQU   7          7     =   SPARE                            /0100
                        3779 ********************************************************************
003249  4028 3024 C000  3780 DRESP    STM   R6,REGSAV            SAVE RETURN ADDRESS
003250  CF25 3338       3781          MVWZ  RSPCODE,R7           CLEAR MSG ADDR FOR RESPONSE PRINTING
003254  CF25 3348       3782          MVWZ  RSPWD,R7             RESET RESPONSE WORD
003258  6F08 244E       3783          MVW   STATUS0,R7           POINTS TO LAST BYTE ADDR ACCESSED(CS)
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00325C  4624 3842       3784          MVA   RBUF,R6
003260  76EA            3785          SW    R6,R7                SEE IF ANY DATA RECEIVED AT ALL
003262  1A03            3786          JNN   SCANNAK              *
003264  6F08 3842       3787          MVW   RBUF,R7              SEE IF ANY DATA RECEIVED
003268  1062            3788          JZ    RFRD                 RETURN IF NO DATA
                        3789 *-------------------
                        3790 SCANNAK  SCANB RBUF,2,40            SCAN FOR NAK
00326A  6F03 2E98       3791+SCANNAK  BAL   SCANB,R7             START ADDR, BYTE COUNT, BYTE VALUE
00326E  38420002        3792+         DC    A(RBUF,2)
003272  40              3793+         DC    X'40'
003273  00              3794+         ALIGN WORD
003274  180A            3795          JNE   SCANYAK
003276  402C 3348 8000  3796          OWI   X'8000',RSPWD        SET BIT 00 IN RESPONSE WORD (*NAK)
00327C  4020 3338 3800  3797          MVA   NAKRCV,RSPCODE       SET ADDRESS OF MESSAGE IN PRINT
003282  4029 2520 0001  3798          AWI   1,ERRCT              INCREMENT ERROR COUNTER
003288  5052            3799          J     RFRD                 RETURN
                        3800 *-------------------
                        3801 SCANYAK  SCANB RBUF,2,76            SCAN FOR YAK
00328A  6F03 2E98       3802+SCANYAK  BAL   SCANB,R7             START ADDR, BYTE COUNT, BYTE VALUE
00328E  38420002        3803+         DC    A(RBUF,2)
003292  76              3804+         DC    X'76'
003293  00              3805+         ALIGN WORD
003294  1807            3806          JNE   SCAND
003296  402C 3348 4000  3807          OWI   X'4000',RSPWD        SET BIT 01 IN RESPONSE WORD (*YAK)
00329C  4020 3338 37F2  3808          MVA   YAKRCV,RSPCODE       SET ADDRESS OF MESSAGE IN PRINT
0032A2  5045            3809          J     RFRD                 RETURN
                        3810 *-------------------
                        3811 SCAND    SCANB RBUF,2,16            TEST FOR EOA  (D)
0032A4  6F03 2E98       3812+SCAND    BAL   SCANB,R7             START ADDR, BYTE COUNT, BYTE VALUE
0032A8  38420002        3813+         DC    A(RBUF,2)
0032AC  16              3814+         DC    X'16'
0032AD  00              3815+         ALIGN WORD
0032AE  1816            3816          JNE   SCANEOT
0032B0  402C 3348 2000  3817          OWI   X'2000',RSPWD        SET BIT 02 IN RESPONSE WORD (*EOA)
0032B6  4020 3338 381E  3818          MVA   EOARCV,RSPCODE       SET ADDRESS OF MESSAGE IN PRINT
                        3819          SCANB RBUF,100,3D          TEST FOR EOB (B)
0032BC  6F03 2E98       3820+         BAL   SCANB,R7             START ADDR, BYTE COUNT, BYTE VALUE
0032C0  38420064        3821+         DC    A(RBUF,100)
0032C4  3D              3822+         DC    X'3D'
0032C5  00              3823+         ALIGN WORD
0032C6  180A            3824          JNE   SCANEOT
0032C8  402C 3348 0800  3825          OWI   X'0800',RSPWD        SET BIT 04 IN RESPONSE WORD (*EOB)
0032CE  402C 3348 0400  3826          OWI   X'0400',RSPWD        SET BIT 05 IN RESPONSE WORD (*TXT)
0032D4  4020 3338 3808  3827          MVA   TEXTRCV,RSPCODE      ONLY IF (D) AND (B)
0032DA  5029            3828          J     RFRD
                        3829 *-------------------
                        3830 SCANEOT  SCANB RBUF,200,1F          TEST FOR EOT  (C)
0032DC  6F03 2E98       3831+SCANEOT  BAL   SCANB,R7             START ADDR, BYTE COUNT, BYTE VALUE
0032E0  384200C8        3832+         DC    A(RBUF,200)
0032E4  1F              3833+         DC    X'1F'
0032E5  00              3834+         ALIGN WORD
0032E6  1807            3835          JNE   SCANTXTB
0032E8  402C 3348 1000  3836          OWI   X'1000',RSPWD        SET BIT 03 IN RESPONSE WORD (*EOT)
0032EE  4020 3338 3816  3837          MVA   EOTRCV,RSPCODE       SET ADDRESS OF MESSAGE IN PRINT
0032F4  501C            3838          J     RFRD                 RETURN
                        3839 SCANTXTB SCANB RBUF+1,199,3D        TXT (B)
0032F6  6F03 2E98       3840+SCANTXTB BAL   SCANB,R7             START ADDR, BYTE COUNT, BYTE VALUE
0032FA  384300C7        3841+         DC    A(RBUF+1,199)
0032FE  3D              3842+         DC    X'3D'
0032FF  00              3843+         ALIGN WORD
003300  180A            3844          JNE   SCANEOB
003302  402C 3348 0800  3845          OWI   X'0800',RSPWD        SET BIT 04 IN RESPONSE WORD (*EOB)
003308  402C 3348 0400  3846          OWI   X'0400',RSPWD        SET BIT 05 IN RESPONSE WORD (*TXT)
00330E  4020 3338 3808  3847          MVA   TEXTRCV,RSPCODE      *
003314  500C            3848          J     RFRD                 RETURN
                        3849 *-------------------
                        3850 SCANEOB  SCANB RBUF,1,3D            (B) ONLY?
003316  6F03 2E98       3851+SCANEOB  BAL   SCANB,R7             START ADDR, BYTE COUNT, BYTE VALUE
00331A  38420001        3852+         DC    A(RBUF,1)
00331E  3D              3853+         DC    X'3D'
00331F  00              3854+         ALIGN WORD
003320  1806            3855          JNE   RFRD                 RETURN IF NOT
003322  402C 3348 0800  3856          OWI   X'0800',RSPWD        SET BIT 04 IN RESPONSE WORD (*EOB)
003328  4020 3338 3826  3857          MVA   EOBRCV,RSPCODE       *
                        3858 *-------------------
                        3859 *-------
003328  6F08 3338       3860 RFRD     MVW   RSPCODE,R7           IF RSPCODE ZERO, NO VALID DECODE
00332E  1006            3861          JZ    NORSP                JUMP IF NO VALID DECODE
003332  6F03 2EF4       3862 PRESP    BAL   LMSG,R7              PRINT THE RESPONSE
003334  0000            3863 RSPCODE  DC    A(*-*)               (VARIABLE MSG ADDRESS)
003338  80              3864          DC    X'80'                CONTROL FLAG
00333A  402A 3024       3865          LMB   REGSAV               RETURN TO CALLER
00333C  4020 3338 37E6  3866 NORSP    MVA   E8B0,RSPCODE         PRINT '*?' MESSAGE TO INDICATE NONE
003340  50F6            3867          J     PRESP                *
                        3868 *-------------------------------------------------------------------
003346  0000            3869 RSPWD    DC    A(*-*)               RESPONSE WORD
                        3870 ********************************************************************
                        3871 * SUBROUTINE
                        3872 *      NAME  -   PRNTBUF
                        3873 *      PURPOSE   - PRINT FIRST 50 BYTES OF RECEIVE BUFFER
                        3874 *
                        3875 *      CALL :   BAL  PRNTBUF,R7
                        3876 ********************************************************************
00334A  4028 3024 C000  3877 PRNTBUF  STM   R6,REGSAV            PRINT 1ST 50 BYTES OF RBUF
                        3878          MSK   FIELD1,IE,00         *
003350  6F03 2E70       3879+         BAL   MSK,R7         START ADDR, END ADDR, BYTE VALUE TO STORE
003354  379637D5        3880+         DC    A(FIELD1,IE)
003358  00              3881+         DC    X'00'
003359  00              3882+         ALIGN WORD
                        3883          HTE   RBUF,FIELD1,25       *
00335A  6F03 2F84       3884+         BAL   HTE,R7               CVT HEX TO EBCDIC  (1:2)
00335E  384237960019    3885+         DC    A(RBUF,FIELD1,25)    FROM ADDR, TO ADDR, SOURCE BYTE COUNT
                        3886          MSG   FIELD1,80            *
003364  6F03 2EFC       3887+         BAL   MSG,R7               GENERAL DISPLAY MESSAGE
003368  3796            3888+         DC    A(FIELD1)            MSG ADDR,FLAG
00336A  80              3889+         DC    X'80'
00336B  00              3890+         ALIGN WORD
                        3891          MSK   FIELD1,IE,00         *
00336C  6F03 2E70       3892+         BAL   MSK,R7         START ADDR, END ADDR, BYTE VALUE TO STORE
003370  379637D5        3893+         DC    A(FIELD1,IE)
003374  00              3894+         DC    X'00'
003375  00              3895+         ALIGN WORD
                        3896          HTE   RBUF+25,FIELD1,25    *
003376  6F03 2F84       3897+         BAL   HTE,R7               CVT HEX TO EBCDIC  (1:2)
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 LOCTR  OBJECT TEXT   STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                      3898+         DC    A(RBUF+25,FIELD1,25)                                      X
                      3899          MSG   FIELD1,80                 *
003380  6F03 2EFC     3900+         BAL   MSG,R7                    GENERAL DISPLAY MESSAGE
003384  3796          3901+         DC    A(FIELD1)                 MSG ADDR,FLAG
003386  80            3902+         DC    X'80'
003387  00            3903+         ALIGN WORD
003388  402A 3024     3904          LMB   REGSAV                    RESTORE REGS AND RETURN TO CALLER
                      3906 ************************************************************
                      3907 * SUBROUTINE
                      3908 *     NAME  -     XMITRCV - TRANSMIT AND CHAIN TO RECEIVE
                      3909 *     PURPOSE   - TO START CYCLE STEAL TRANSMIT OF DATA AND TO CHAIN
                      3910 *                 TO RECEIVE.
                      3911 *
                      3912 *       CALL :    BAL  XMITRCV,R7
                      3913 *                   DC   A(*-*)       ADDRESS OF DATA TO TRANSMIT
                      3914 *                   DC   A(*-*)       CHAIN ADDRESS
                      3915 ************************************************************
00338C  6EE8 0000     3916 XMITRCV  MVW   (R7),R6                 GET ADDRESS OF DATA
003390  6E0D 2478     3917          MVW   R6,DATADDR              DATA ADDR INTO DCB
003394  6EC8 FFFE     3918          MVW   (R6,-2),R6              GET BYTE COUNT
003398  6E0D 2476     3919          MVW   R6,DATACNT              BYTE COUNT INTO DCB
00339C  6EE8 0002     3920          MVW   (R7,2),R6               STORE CHAIN ADDRESS IN DCB
0033A0  6E0D 2474     3921          MVW   R6,CHAINAD                *
0033A4  7FE1 0004     3922          AWI   4,R7                    STEP PAST DC'S
0033A8  4028 3024 C000 3923         STM   R6,REGSAV               SAVE REGISTERS IN STACK
                      3924          HTE   DATADDR,XSAV,2          CONVERT DATA ADDR TO HEX AND STORE
0033AE  6F03 2F84     3925+         BAL   HTE,R7                  CVT HEX TO EBCDIC  (1:2)
0033B2  247834180002  3926+         DC    A(DATADDR,XSAV,2)       FROM ADDR, TO ADDR, SOURCE BYTE COUNT
                      3927 *--------------------
0033B8  6F03 29C4     3928          BAL   LOGT,R7                 LOG XMIT DATA
0033BC  4020 374C E7E2 3929         MVWI  C'XS',E89E              'STORE ENGLISH WORD
0033C2  4020 374E C9D6 3930         MVWI  C'IO',E89E+2            'XSIO' IN MESSAGE TO IDENTIFY ERRORS
                      3931          MOV   XSAV,XSAV+3,XADDR       MOVE DATA ADDR INTO MSG FOR PRINT
0033C8  6F03 2FB4     3932+         BAL   MOV,R7                    MOVE BYTES. STRT ADDR, END ADDR, TO ADDR.
0033CC  3418341B3750  3933+         DC    A(XSAV,XSAV+3,XADDR)
0033D2  6F03 2EEA     3934 SVC3     TMSG  E89E,80                 DISPLAY COMMAND
0033D6  374C          3935+SVC3     BAL   TMSG,R7                 SVC TRACE MESSAGES (DIAGNOSTIC)
0033D8  80            3936+         DC    A(E89E)                 OPTN1 BIT 11 ON TO DISPLAY
0033D9  00            3937+         DC    X'80'
                      3938+         ALIGN WORD
0033DA  CF25 3750     3939          MVWZ  XADDR,R7                CLEAR XADDR SO NO PRINT BEFORE XMIT
                      3940          MSK   RBUF,RBUFEND,00         CLEAR RCV BUFFER
0033DE  6F03 2E70     3941+         BAL   MSK,R7          START ADDR, END ADDR, BYTE VALUE TO STORE
0033E2  3842390A      3942+         DC    A(RBUF,RBUFEND)
0033E6  00            3943+         DC    X'00'
0033E7  00            3944+         ALIGN WORD
0033E8  CF25 244E     3945          MVWZ  STATUS0,R7              LAST ADDR ACCESSED
0033EC  402C 246A 8000 3946         OWI   X'8000',TRDCB           SET CHAIN BIT ON IN CONTROL WORD
0033F2  4020 2446 246A 3947         MVA   TRDCB,DATAWORD          DCB ADDR IN OIO CONTROL BLOCK
                      3948 *--------------------
0033F8  4020 2B46 33D2 3949         MVA   SVC3,OIO7       SAVE RETURN ADDRESS FOR OIOCC=1
0033FE  4724 2442     3950          MVA   CTRLBLOK,R7             SET UP FOR SVC
003402  600A          3951          SVC   START                   BEGIN CYCLE STEAL XMIT
                      3952          WINTS 56000                   GO WAIT FOR INTERRUPT
003404  6F03 2D56     3953+         BAL   WINTS,R7                DELAY SECONDS, WAIT FOR INT.
003408  DAC0          3954+         DC    A(56000)                RETURN ONLY IF INT OCCURED IN TIME.
                      3955 *--------------------
00340A  6F03 2990     3956          BAL   LOGR,R7                 LOG THE DATA RECEIVED
00340E  6F03 324A     3957          BAL   DRESP,R7                DECODE LAST RESPONSE
003412  402A 3024     3958          LMB   REGSAV                  RESTORE REGS AND RETURN ON R7
                      3959 *--------------------
                      3960 ************************************************************
                      3961 *     NAME  -       START I/O SUBROUTINE
                      3962 *     PURPOSE   -   TO BUILD APPROPRIATE DCB'S FOR THE VARIOUS
                      3963 *                   START I/O COMMANDS AND TO EXECUTE THE COMMAND VIA
                      3964 *                   THE OIO SUBROUTINE.
                      3965 *       CALLING SEQUENCE  -    FOUR ENTRY POINTS
                      3966 *                              (1)  BAL    XMIT,R7   TRANSMIT DATA
                      3967 *                              (2)  BAL    DISAB,R7  DISABLE TERMINAL
                      3968 *                              (3)  BAL  RECEIVE,R7  RECEIVE WITH TIMEOUT
                      3969 *                              (4)  BAL    ENABL,R7  ENABLE WITHOUT T.O.
                      3970 *       RETURN  -   RETURN TO NEXT SEQUENTIAL ADDRESS
003416  0000          3971 XDEND    DC    A(*-*)                  ADDRESS WHERE BYTE FOUND IN SCANB/W
003418  00000000      3972 XSAV     DC    2A(*-*)                 STORE XMIT DATA ADDRESS
                      3973 ************************************************************
00341C  6EE8 0000     3974 XMIT     MVW   (R7),R6                 GET ADDRESS OF DATA
003420  6E0D 2478     3975          MVW   R6,DATADDR              DATA ADDR INTO  DCB
003424  6EC8 FFFE     3976          MVW   (R6,-2),R6              GET BYTE COUNT
003428  6E0D 2476     3977          MVW   R6,DATACNT              BYTE COUNT INTO DCB
00342C  7FE1 0002     3978          AWI   2,R7                    STEP PAST DC'S
003430  4028 3024 C000 3979         STM   R6,REGSAV               SAVE REGISTERS IN STACK
                      3980          HTE   DATADDR,XSAV,2          CONVERT DATA ADDR TO HEX AND STORE
003436  6F03 2F84     3981+         BAL   HTE,R7                  CVT HEX TO EBCDIC  (1:2)
00343A  247834180002  3982+         DC    A(DATADDR,XSAV,2)       FROM ADDR, TO ADDR, SOURCE BYTE COUNT
003440  4020 374C E7E2 3983         MVWI  C'XS',E89E              STORE ENGLISH WORD
003446  4020 374E C9D6 3984         MVWI  C'IO',E89E+2            'XSIO' IN MESSAGE TO IDENTIFY ERRORS
                      3985          MOV   XSAV,XSAV+3,XADDR       MOVE DATA ADDR INTO MSG FOR PRINT
00344C  6F03 2FB4     3986+         BAL   MOV,R7                    MOVE BYTES. STRT ADDR, END ADDR, TO ADDR.
003450  3418341B3750  3987+         DC    A(XSAV,XSAV+3,XADDR)
003456  6F03 2EEA     3988 SVC4     TMSG  E89E,80                 DISPLAY COMMAND
00345A  374C          3989+SVC4     BAL   TMSG,R7                 SVC TRACE MESSAGES (DIAGNOSTIC)
00345C  80            3990+         DC    A(E89E)                 OPTN1 BIT 11 ON TO DISPLAY
00345D  00            3991+         DC    X'80'
00345E  CF25 3750     3992+         ALIGN WORD
003462  6F03 29C4     3993          MVWZ  XADDR,R7                CLEAR XADDR SO NO PRINT BEFORE XMIT
                      3994          BAL   LOGT,R7                 LOG XMIT DATA
003466  6F03 2E70     3995          MSK   RBUF,RBUFEND,00         CLEAR RCV BUFFER
00346A  3842390A      3996+         BAL   MSK,R7          START ADDR, END ADDR, BYTE VALUE TO STORE
00346E  00            3997+         DC    A(RBUF,RBUFEND)
00346F  00            3998+         DC    X'00'
003470  CF25 244E     3999+         ALIGN WORD
003474  6F08 246A     4000          MVWZ  STATUS0,R7              LAST ADDR ACCESSED
003478  7FE0 7FFF     4001          MVW   TRDCB,R7                TURN OFF CHAIN BIT IN CONTROL WORD
00347C  6F0D 246A     4002          NWI   X'7FFF',R7              *
003480  4020 2446 246A 4003         MVW   R7,TRDCB                *
003486  4020 2B46 3456 4004         MVA   TRDCB,DATAWORD          DCB ADDR IN OIO CONTROL BLOCK
00348C  4724 2442     4005          MVA   SVC4,OIO7               SAVE RETURN ADDRESS FOR OIOCC=1
003490  600A          4006          MVA   CTRLBLOK,R7             SET UP FOR SVC
                      4007          SVC   START                   BEGIN CYCLE STEAL XMIT
                      4008          WINT  21000                   GO WAIT FOR INTERRUPT 21 SECONDS
003492  6F03 2C00     4009+         BAL   WINT,R7                 DELAY MILLISECONDS, WAIT FOR INT.
003496  5208          4010+         DC    A(21000)                RETURN ONLY IF INT OCCURED IN TIME.
                      4011 *--------------------
003498  402C 246A 8000 4012         OWI   X'8000',TRDCB           SET CHAIN BIT ON IN CONTROL WORD
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 LOCTR  OBJECT TEXT   STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
00349E  402A 3024     4013          LMB   REGSAV                  RESTORE REGS AND RETURN ON R7
                      4014 *--------------------
                      4015 ************************************************************
                      4016 *           RECEIVE WITH TIMEOUT - WAIT MILLISECONDS
                      4017 ************************************************************
0034A2  4028 3024 C000 4018 RECEIVE   STM   R6,REGSAV               SAVE THE CALLERS REGISTERS
0034A8  4020 374C D9E2 4019          MVWI  C'RS',E89E               STORE ENGLISH WORD
0034AE  4020 374E C9D6 4020          MVWI  C'IO',E89E+2             'RSIO' IN MESSAGE TO IDENTIFY ERRORS
                      4021 SVC5     TMSG  E89E,80                  DISPLAY COMMAND
0034B4  6F03 2EEA     4022+SVC5     BAL   TMSG,R7                  SVC TRACE MESSAGES (DIAGNOSTIC)
0034B8  374C          4023+         DC    A(E89E)                  OPTN1 BIT 11 ON TO DISPLAY
0034BA  80            4024+         DC    X'80'
0034BB  00            4025+         ALIGN WORD
0034BC  6F03 2E70     4026          MSK   RBUF,RBUFEND,00          CLEAR RCV BUFFER
0034C0  3842390A      4027+         BAL   MSK,R7          START ADDR, END ADDR, BYTE VALUE TO STORE
0034C4  00            4028+         DC    A(RBUF,RBUFEND)
0034C5  00            4029+         DC    X'00'
0034C6  CF25 244E     4030+         ALIGN WORD
0034CA  4020 2B46 34B4 4031          MVWZ  STATUS0,R7               LAST ADDR ACCESSED
0034D0  4724 2442     4032          MVA   SVC5,OIO7       SAVE RETURN ADDRESS FOR OIOCC=1
0034D4  600A          4033          MVA   CTRLBLOK,R7              SET UP FOR SVC CALL
                      4034          SVC   START                    START RCV
                      4035          WINT  21000                    GO WAIT FOR INTERRUPT  21 SECONDS
0034D6  6F03 2C00     4036+         BAL   WINT,R7                  DELAY MILLISECONDS, WAIT FOR INT.
0034DA  5208          4037+         DC    A(21000)                 RETURN ONLY IF INT OCCURED IN TIME.
0034DC  CF25 250A     4038          MVWZ  XMNAKFL,R7               NAK SENT?
0034E0  18E0          4039          JNZ   RECEIVE                  IF SO, RECEIVE AGAIN
0034E2  6F03 2990     4040          BAL   LOGR,R7                  LOG THE DATA RECEIVED
0034E6  6F03 324A     4041          BAL   DRESP,R7                 DECODE LAST RESPONSE
0034EA  402A 3024     4042          LMB   REGSAV                   RESTORE REGS AND RETURN ON R7
                      4043 ************************************************************
                      4044 *           RECEIVE WITH TIMEOUT - WAIT SECONDS
                      4045 ************************************************************
0034EE  4028 3024 C000 4046 RECV      STM   R6,REGSAV               SAVE THE CALLERS REGISTERS
0034F4  4020 374C D9E2 4047          MVWI  C'RS',E89E               STORE ENGLISH WORD
0034FA  4020 374E C9D6 4048          MVWI  C'IO',E89E+2             'RSIO' IN MESSAGE TO IDENTIFY ERRORS
                      4049 SVC6     TMSG  E89E,80                  DISPLAY COMMAND
003500  6F03 2EEA     4050+SVC6     BAL   TMSG,R7                  SVC TRACE MESSAGES (DIAGNOSTIC)
003504  374C          4051+         DC    A(E89E)                  OPTN1 BIT 11 ON TO DISPLAY
003506  80            4052+         DC    X'80'
003507  00            4053+         ALIGN WORD
                      4054          MSK   RBUF,RBUFEND,00          CLEAR RCV BUFFER
003508  6F03 2E70     4055+         BAL   MSK,R7          START ADDR, END ADDR, BYTE VALUE TO STORE
00350C  3842390A      4056+         DC    A(RBUF,RBUFEND)
003510  00            4057+         DC    X'00'
003511  00            4058+         ALIGN WORD
003512  CF25 244E     4059          MVWZ  STATUS0,R7               LAST ADDR ACCESSED
003516  4020 2B46 3500 4060          MVA   SVC6,OIO7       SAVE RETURN ADDRESS FOR OIOCC=1
00351C  4724 2442     4061          MVA   CTRLBLOK,R7              SET UP FOR SVC CALL
003520  600A          4062          SVC   START                    START RCV
                      4063          WINTS 9000                     GO WAIT FOR INTERRUPT
003522  6F03 2D56     4064+         BAL   WINTS,R7                 DELAY SECONDS, WAIT FOR INT.
003526  2328          4065+         DC    A(9000)                  RETURN ONLY IF INT OCCURED IN TIME.
003528  CF25 250A     4066          MVWZ  XMNAKFL,R7               DID WE SEND NAK?
00352C  18E0          4067          JNZ   RECV                     IF SO, RECEIVE AGAIN
00352E  6F03 2990     4068          BAL   LOGR,R7                  LOG THE DATA RECEIVED
003532  6F03 324A     4069          BAL   DRESP,R7                 DECODE LAST RESPONSE
003536  402A 3024     4070          LMB   REGSAV                   RESTORE REGS AND RETURN ON R7
                      4071 ************************************************************
                      4072 *     NAME  -     DTR ENABLE SUBROUTINE
                      4073 *     PURPOSE   -  TO ENABLE DTR
                      4074 *
                      4075 *     RETURN  -  RETURN TO NEXT SEQUENTIAL ADDRESS
                      4076 ************************************************************
003538  4028 3024 C000 4077 DTREN     STM   R6,REGSAV               SAVE REGS
003540  6F03 2BC8     4078          BAL   CSTAT,R7                 GET STATUS WORDS
003544  402B 2452 C000 4079          TWI   X'C000',STATUS2          SEE IF DTR/DSR ON
00354A  121C          4080          JN    DTRRET                   RETURN IF SO
                      4081          MSG   E89AF,80                 DSR NOT READY MSG
00354C  6F03 2EFC     4082+         BAL   MSG,R7                   GENERAL DISPLAY MESSAGE
003550  37DA          4083+         DC    A(E8AF)                  MSG ADDR,FLAG
003552  80            4084+         DC    X'80'
003553  00            4085+         ALIGN WORD
003554  4020 374C C5C4 4086          MVWI  C'ED',E89E               STORE ENGLISH WORD
00355A  4020 374E E3D9 4087          MVWI  C'TF',E89E+2             'EDTR' IN MESSAGE TO IDENTIFY ERRORS
                      4088 SVC7     TMSG  E89E,80                            DISPLAY OF CMD TO ATTEMPT
003560  6F03 2EEA     4089+SVC7     BAL   TMSG,R7                  SVC TRACE MESSAGES (DIAGNOSTIC)
003564  374C          4090+         DC    A(E89E)                  OPTN1 BIT 11 ON TO DISPLAY
003566  80            4091+         DC    X'80'
003567  00            4092+         ALIGN WORD
003568  4020 24BA 0008 4093          MVWI  8,DTRDCB                 DTR ENABLE WITHOUT TIME OUT
00356E  4020 2446 24BA 4094          MVA   DTRDCB,DATAWORD          DCB ADDR IN OIO CONTROL BLOCK
003574  4020 2B46 3560 4095          MVA   SVC7,OIO7       SAVE RETURN ADDRESS FOR OIOCC=1
00357A  4724 2442     4096          MVA   CTRLBLOK,R7              CONTROL BLOCK ADDRESS
                      4097 *--------------------
00357E  600A          4098          SVC   STAPT                    DATA TERMINAL READY
003580  6F03 30BA     4099          BAL   TMR,R7                   GO WAIT 5 MIN FOR DSR INTRPT
003584  402A 3024     4100 DTRRET   LMB   REGSAV                   RESTORE REGS AND RETURN
                      4101 ************************************************************
                      4102 * SUBROUTINE
                      4103 *     NAME  -     READ ID
                      4104 *
                      4105 *     READ ID
                      4106 ************************************************************
003588  4028 3024 C000 4106 READID    STM   R6,REGSAV      SAVE THE CALLERS REGISTERS
00358E  4020 374C D9C4 4107          MVWI  C'RD',E89E               STORE ENGLISH WORD
003594  4020 374E C9C4 4108          MVWI  C'ID',E89E+2             'RDID' IN MESSAGE TO IDENTIFY ERRORS
                      4109          TMSG  E89E,80                  DISPLAY OF CMD TO ATTEMPT
00359A  6F03 2EEA     4110+         BAL   TMSG,R7                  SVC TRACE MESSAGES (DIAGNOSTIC)
0035A0  374C          4111+         DC    A(E89E)                  OPTN1 BIT 11 ON TO DISPLAY
0035A1  00            4112+         DC    X'80'
0035A2  CF25 2446     4113+         ALIGN WORD
0035A6  4724 2442     4114          MVWZ  DATAWORD,R7              CLEAR CONTROL WORD
0035AA  6009          4115          MVA   CTRLBLOK,R7              CONTROL BLOCK ADDRESS
0035AC  402A 3024     4116          SVC   RID                      READ DEVICE ID
                      4117          LMB   REGSAV                   RESTORE REGS AND RETURN
                      4118 ************************************************************
                      4119 * SUBROUTINE TO PRINT ROUTINE/CHECKPOINT
                      4120 ************************************************************
0035B0  4028 3024 C000 4121 CPMSG     STM   R6,REGSAV      SAVE THE CALLERS REGISTERS
                      4122          HTE   RTNE+1,RTNUM,1    SET UP ROUTINE NUMBER IN MSG
0035B6  6F03 2F84     4123+         BAL   HTE,R7                   CVT HEX TO EBCDIC  (1:2)
0035BA  180B364C0001  4124+         DC    A(RTNE+1,RTNUM,1)        FROM ADDR, TO ADDR, SOURCE BYTE COUNT
                      4125          HTE   CKPT+1,CPMCT,1    SET UP CHECKPOINT IN MSG
0035C0  6F03 2F84     4126+         BAL   HTE,R7                   CVT HEX TO EBCDIC  (1:2)
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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
0035C4  180D36540001      4127+         DC    A(CKPT+1,CPMCT,1)   FROM ADDR, TO ADDR, SOURCE BYTE COUNT
                          4128          MSG   E886,80            PRINT MSG
0035CA  6F03 2EFC         4129+         BAL   MSG,R7                GENERAL DISPLAY MESSAGE
0035CE  3648              4130+         DC    A(E886)               MSG ADDR,FLAG
0035D0  80                4131+         DC    X'80'
0035D1  00                4132+         ALIGN WORD
0035D2  402A 3024         4133          LMB   REGSAV              RESTORE REGS AND RETURN
                          4134 **********************************************************************
                          4136          ALIGN WORD
                          4137 *-------------------------------------------------------------------------
                          4138 *     MSG   E880  NOT USED
                          4139 *-------------------------------------------------------------------------
0035D6  E881              4140          DC    X'E881'
0035D8  E3D9C1D5E2D4C9E34 4141 E881     DC    C'TRANSMIT CONTROL?'
                          4142          ALN
0035E9  00                4143+         DC    X'00'                                  MSG TERMINATOR
                          4144+*-------------------------------------------------------------------------*
                          4145+         ALIGN WORD
                          4146 *-------------------------MSG
0035EA  E882              4147          DC    X'E882'
0035EC  C3D6D9D9C5E2D7D6D 4148 E882     DC    C'CORRESPONDENCE?'
                          4149          ALN
0035FB  00                4150+         DC    X'00'                                  MSG TERMINATOR
                          4151+*-------------------------------------------------------------------------*
                          4152+         ALIGN WORD
                          4153 *-------------------------MSG
0035FC  E883              4154          DC    X'E883'
0035FE  C2E4C6C6C5D9C5C44 4155 E883     DC    C'BUFFERED RECEIVE?'
                          4156          ALN
00360F  00                4157+         DC    X'00'                                  MSG TERMINATOR
                          4158+*-------------------------------------------------------------------------*
                          4159+         ALIGN WORD
                          4160 *-------------------------MSG
003610  E884              4161          DC    X'E884'
003612  D6D7E3C9D6D5E240  4162 OPTNS    DC    C'OPTIONS '           OPTION 1 REQUESTED
00361A  E7E7E7E7          4163 OPTPRT   DC    C'XXXX'               OPTION 1 AS ENTERED
                          4164          ALN
00361E  00                4165+         DC    X'00'                                  MSG TERMINATOR
                          4166+*-------------------------------------------------------------------------*
00361F  00                4167+         ALIGN WORD
                          4168 *-------------------------MSG
003620  E885              4169          DC    X'E885'
003622  C5D5C440D5D6E340C 4170 E885     DC    C'END NOT FOUND AFTER 130 CHARACTERS'
                          4171          ALN
003644  00                4172+         DC    X'00'                                  MSG TERMINATOR
                          4173+*-------------------------------------------------------------------------*
003645  00                4174+         ALIGN WORD
                          4175 *-------------------------MSG
003646  E886              4176          DC    X'E886'
003648  D9E3D560          4177 E886     DC    C'RTN-'
00364C  6060              4178 RTNUM    DC    C'--'
00364E  40C3D2D7E360      4179          DC    C' CKPT-'
003654  6060              4180 CPMCT    DC    C'--'
                          4181          ALN
003656  00                4182+         DC    X'00'                                  MSG TERMINATOR
                          4183+*-------------------------------------------------------------------------*
003657  00                4184+         ALIGN WORD
                          4185 *-------------------------MSG
003658  E887              4186          DC    X'E887'
00365A  C2D7E2            4187 E887     DC    C'BPS'          ENTER BPS RATE
                          4188          ALN
00365D  00                4189+         DC    X'00'                                  MSG TERMINATOR
                          4190+*-------------------------------------------------------------------------*
                          4191+         ALIGN WORD
                          4192 *-------------------------MSG
00365E  E888              4193          DC    X'E888'
003660  C4C5E5C1C4C4      4194 E888     DC    C'DEVADD'                DEVICE ADDRESS
                          4195          ALN
003666  00                4196+         DC    X'00'                                  MSG TERMINATOR
                          4197+*-------------------------------------------------------------------------*
003667  00                4198+         ALIGN WORD
                          4199 *-------------------------MSG
003668  E889              4200          DC    X'E889'
00366A  F2F7F4F060F26F    4201 E889     DC    C'2740-2?'
                          4202          ALN
003671  00                4203+         DC    X'00'                                  MSG TERMINATOR
                          4204+*-------------------------------------------------------------------------*
                          4205+         ALIGN WORD
                          4206 *-------------------------MSG
003672  E88A              4207          DC    X'E88A'
003674  F2F7F4F060F16F    4208 E88A     DC    C'2740-1?'
                          4209          ALN
00367B  00                4210+         DC    X'00'                                  MSG TERMINATOR
                          4211+*-------------------------------------------------------------------------*
                          4212+         ALIGN WORD
                          4213 *-------------------------MSG
00367C  E88B              4214          DC    X'E88B'
00367E  E2E3C1E3C9D6D540C 4215 E88B     DC    C'STATION CONTROL?'
                          4216          ALN
00368E  00                4217+         DC    X'00'                                  MSG TERMINATOR
                          4218+*-------------------------------------------------------------------------*
00368F  00                4219+         ALIGN WORD
                          4220 *-------------------------MSG
003690  E88C              4221          DC    X'E88C'
003692  C3C6C9C7          4222 E88C     DC    C'CFIG'           CONFIGURATION HEADER
                          4223          ALN
003696  00                4224+         DC    X'00'                                  MSG TERMINATOR
                          4225+*-------------------------------------------------------------------------*
003697  00                4226+         ALIGN WORD
                          4227 *-------------------------MSG
003698  E88D              4228          DC    X'E88D'
00369A  D9C5C3D6D9C440C3C 4229 E88D     DC    C'RECORD CHECKING?'
                          4230          ALN
0036AA  00                4231+         DC    X'00'                                  MSG TERMINATOR
                          4232+*-------------------------------------------------------------------------*
0036AB  00                4233+         ALIGN WORD
                          4234 *-------------------------MSG
0036AC  E88E              4235          DC    X'E88E'
0036AE  E3C5D9D440C1C4C4D 4236 E88E     DC    C'TERM ADDR'
                          4237          ALN
0036B7  00                4238+         DC    X'00'                                  MSG TERMINATOR
                          4239+*-------------------------------------------------------------------------*
                          4240+         ALIGN WORD
                          4241 *-------------------------MSG
```



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 LOCTR  OBJECT TEXT        STMT SOURCE STATEMENT                                  COPYRIGHT IBM CORP 1976
                          4242 *-------------------------------------------------------------------------
                          4243 *     MSG   E88F  NOT USED
                          4244 *-------------------------------------------------------------------------
0036B8  E890              4245          DC    X'E890'
0036BA  D9C5E2E3D6D9C540E 4246 E890     DC    C'RESTORE SYS AND RUN DIAGNOSTICS'
                          4247          ALN
0036D9  00                4248+         DC    X'00'                                  MSG TERMINATOR
                          4249+*-------------------------------------------------------------------------*
                          4250+         ALIGN WORD
                          4251 *-------------------------MSG
0036DA  E891              4252          DC    X'E891'
0036DC  F540D4C9D540C1D5C 4253 E891     DC    C'5 MIN AND NO DSR'
                          4254          ALN
0036EC  00                4255+         DC    X'00'                                  MSG TERMINATOR
                          4256+*-------------------------------------------------------------------------*
0036ED  00                4257+         ALIGN WORD
                          4258 *-------------------------MSG
                          4259 *-------------------------------------------------------------------------
                          4260 *     MSG   E892  NOT USED
                          4261 *-------------------------------------------------------------------------
0036EE  E893              4262          DC    X'E893'
0036F0  D9C3E540C4C1E3C14 4263 E893     DC    C'RCV DATA NOT YAK OR NAK, WAS'
                          4264          ALN
00370C  00                4265+         DC    X'00'                                  MSG TERMINATOR
                          4266+*-------------------------------------------------------------------------*
00370D  00                4267+         ALIGN WORD
                          4268 *-------------------------MSG
00370E  E894              4269          DC    X'E894'
003710  C5D9D940C3D6E4D5E 4270 E894     DC    C'ERR COUNT = '     ERROR COUNTER
00371C  F0F0F0F0          4271 E894A    DC    C'0000'
                          4272          ALN
003720  00                4273+         DC    X'00'                                  MSG TERMINATOR
                          4274+*-------------------------------------------------------------------------*
003721  00                4275+         ALIGN WORD
                          4276 *-------------------------MSG
003722  E895              4277          DC    X'E895'
003724  D9C5C1C440C9C440C 4278 E895     DC    C'READ ID ERR'      READ IDENT ERROR
00372F  40D9C3E5C440      4279          DC    C' RCVD '
003735  F0F0F0F0          4280 E895A    DC    C'0000'
                          4281          ALN
003739  00                4282+         DC    X'00'                                  MSG TERMINATOR
                          4283+*-------------------------------------------------------------------------*
                          4284+         ALIGN WORD
                          4285 *-------------------------MSG
                          4286 *-------------------------------------------------------------------------
                          4287 *     MSG   E896  NOT USED
                          4288 *-------------------------------------------------------------------------
                          4289 *     MSG   E897  NOT USED
                          4290 *-------------------------------------------------------------------------
00373A  E898              4291          DC    X'E898'
00373C  C9D5E5C1D3C9C440C 4292 E898     DC    C'INVALID ENTRY'
                          4293          ALN
003749  00                4294+         DC    X'00'                                  MSG TERMINATOR
                          4295+*-------------------------------------------------------------------------*
                          4296+         ALIGN WORD
                          4297 *-------------------------MSG
                          4298 *-------------------------------------------------------------------------
                          4299 *     MSG   E899  NOT USED
                          4300 *-------------------------------------------------------------------------
                          4301 *     MSG   E89A  NOT USED
                          4302 *-------------------------------------------------------------------------
                          4303 *     MSG   E89B  NOT USED
                          4304 *-------------------------------------------------------------------------
                          4305 *     MSG   E89C  NOT USED
                          4306 *-------------------------------------------------------------------------
                          4307 *     MSG   E89D  NOT USED
                          4308 *-------------------------------------------------------------------------
00374A  E89E              4309          DC    X'E89E'
00374C  60606060          4310 E89E     DC    C'----'          4 CHARACTER UTILITY DISPLAY AREA
003750  60606060          4311 XADDR    DC    C'----'          HEX ADDRESS FOR 'XSIO' ONLY
                          4312          ALN
003754  00                4313+         DC    X'00'                                  MSG TERMINATOR
                          4314+*-------------------------------------------------------------------------*
003755  00                4315+         ALIGN WORD
                          4316 *-------------------------MSG
003756  E89F              4317          DC    X'E89F'
003758  D5D640C9D5E3      4318 E89F     DC    C'NO INT'
                          4319          ALN
00375E  00                4320+         DC    X'00'                                  MSG TERMINATOR
                          4321+*-------------------------------------------------------------------------*
00375F  00                4322+         ALIGN WORD
                          4323 *-------------------------MSG
                          4324 *-------------------------------------------------------------------------
                          4325 *     MSG   E8A0  NOT USED
                          4326 *-------------------------------------------------------------------------
003760  E8A1              4327          DC    X'E8A1'
003762  D5D640C1E3E3C1C3C 4328 NAT      DC    C'NO ATTACH'
                          4329          ALN
00376B  00                4330+         DC    X'00'                                  MSG TERMINATOR
                          4331+*-------------------------------------------------------------------------*
                          4332+         ALIGN WORD
                          4333 *-------------------------MSG
00376C  E8A2              4334          DC    X'E8A2'
00376E  C9E2C27E          4335 E8A2     DC    C'ISB='               INTERRUPT STATUS BYTE
003772  6060              4336 ISBPRNT  DC    C'--'
                          4337          ALN
003774  00                4338+         DC    X'00'                                  MSG TERMINATOR
                          4339+*-------------------------------------------------------------------------*
003775  00                4340+         ALIGN WORD
                          4341 *-------------------------MSG
003776  E8A3              4342          DC    X'E8A3'
003778  C9D5E3C3C37E      4343 E8A3     DC    C'INTCC='                CC INTERRUPT ERROR
00377E  6060              4344 INTCCVT  DC    C'--'
                          4345          ALN
003780  00                4346+         DC    X'00'                                  MSG TERMINATOR
                          4347+*-------------------------------------------------------------------------*
003781  00                4348+         ALIGN WORD
                          4349 *-------------------------MSG
003782  E8A4              4350          DC    X'E8A4'
003784  D6C9D6C3C37E      4351 E8A4     DC    C'OIOCC='                OIO CONDITION CODE ERROR
00378A  6060              4352 OIOCCVT  DC    C'--'
                          4353          ALN
00378C  00                4354+         DC    X'00'                                  MSG TERMINATOR
                          4355+*-------------------------------------------------------------------------*
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

00378D  00              4356+         ALIGN WORD
                        4357 *-------------------------MSG
00378E  E8A5            4358          DC    X'E8A5'
003790  D9C4E8          4359 E8A5     DC    C'RDY'
                        4360          ALN
003793  00              4361+         DC    X'00'                                MSG TERMINATOR
                        4362+*-------------------------------------------------------------------*
                        4363+         ALIGN WORD
                        4364 *-------------------------MSG
                        4365 *-------------------------------------------------------------------
                        4366 *     MSG   E8A6  NOT USED
                        4367 *-------------------------------------------------------------------
                        4368 *     MSG   E8A7  NOT USED
                        4369 *-------------------------------------------------------------------
                        4370 *     MSG   E8A8  NOT USED
                        4371 *-------------------------------------------------------------------
                        4372 *     MSG   E8A9  NOT USED
                        4373 *-------------------------------------------------------------------
                        4374 *     MSG   E8AA  NOT USED
                        4375 *-------------------------------------------------------------------
                        4376 *     MSG   E8AB  NOT USED
                        4377 *-------------------------------------------------------------------
003794  E8AC            4378          DC    X'E8AC'
003796                  4379 E8AC     EQU   *                  MULTI USE BUFFER CONFIGURATION MSG
003796                  4380 IBUFF    EQU   *                  OPERATOR INPUT BUFFER
003796  5C5C5C5C5C5C    4381 FIELD1   DC    C'******'          DATA TERMINAL RDY
00379C  5C5C5C5C5C5C    4382 FIELD2   DC    C'******'          DATA SET RDY
0037A2  5C5C5C5C5C5C    4383 FIELD3   DC    C'******'          REQUEST TO SEND
0037A8  5C5C5C5C5C5C    4384 FIELD4   DC    C'******'          CLEAR TO SEND
0037AE  5C5C5C5C5C5C    4385 FIELD5   DC    C'******'          RING INDICATOR
0037B4  5C5C5C5C5C5C    4386 FIELD6   DC    C'******'          RCV MODE
0037BA  5C5C5C5C5C5C    4387 FIELD7   DC    C'******'          XMIT MODE
0037C0  5C5C5C5C5C5C    4388 FIELD8   DC    C'******'          # LINES IF MULTILINE
0037C6  5C5C5C5C5C5C    4389 FIELD9   DC    C'******'
0037CC  5C5C5C5C5C5C    4390 FIELD10  DC    C'******'
0037D2  5C5C5C          4391 FLAGEND  DC    C'***'             END OF GROUP (64 CHARACTERS MAX)
0037D5  5C              4392 IE       DC    C'*'
                        4393          ALN
0037D6  00              4394+         DC    X'00'                                MSG TERMINATOR
                        4395+*-------------------------------------------------------------------*
0037D7  00              4396+         ALIGN WORD
                        4397 *-------------------------MSG
                        4398 *-------------------------------------------------------------------
                        4399 *     MSG   E8AD  NOT USED
                        4400 *-------------------------------------------------------------------
                        4401 *     MSG   E8AE  NOT USED
                        4402 *-------------------------------------------------------------------
0037D8  E8AF            4403          DC    X'E8AF'
0037DA  C44BE24BD5D9C4E8 4404 E8AF    DC    C'D.S.NRDY'        DATA SET NOT READY
                        4405          ALN
0037E2  00              4406+         DC    X'00'                                MSG TERMINATOR
                        4407+*-------------------------------------------------------------------*
0037E3  00              4408+         ALIGN WORD
                        4409 *-------------------------MSG
0037E4  E8B0            4410          DC    X'E8B0'
0037E6  5C6F            4411 E8B0     DC    C'*?'
                        4412          ALN
0037E8  00              4413+         DC    X'00'                                MSG TERMINATOR
                        4414+*-------------------------------------------------------------------*
0037E9  00              4415+         ALIGN WORD
                        4416 *-------------------------MSG
                        4417 *-------------------------------------------------------------------
                        4418 *     MSG   E8B1  NOT USED
                        4419 *-------------------------------------------------------------------
0037EA  E8B2            4420          DC    X'E8B2'
0037EC  E8C1D2          4421 YAKSENT  DC    C'YAK'             XMIT    YAK
                        4422          ALN
0037EF  00              4423+         DC    X'00'                                MSG TERMINATOR
                        4424+*-------------------------------------------------------------------*
                        4425+         ALIGN WORD
                        4426 *-------------------------MSG
0037F0  E8B3            4427          DC    X'E8B3'
0037F2  5CE8C1D2        4428 YAKRCV   DC    C'*YAK'            RECEIVED YAK
                        4429          ALN
0037F6  00              4430+         DC    X'00'                                MSG TERMINATOR
                        4431+*-------------------------------------------------------------------*
0037F7  00              4432+         ALIGN WORD
                        4433 *-------------------------MSG
0037F8  E8B4            4434          DC    X'E8B4'
0037FA  D5C1D2          4435 NAKSENT  DC    C'NAK'             XMIT NEGATIVE ACKNOWLEDGEMENT
                        4436          ALN
0037FD  00              4437+         DC    X'00'                                MSG TERMINATOR
                        4438+*-------------------------------------------------------------------*
0037FE  E8B5            4439+         ALIGN WORD
003800  5CD5C1D2        4440 *-------------------------MSG
                        4441          DC    X'E8B5'
                        4442 NAKRCV   DC    C'*NAK'            RCV NEGATIVE ACKNOWLEDGEMENT
                        4443          ALN
003804  00              4444+         DC    X'00'                                MSG TERMINATOR
                        4445+*-------------------------------------------------------------------*
003805  00              4446+         ALIGN WORD
                        4447 *-------------------------MSG
                        4448 *-------------------------------------------------------------------
                        4449 *     MSG   E8B6  NOT USED
                        4450 *-------------------------------------------------------------------
003806  E8B7            4451          DC    X'E8B7'
003808  5CE3E7E3        4452 TEXTRCV  DC    C'*TXT'            RECEIVE 'TEXT'
                        4453          ALN
00380C  00              4454+         DC    X'00'                                MSG TERMINATOR
                        4455+*-------------------------------------------------------------------*
00380D  00              4456+         ALIGN WORD
                        4457 *-------------------------MSG
00380E  E8B8            4458          DC    X'E8B8'
003810  C5D6E3          4459 EOTSENT  DC    C'EOT'             TRANSMIT 'END OF TRANSMISSION'
                        4460          ALN
003813  00              4461+         DC    X'00'                                MSG TERMINATOR
                        4462+*-------------------------------------------------------------------*
                        4463+         ALIGN WORD
                        4464 *-------------------------MSG
003814  E8B9            4465          DC    X'E8B9'
003816  5CC5D6E3        4466 EOTRCV   DC    C'*EOT'            RECEIVE 'END OF TRANSMISSION'
                        4467          ALN
00381A  00              4468+         DC    X'00'                                MSG TERMINATOR
                        4469+*-------------------------------------------------------------------*
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 LOCTR  OBJECT TEXT      STMT SOURCE STATEMENT                    COPYRIGHT IBM CORP 1976

00381B  00              4470+         ALIGN WORD
                        4471 *-------------------------MSG
                        4472 *-------------------------------------------------------------------
                        4473 *     MSG   E8BA  NOT USED
                        4474 *-------------------------------------------------------------------
00381C  E8BB            4475          DC    X'E8BB'
00381E  5CC5D6C1        4476 EOARCV   DC    C'*EOA'
                        4477          ALN
003822  00              4478+         DC    X'00'                                MSG TERMINATOR
                        4479+*-------------------------------------------------------------------*
003823  00              4480+         ALIGN WORD
                        4481 *-------------------------MSG
003824  E8BC            4482          DC    X'E8BC'
003826  5CC5D6C2        4483 EOBRCV   DC    C'*EOB'
                        4484          ALN
00382A  00              4485+         DC    X'00'                                MSG TERMINATOR
                        4486+*-------------------------------------------------------------------*
00382B  00              4487+         ALIGN WORD
                        4488 *-------------------------MSG
00382C  E8BD            4489          DC    X'E8BD'
00382E  5CD3D9C3        4490 LRCERR   DC    C'*LRC'            RECEIVE 'LRC ERROR'
                        4491          ALN
003832  00              4492+         DC    X'00'                                MSG TERMINATOR
                        4493+*-------------------------------------------------------------------*
003833  00              4494+         ALIGN WORD
                        4495 *-------------------------MSG
003834  E8BE            4496          DC    X'E8BE'
003836  5CE5D9C3        4497 VRCERR   DC    C'*VRC'
                        4498          ALN
00383A  00              4499+         DC    X'00'                                MSG TERMINATOR
                        4500+*-------------------------------------------------------------------*
00383B  00              4501+         ALIGN WORD
                        4502 *-------------------------MSG
00383C  E8BF            4503          DC    X'E8BF'
00383E  5CE2C2          4504 SBERR    DC    C'*SB'
                        4505          ALN
003841  00              4506+         DC    X'00'                                MSG TERMINATOR
                        4507+*-------------------------------------------------------------------*
                        4508+         ALIGN WORD
                        4509 *-------------------------MSG
                        4511 ********************************************************************
003842  00000000000000000 4512 RBUF   DC    200X'00'           RECEIVE DATA BUFFER
00390A  00              4513 RBUFEND  DC    X'00'
00390B  00              4514          ALIGN WORD
                        4515 ********************************************************************
00390C  0000            4516 TEXTCNT  DC    A(*-*)             TEXTSAVE BYTE COUNT
00390E  00000000000000000 4517 TEXTSAVE DC  99X'00'            TEXTSAVE AREA
003971  00              4518 TXE      DC    X'00'              TEXTSAVE AREA
                        4519          ALIGN WORD
                        4520 ********************************************************************
003972  0000            4521 DCOUNT   DC    A(*-*)             BYTE COUNT
003974  00000000000000000 4522 DATSTOR0 DC  14X'00', STORE (D), CRLF HERE
003982  00000000000000000 4523 DATASTOR DC  201X'00' STORE ECHO TEXT RECEIVED FROM TERMINAL HERE
003A4B  00              4524 DATEND   DC    X'00'
                        4525          ALIGN WORD
                        4526 ********************************************************************
                        4527 *        LOG AREA                                                  *
                        4528 ********************************************************************
003A4C  00000000000000000 4530 LOGSV  DC    128X'00'           LOG AREA
003ACC  00000000000000000 4531        DC    128X'00'
003B4C  00000000000000000 4532        DC    128X'00'
003BCC  00000000000000000 4533        DC    128X'00'
003C4C  8888            4534 LAST     DC    X'8888'
                        4535 ********************************************************************
001864                  4536          END   BEGIN
```

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
3612	ABORT	ADDRESS. HEX LOCATION(000030E8) IN CSECT(TE8E6) LENGTH(6) 1117 1381 1652 3395 3671
1188	ADDRES	ADDRESS. HEX LOCATION(00001FB0) IN CSECT(TE8E6) LENGTH(2) 1183 1186
873	ADDRS	ADDRESS. HEX LOCATION(00001CB2) IN CSECT(TE8E6) LENGTH(2) 860 864
910	ADDRS10	ADDRESS. HEX LOCATION(00001D12) IN CSECT(TE8E6) LENGTH(2) 903 907
1086	ADDRS11	ADDRESS. HEX LOCATION(00001EDE) IN CSECT(TE8E6) LENGTH(2) 1079 1083 1089
877	ADDRS20	ADDRESS. HEX LOCATION(00001CBC) IN CSECT(TE8E6) LENGTH(2) 861 865
1112	ADDRS3	ADDRESS. HEX LOCATION(00001F28) IN CSECT(TE8E6) LENGTH(2) 1107 1110
1049	ADDRS4	ADDRESS. HEX LOCATION(00001E76) IN CSECT(TE8E6) LENGTH(2) 1042 1046 1068
2436	ADDRT	ADDRESS. HEX LOCATION(00002780) IN CSECT(TE8E6) LENGTH(6) 1182 1196 1237 1280 1358 1444 1458 1499 1527 1543 1606 1628
614	ADD1	ADDRESS. HEX LOCATION(00001A66) IN CSECT(TE8E6) LENGTH(4) 615
1450	ADRES	ADDRESS. HEX LOCATION(00002228) IN CSECT(TE8E6) LENGTH(2) 1445 1448
1318	ADRS	ADDRESS. HEX LOCATION(00002100) IN CSECT(TE8E6) LENGTH(2) 1311 1315 1339
1581	ADRS0	ADDRESS. HEX LOCATION(00002374) IN CSECT(TE8E6) LENGTH(2) 1574 1578
1356	ADRS1	ADDRESS. HEX LOCATION(00002166) IN CSECT(TE8E6) LENGTH(2) 1349 1353
1376	ADRS3	ADDRESS. HEX LOCATION(000021A0) IN CSECT(TE8E6) LENGTH(2) 1371 1374
2355	ADRTERM	ADDRESS. HEX LOCATION(00002750) IN CSECT(TE8E6) LENGTH(1) 2354 2438
2359	ADRTERME	ADDRESS. HEX LOCATION(00002754) IN CSECT(TE8E6) LENGTH(1) 2354
1623	ADR1	ADDRESS. HEX LOCATION(000023E2) IN CSECT(TE8E6) LENGTH(2) 1616 1620
1644	ADR3	ADDRESS. HEX LOCATION(0000241C) IN CSECT(TE8E6) LENGTH(2) 1637 1640
687	ASKQUEST	ADDRESS. HEX LOCATION(00001B0C) IN CSECT(TE8E6) LENGTH(4) 680 683
645	ASKRATE	ADDRESS. HEX LOCATION(00001A9C) IN CSECT(TE8E6) LENGTH(4) 641 668
396	BEGIN	ADDRESS. HEX LOCATION(00001864) IN CSECT(TE8E6) 358 398 475 486 496 2983 3637 4536
3493	BITCT	ADDRESS. HEX LOCATION(00003022) IN CSECT(TE8E6) LENGTH(2) 3479 3484 3487
637	BLCOD	ADDRESS. HEX LOCATION(00001A88) IN CSECT(TE8E6) LENGTH(6) 618 785
3485	BPBC	ADDRESS. HEX LOCATION(0000300A) IN CSECT(TE8E6) LENGTH(2) 3483
1789	BPSFL	ADDRESS. HEX LOCATION(00002522) IN CSECT(TE8E6) LENGTH(2) 642 671
2840	BUSYMAX	ADDRESS. HEX LOCATION(00002B48) IN CSECT(TE8E6) LENGTH(2) 2829 2830 2833
3425	BYTECNT	ADDRESS. HEX LOCATION(00002F8C) IN CSECT(TE8E6) LENGTH(2) 3439 3440
3102	CC	ADDRESS. HEX LOCATION(00002D52) IN CSECT(TE8E6) LENGTH(2) 2993 2994 3016 3019 3084 3239
2801	CCERR	ADDRESS. HEX LOCATION(00002ADE) IN CSECT(TE8E6) LENGTH(2) 1665
3103	CCSAV	ADDRESS. HEX LOCATION(00002D54) IN CSECT(TE8E6) LENGTH(2) 3016 3019
1713	CDCB	ADDRESS. HEX LOCATION(0000249A) IN CSECT(TE8E6) LENGTH(2) 651 655 659 669 3695
1691	CHAINAD	ADDRESS. HEX LOCATION(00002474) IN CSECT(TE8E6) LENGTH(2) 3921
1794	CHECKFL	ADDRESS. HEX LOCATION(00002528) IN CSECT(TE8E6) LENGTH(2) 688 759 949 1014 1040 1101 1238 1291 1309 1367 1500 1554 1572 2614
2458	CHECKRFT	ADDRESS. HEX LOCATION(000027A6) IN CSECT(TE8E6) LENGTH(6) 854 1163 1426
2469	CHKEOB	ADDRESS. HEX LOCATION(000027CA) IN CSECT(TE8E6) LENGTH(4) 2465 2467
3062	CHKSB	ADDRESS. HEX LOCATION(00002CF4) IN CSECT(TE8E6) LENGTH(6) 3056
1456	CHKTST	ADDRESS. HEX LOCATION(0000222C) IN CSECT(TE8E6) LENGTH(6) 1437 1599
3055	CHKVRC	ADDRESS. HEX LOCATION(00002CE4) IN CSECT(TE8E6) LENGTH(6) 3049
329	CICB	ABSOLUTE. HEX VALUE(00000014) 3706
3704	CICB1	ADDRESS. HEX LOCATION(000031C0) IN CSECT(TE8E6) LENGTH(6) 506
1742	CIRCB	ADDRESS. HEX LOCATION(000024CC) IN CSECT(TE8E6) LENGTH(1) 2469 2475 2532 2622
1750	CIRCC	ADDRESS. HEX LOCATION(000024DC) IN CSECT(TE8E6) LENGTH(1) 2460 2466 2530 2618 3746 3757
1748	CIRCD	ADDRESS. HEX LOCATION(000024D8) IN CSECT(TE8E6) LENGTH(1) 1106 1370 1642 2491 3735
1757	CIRCDC	ADDRESS. HEX LOCATION(000024E4) IN CSECT(TE8E6) LENGTH(2) 1756
1758	CIRCE	ADDRESS. HEX LOCATION(000024E6) IN CSECT(TE8E6) LENGTH(1) 1756
1744	CIRCN	ADDRESS. HEX LOCATION(000024D0) IN CSECT(TE8E6) LENGTH(1) 3715
1746	CIRCY	ADDRESS. HEX LOCATION(000024D4) IN CSECT(TE8E6) LENGTH(1) 3730
2509	CKEND	ADDRESS. HEX LOCATION(00002850) IN CSECT(TE8E6) LENGTH(4) 2480 2548
1061	CKERR	ADDRESS. HEX LOCATION(00001E94) IN CSECT(TE8E6) LENGTH(4) 1056
1330	CKERR1	ADDRESS. HEX LOCATION(0000211E) IN CSECT(TE8E6) LENGTH(4) 1325
1593	CKER1	ADDRESS. HEX LOCATION(00002392) IN CSECT(TE8E6) LENGTH(4) 1588
2985	CKFOR3	ADDRESS. HEX LOCATION(00002C3C) IN CSECT(TE8E6) LENGTH(1) 2970 2973 3120 3124 3603
2495	CKNINE	ADDRESS. HEX LOCATION(00002828) IN CSECT(TE8E6) LENGTH(4) 2482 2487 2497
2494	CKNINE2	ADDRESS. HEX LOCATION(00002824) IN CSECT(TE8E6) LENGTH(4) 2492

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
2498	CKNINE3	ADDRESS. HEX LOCATION(00002830) IN CSECT(TE8E6) LENGTH(4) 2483 2488
361	CKPT	ADDRESS. HEX LOCATION(0000180C) IN CSECT(TE8E6) LENGTH(2) 405 419 504 512 520 528 539 637 677 765 813 822 837 852 891 924 947 985 1011 1077 1099 1141 1154 1161 1180 1194 1204 1218 1235 1276 1288 1347 1365 1404 1417 1424 1442 1456 1466 1480 1497 1535 1551 1614 1635 4127
1173	CKRFTER	ADDRESS. HEX LOCATION(00001F8A) IN CSECT(TE8E6) LENGTH(4) 1168
1436	CKRFTERR	ADDRESS. HEX LOCATION(00002202) IN CSECT(TE8E6) LENGTH(4) 1431
883	CKTEST	ADDRESS. HEX LOCATION(00001CC8) IN CSECT(TE8E6) LENGTH(6) 858
3041	CKTIM	ADDRESS. HEX LOCATION(00002CC0) IN CSECT(TE8E6) LENGTH(2) 3038
1194	CKTST	ADDRESS. HEX LOCATION(00001FB4) IN CSECT(TE8E6) LENGTH(6) 1114 1336
2501	CKZERO	ADDRESS. HEX LOCATION(00002838) IN CSECT(TE8E6) LENGTH(4) 2484 2489 2499
1442	CK004	ADDRESS. HEX LOCATION(00002208) IN CSECT(TE8E6) LENGTH(6) 1435
1180	CK04	ADDRESS. HEX LOCATION(00001F90) IN CSECT(TE8E6) LENGTH(6) 1172
653	CK300	ADDRESS. HEX LOCATION(00001AB6) IN CSECT(TE8E6) LENGTH(4) 650
657	CK600	ADDRESS. HEX LOCATION(00001AC4) IN CSECT(TE8E6) LENGTH(4) 654
661	CK950	ADDRESS. HEX LOCATION(00001AD2) IN CSECT(TE8E6) LENGTH(4) 658
2698	CLLOG	ADDRESS. HEX LOCATION(00002A00) IN CSECT(TE8E6) LENGTH(4) 2755
1523	CLOOP	ADDRESS. HEX LOCATION(000022D0) IN CSECT(TE8E6) LENGTH(4) 1509
1602	CLP1	ADDRESS. HEX LOCATION(000023A2) IN CSECT(TE8E6) LENGTH(4) 1586
1017	CNTCHECK	ADDRESS. HEX LOCATION(00001E0E) IN CSECT(TE8E6) LENGTH(6) 1015
3694	COD	ADDRESS. HEX LOCATION(000031A0) IN CSECT(TE8E6) LENGTH(6) 670
2482	CODECK	ADDRESS. HEX LOCATION(000027EE) IN CSECT(TE8E6) LENGTH(6) 2474 2476
1772	CONF1	ADDRESS. HEX LOCATION(00002504) IN CSECT(TE8E6) LENGTH(2) 498 3614
504	CONNECT	ADDRESS. HEX LOCATION(00001962) IN CSECT(TE8E6) LENGTH(6) 430
2490	CONTCK	ADDRESS. HEX LOCATION(00002818) IN CSECT(TE8E6) LENGTH(4) 2486
977	CONTLOOP	ADDRESS. HEX LOCATION(00001DA6) IN CSECT(TE8E6) LENGTH(6) 972
971	CONTLOP	ADDRESS. HEX LOCATION(00001D8E) IN CSECT(TE8E6) LENGTH(6) 959
1003	CONTLOP0	ADDRESS. HEX LOCATION(00001DEA) IN CSECT(TE8E6) LENGTH(6) 998
933	CONTXT	ADDRESS. HEX LOCATION(00001D42) IN CSECT(TE8E6) LENGTH(4) 928
700	CORRCODE	ADDRESS. HEX LOCATION(00001B2C) IN CSECT(TE8E6) LENGTH(6) 697
1790	CORRFL	ADDRESS. HEX LOCATION(00002524) IN CSECT(TE8E6) LENGTH(2) 698 700 862 905 1019 1044 1081 1108 1184 1208 1296 1313 1351 1372 1446 1470 1559 1576 1618 1638 2485 2517
1765	CORRTABL	ADDRESS. HEX LOCATION(000024FA) IN CSECT(TE8E6) LENGTH(1) 2519
3134	COUNT	ADDRESS. HEX LOCATION(00002DA2) IN CSECT(TE8E6) LENGTH(2) 3116 3117 3128 3132
3676	COUNTER	ADDRESS. HEX LOCATION(0000319E) IN CSECT(TE8E6) LENGTH(2) 3657 3664
1068	COUNTLP	ADDRESS. HEX LOCATION(00001EA6) IN CSECT(TE8E6) LENGTH(6) 1054
1339	COUNTLP1	ADDRESS. HEX LOCATION(0000212E) IN CSECT(TE8E6) LENGTH(6) 1323
3135	COUNT1	ADDRESS. HEX LOCATION(00002DA4) IN CSECT(TE8E6) LENGTH(2) 3121 3126
4180	CPMCT	ADDRESS. HEX LOCATION(00003654) IN CSECT(TE8E6) LENGTH(2) 4127
4121	CPMSG	ADDRESS. HEX LOCATION(000035B0) IN CSECT(TE8E6) LENGTH(6) 815 1143 1406
1682	CRBFR	ADDRESS. HEX LOCATION(00002456) IN CSECT(TE8E6) LENGTH(1) 3715 3719 3735 3757
1681	CRBFRCT	ADDRESS. HEX LOCATION(00002454) IN CSECT(TE8E6) LENGTH(2) 3716
1896	CREEND	ADDRESS. HEX LOCATION(0000258F) IN CSECT(TE8E6) LENGTH(1) 1882
1846	CREND	ADDRESS. HEX LOCATION(0000255F) IN CSECT(TE8E6) LENGTH(1) 1830
1883	CRETUR	ADDRESS. HEX LOCATION(00002582) IN CSECT(TE8E6) LENGTH(1) 1882
1831	CRETURN	ADDRESS. HEX LOCATION(00002550) IN CSECT(TE8E6) LENGTH(1) 1830
1849	CRLF	ADDRESS. HEX LOCATION(00002562) IN CSECT(TE8E6) LENGTH(1) 1848 2630 2630
1880	CRLFE	ADDRESS. HEX LOCATION(00002580) IN CSECT(TE8E6) LENGTH(1) 1865
1863	CRLFEND	ADDRESS. HEX LOCATION(00002570) IN CSECT(TE8E6) LENGTH(1) 1848
1866	CRLF1	ADDRESS. HEX LOCATION(00002572) IN CSECT(TE8E6) LENGTH(1) 1865
1674	CSBFR	ADDRESS. HEX LOCATION(0000244E) IN CSECT(TE8E6) LENGTH(1) 1729
1783	CSSBYPAS	ADDRESS. HEX LOCATION(0000251A) IN CSECT(TE8E6) LENGTH(2) 409 2935 2986
2924	CSTAT	ADDRESS. HEX LOCATION(00002BC8) IN CSECT(TE8E6) LENGTH(6) 546 3018 3658 4078
1294	CTCHECK	ADDRESS. HEX LOCATION(000020B0) IN CSECT(TE8E6) LENGTH(6) 1292
1557	CTCHEK	ADDRESS. HEX LOCATION(00002324) IN CSECT(TE8E6) LENGTH(6) 1555
1263	CTLOOP	ADDRESS. HEX LOCATION(00002058) IN CSECT(TE8E6) LENGTH(6)

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		1249
1269	CTLOOP1	ADDRESS. HEX LOCATION(00002070) IN CSECT(TE8E6) LENGTH(6)
		1264
1664	CTRLBLOK	ADDRESS. HEX LOCATION(00002442) IN CSECT(TE8E6) LENGTH(2)
		2877 2894 2913 2934 3217 3697 3950 4006 4033
		4061 4096 4115
3422	CVRETX	ADDRESS. HEX LOCATION(00002F88) IN CSECT(TE8E6) LENGTH(4)
		3414
2776	CVTBLK	ADDRESS. HEX LOCATION(00002AD0) IN CSECT(TE8E6) LENGTH(2)
		2729
2729	CVTDATA	ADDRESS. HEX LOCATION(00002A56) IN CSECT(TE8E6) LENGTH(4)
		2759 2763 2767 2771
3404	CVTFACT	ADDRESS. HEX LOCATION(00002F7B) IN CSECT(TE8E6) LENGTH(1)
		3382
2777	CVTFROM	ADDRESS. HEX LOCATION(00002AD2) IN CSECT(TE8E6) LENGTH(2)
		2719
2778	CVTTO	ADDRESS. HEX LOCATION(00002AD4) IN CSECT(TE8E6) LENGTH(2)
		2720
474	DAOK	ADDRESS. HEX LOCATION(0000191E) IN CSECT(TE8E6) LENGTH(6)
		446 462
364	DATAB	ADDRESS. HEX LOCATION(00001812) IN CSECT(TE8E6) LENGTH(2)
		359 474 497 3645 3645
1692	DATACNT	ADDRESS. HEX LOCATION(00002476) IN CSECT(TE8E6) LENGTH(2)
		2674 3919 3977
1693	DATADDR	ADDRESS. HEX LOCATION(00002478) IN CSECT(TE8E6) LENGTH(2)
		2681 3917 3926 3975 3982
1213	DATADR	ADDRESS. HEX LOCATION(00001FF0) IN CSECT(TE8E6) LENGTH(2)
		1206 1210
1475	DATADR1	ADDRESS. HEX LOCATION(00002268) IN CSECT(TE8E6) LENGTH(2)
		1468 1472
4523	DATASTOR	ADDRESS. HEX LOCATION(00003982) IN CSECT(TE8E6) LENGTH(1)
		2634
1666	DATAWORD	ADDRESS. HEX LOCATION(00002446) IN CSECT(TE8E6) LENGTH(2)
		2579 2876 2892 2893 2912 2932 3215 3695 3947
		4004 4094 4114
4524	DATEND	ADDRESS. HEX LOCATION(00003A4B) IN CSECT(TE8E6) LENGTH(1)
		975 1001 1267 2593
4522	DATSTOR0	ADDRESS. HEX LOCATION(00003974) IN CSECT(TE8E6) LENGTH(1)
		953 971 975 975 990 996 997 1001 1001
		1243 1263 1267 1267 1279 1504 1538 2593 2630
1722	DCB3	ADDRESS. HEX LOCATION(000024AA) IN CSECT(TE8E6) LENGTH(2)
		2932
4521	DCOUNT	ADDRESS. HEX LOCATION(00003972) IN CSECT(TE8E6) LENGTH(2)
		976 1002 1268 2624
1763	DECITABL	ADDRESS. HEX LOCATION(000024F0) IN CSECT(TE8E6) LENGTH(1)
		2540 2543
2561	DECTOHEX	ADDRESS. HEX LOCATION(000028D0) IN CSECT(TE8E6) LENGTH(6)
		2546
1782	DECVAL	ADDRESS. HEX LOCATION(00002518) IN CSECT(TE8E6) LENGTH(2)
		2545 2562
3142	DELAY	ADDRESS. HEX LOCATION(00002DA6) IN CSECT(TE8E6) LENGTH(2)
		830 1525 1541 1604 1626 1646 2413 2447 2835
		3662
3591	DELAY1	ADDRESS. HEX LOCATION(000030CC) IN CSECT(TE8E6) LENGTH(2)
		3592
3635	DELY1	ADDRESS. HEX LOCATION(00003136) IN CSECT(TE8E6) LENGTH(2)
		3636
365	DEVAD	ADDRESS. HEX LOCATION(00001814) IN CSECT(TE8E6) LENGTH(1)
		441 457 461 473 488 498 547 1657 1664
		3630
1669	DEVID	ADDRESS. HEX LOCATION(0000244C) IN CSECT(TE8E6) LENGTH(2)
		443
3206	DISAB	ADDRESS. HEX LOCATION(00002E22) IN CSECT(TE8E6) LENGTH(6)
		3616
3098	DLYCTSV	ADDRESS. HEX LOCATION(00002D4A) IN CSECT(TE8E6) LENGTH(2)
		2968 2976
3146	DLYLOP	ADDRESS. HEX LOCATION(00002DB4) IN CSECT(TE8E6) LENGTH(2)
		3148
3780	DRESP	ADDRESS. HEX LOCATION(0000324A) IN CSECT(TE8E6) LENGTH(6)
		3957 4041 4069
3149	DRET	ADDRESS. HEX LOCATION(00002DBA) IN CSECT(TE8E6) LENGTH(4)
		3145
3658	DRLOOP	ADDRESS. HEX LOCATION(00003166) IN CSECT(TE8E6) LENGTH(4)
		3665
3675	DSROK	ADDRESS. HEX LOCATION(0000319A) IN CSECT(TE8E6) LENGTH(4)
		3656 3660
3588	DSRWAIT	ADDRESS. HEX LOCATION(000030C0) IN CSECT(TE8E6) LENGTH(4)
		3602
3657	DSWAIT	ADDRESS. HEX LOCATION(00003160) IN CSECT(TE8E6) LENGTH(6)
		3674
1731	DTRDCB	ADDRESS. HEX LOCATION(000024BA) IN CSECT(TE8E6) LENGTH(2)
		3214 3215 4093 4094
4077	DTREN	ADDRESS. HEX LOCATION(0000353A) IN CSECT(TE8E6) LENGTH(6)
		816 1144 1407
4100	DTRRET	ADDRESS. HEX LOCATION(00003584) IN CSECT(TE8E6) LENGTH(4)
		4080
1030	EADDR	ADDRESS. HEX LOCATION(00001E32) IN CSECT(TE8E6) LENGTH(2)
		1018 1022
1570	EADDR0	ADDRESS. HEX LOCATION(00002348) IN CSECT(TE8E6) LENGTH(2)
		1558 1562
1307	EADDR1	ADDRESS. HEX LOCATION(000020D4) IN CSECT(TE8E6) LENGTH(2)
		1295 1299
2066	ECHCNT	ADDRESS. HEX LOCATION(00002636) IN CSECT(TE8E6) LENGTH(2)
		1043 1080 1312 1350 1575 1617
2289	ECHCNT2	ADDRESS. HEX LOCATION(00002712) IN CSECT(TE8E6) LENGTH(2)
		1047 1084 1316 1354 1579 1621
2119	ECHE	ADDRESS. HEX LOCATION(0000266C) IN CSECT(TE8E6) LENGTH(1)
		2066
2118	ECHOE	ADDRESS. HEX LOCATION(0000266B) IN CSECT(TE8E6) LENGTH(1)
		1018 1295 1558
2341	ECHOE2	ADDRESS. HEX LOCATION(00002747) IN CSECT(TE8E6) LENGTH(1)
		1022 1299 1562
2067	ECHOTST	ADDRESS. HEX LOCATION(00002638) IN CSECT(TE8E6) LENGTH(1)
		1017 1042 1079 1294 1311 1349 1557 1574 1616
		2066
2290	ECHOTST2	ADDRESS. HEX LOCATION(00002714) IN CSECT(TE8E6) LENGTH(1)
		1021 1046 1083 1298 1315 1353 1561 1578 1620
		2289
2342	ECH2E	ADDRESS. HEX LOCATION(00002748) IN CSECT(TE8E6) LENGTH(1)
		2289
2064	ENDE	ADDRESS. HEX LOCATION(00002635) IN CSECT(TE8E6) LENGTH(1)

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		2012
2783	ENDFLG	ADDRESS. HEX LOCATION(00002ADC) IN CSECT(TE8E6) LENGTH(2)
		2745 2768
2825	ENDRETRY	ADDRESS. HEX LOCATION(00002B1C) IN CSECT(TE8E6) LENGTH(1)
		2832
2013	ENDTEST	ADDRESS. HEX LOCATION(00002602) IN CSECT(TE8E6) LENGTH(1)
		1107 1371 1637 2012
2236	ENDTEST2	ADDRESS. HEX LOCATION(000026DE) IN CSECT(TE8E6) LENGTH(1)
		1110 1374 1640 2235
1107	END0	ADDRESS. HEX LOCATION(00001F12) IN CSECT(TE8E6) LENGTH(6)
		1102 1104
1371	END1	ADDRESS. HEX LOCATION(0000218A) IN CSECT(TE8E6) LENGTH(6)
		1368
2287	END2	ADDRESS. HEX LOCATION(00002711) IN CSECT(TE8E6) LENGTH(1)
		2235
743	ENTAD	ADDRESS. HEX LOCATION(00001BA0) IN CSECT(TE8E6) LENGTH(6)
		716
486	ENTROPTS	ADDRESS. HEX LOCATION(00001932) IN CSECT(TE8E6) LENGTH(6)
		475
345	EOAR	ABSOLUTE. HEX VALUE(00000002)
		2422
4476	EOARCV	ADDRESS. HEX LOCATION(0000381E) IN CSECT(TE8E6) LENGTH(4)
		3818
348	EOBR	ABSOLUTE. HEX VALUE(00000004)
		867 894 934 1033 1167 1225 1430 1487 2426
4483	EOBRCV	ADDRESS. HEX LOCATION(00003826) IN CSECT(TE8E6) LENGTH(4)
		3857
346	EOTR	ABSOLUTE. HEX VALUE(00000003)
		898 938 1037 1171 1228 1434 1490 2424
4466	EOTRCV	ADDRESS. HEX LOCATION(00003816) IN CSECT(TE8E6) LENGTH(4)
		3837
4459	EOTSENT	ADDRESS. HEX LOCATION(00003810) IN CSECT(TE8E6) LENGTH(3)
		3741 3753
1256	ERCK	ADDRESS. HEX LOCATION(0000204A) IN CSECT(TE8E6) LENGTH(4)
		1251
1516	ERCK1	ADDRESS. HEX LOCATION(000022C2) IN CSECT(TE8E6) LENGTH(4)
		1511
465	ERPRINT	ADDRESS. HEX LOCATION(00001904) IN CSECT(TE8E6) LENGTH(4)
		456
1778	ERR	ADDRESS. HEX LOCATION(00002510) IN CSECT(TE8E6) LENGTH(2)
		927 1222 1484 2608
3462	ERRCODED	ADDRESS. HEX LOCATION(00002FD8) IN CSECT(TE8E6) LENGTH(2)
		3456 3463
1788	ERRCT	ADDRESS. HEX LOCATION(00002520) IN CSECT(TE8E6) LENGTH(2)
		1057 1058 1252 1253 1326 1327 1512 1513 1589
		1590 2813 3070 3083 3619 3620 3798
334	ETOH	ABSOLUTE. HEX VALUE(00000019)
		3413
315	EXIT	ABSOLUTE. HEX VALUE(00000006)
		3244
4379	E8AC	ADDRESS. HEX LOCATION(00003796) IN CSECT(TE8E6) LENGTH(1)
		611 629 2714 2714 2717 2741
4404	E8AF	ADDRESS. HEX LOCATION(000037DA) IN CSECT(TE8E6) LENGTH(8)
		3668 4083
4335	E8A2	ADDRESS. HEX LOCATION(0000376E) IN CSECT(TE8E6) LENGTH(4)
		3093
4343	E8A3	ADDRESS. HEX LOCATION(00003778) IN CSECT(TE8E6) LENGTH(6)
		3087
4351	E8A4	ADDRESS. HEX LOCATION(00003784) IN CSECT(TE8E6) LENGTH(6)
		2810
4359	E8A5	ADDRESS. HEX LOCATION(00003790) IN CSECT(TE8E6) LENGTH(3)
		826 1147 1410
4411	E8B0	ADDRESS. HEX LOCATION(000037E6) IN CSECT(TE8E6) LENGTH(2)
		3866
4208	E88A	ADDRESS. HEX LOCATION(00003674) IN CSECT(TE8E6) LENGTH(7)
		719
4215	E88B	ADDRESS. HEX LOCATION(0000367E) IN CSECT(TE8E6) LENGTH(16)
		737
4222	E88C	ADDRESS. HEX LOCATION(00003692) IN CSECT(TE8E6) LENGTH(4)
		624
4229	E88D	ADDRESS. HEX LOCATION(0000369A) IN CSECT(TE8E6) LENGTH(16)
		754
4236	E88E	ADDRESS. HEX LOCATION(000036AE) IN CSECT(TE8E6) LENGTH(9)
		746
4141	E881	ADDRESS. HEX LOCATION(000035D8) IN CSECT(TE8E6) LENGTH(17)
		728
4148	E882	ADDRESS. HEX LOCATION(000035EC) IN CSECT(TE8E6) LENGTH(15)
		693
4155	E883	ADDRESS. HEX LOCATION(000035FE) IN CSECT(TE8E6) LENGTH(17)
		710
4170	E885	ADDRESS. HEX LOCATION(00003622) IN CSECT(TE8E6) LENGTH(34)
		2605
4177	E886	ADDRESS. HEX LOCATION(00003648) IN CSECT(TE8E6) LENGTH(4)
		4130
4187	E887	ADDRESS. HEX LOCATION(0000365A) IN CSECT(TE8E6) LENGTH(3)
		646
4194	E888	ADDRESS. HEX LOCATION(00003660) IN CSECT(TE8E6) LENGTH(6)
		436
4201	E889	ADDRESS. HEX LOCATION(0000366A) IN CSECT(TE8E6) LENGTH(7)
		703
4310	E89E	ADDRESS. HEX LOCATION(0000374C) IN CSECT(TE8E6) LENGTH(4)
		2869 2870 2873 2885 2886 2889 2905 2906 2909
		2925 2926 2929 3207 3208 3211 3929 3930 3936
		3983 3984 3990 4019 4020 4023 4047 4048 4051
		4086 4087 4090 4107 4108 4111
4318	E89F	ADDRESS. HEX LOCATION(00003758) IN CSECT(TE8E6) LENGTH(6)
		2980
4246	E890	ADDRESS. HEX LOCATION(000036BA) IN CSECT(TE8E6) LENGTH(31)
		3640
4253	E891	ADDRESS. HEX LOCATION(000036DC) IN CSECT(TE8E6) LENGTH(16)
		3599
4263	E893	ADDRESS. HEX LOCATION(000036F0) IN CSECT(TE8E6) LENGTH(28)
		964 1062 1257 1331 1517 1594
4270	E894	ADDRESS. HEX LOCATION(00003710) IN CSECT(TE8E6) LENGTH(12)
		3623
4271	E894A	ADDRESS. HEX LOCATION(0000371C) IN CSECT(TE8E6) LENGTH(4)
		3619
4278	E895	ADDRESS. HEX LOCATION(00003724) IN CSECT(TE8E6) LENGTH(11)
		469
4280	E895A	ADDRESS. HEX LOCATION(00003735) IN CSECT(TE8E6) LENGTH(4)
		466

CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
  4292    E898        ADDRESS. HEX LOCATION(0000373C) IN CSECT(TE8E6   ) LENGTH(13)
                      492   665
  4381    FIELD1      ADDRESS. HEX LOCATION(00003796) IN CSECT(TE8E6   ) LENGTH(6)
                      438   543   582   583   748   750   751  3023  3028
                     3076  3386  3401  3880  3885  3888  3893  3898  3901
  3405    FIELD1CT    ADDRESS. HEX LOCATION(00002F7C) IN CSECT(TE8E6   ) LENGTH(2)
                     3392
  4382    FIELD2      ADDRESS. HEX LOCATION(0000379C) IN CSECT(TE8E6   ) LENGTH(6)
                      586   587  3031
  4383    FIELD3      ADDRESS. HEX LOCATION(000037A2) IN CSECT(TE8E6   ) LENGTH(6)
                      590   591  3034
  4384    FIELD4      ADDRESS. HEX LOCATION(000037A8) IN CSECT(TE8E6   ) LENGTH(6)
                      594   595  3035
  4385    FIELD5      ADDRESS. HEX LOCATION(000037AE) IN CSECT(TE8E6   ) LENGTH(6)
                      598  3023
  4386    FIELD6      ADDRESS. HEX LOCATION(000037B4) IN CSECT(TE8E6   ) LENGTH(6)
                      601   602
  4387    FIELD7      ADDRESS. HEX LOCATION(000037BA) IN CSECT(TE8E6   ) LENGTH(6)
                      605   606
  4388    FIELD8      ADDRESS. HEX LOCATION(000037C0) IN CSECT(TE8E6   ) LENGTH(6)
                      555   556   578
  2599    FINDEND     ADDRESS. HEX LOCATION(00002926) IN CSECT(TE8E6   ) LENGTH(4)
                     2602
  2686    FINISH      ADDRESS. HEX LOCATION(000029E4) IN CSECT(TE8E6   ) LENGTH(4)
                     2667
  1005    FINISH0     ADDRESS. HEX LOCATION(00001DF2) IN CSECT(TE8E6   ) LENGTH(4)
                      979   993
  4391    FLAGEND     ADDRESS. HEX LOCATION(000037D2) IN CSECT(TE8E6   ) LENGTH(3)
                      543
  1786    FLAG0       ADDRESS. HEX LOCATION(0000251C) IN CSECT(TE8E6   ) LENGTH(2)
                      421   477
   428    FMSG        ADDRESS. HEX LOCATION(000018A4) IN CSECT(TE8E6   ) LENGTH(4)
                      422
  2632    FROMAD      ADDRESS. HEX LOCATION(00002986) IN CSECT(TE8E6   ) LENGTH(2)
                     2626
  3426    FROMADDR    ADDRESS. HEX LOCATION(00002F8E) IN CSECT(TE8E6   ) LENGTH(2)
                     3437
  2664    GBPT        ADDRESS. HEX LOCATION(000029BC) IN CSECT(TE8E6   ) LENGTH(2)
                     2666
  3435    GDSR        ADDRESS. HEX LOCATION(00002F92) IN CSECT(TE8E6   ) LENGTH(2)
                     3412  3420
   745    GETAD       ADDRESS. HEX LOCATION(00001BA6) IN CSECT(TE8E6   ) LENGTH(4)
                      749
   918    GETDATA     ADDRESS. HEX LOCATION(00001D28) IN CSECT(TE8E6   ) LENGTH(4)
                      912
   866    GETRFT1     ADDRESS. HEX LOCATION(00001C9C) IN CSECT(TE8E6   ) LENGTH(4)
                      863
   876    GETRFT10    ADDRESS. HEX LOCATION(00001CB8) IN CSECT(TE8E6   ) LENGTH(4)
                      871
   870    GETRFT12    ADDRESS. HEX LOCATION(00001CA8) IN CSECT(TE8E6   ) LENGTH(4)
                      868
  1187    GETRFT2     ADDRESS. HEX LOCATION(00001FAC) IN CSECT(TE8E6   ) LENGTH(4)
                     1185
   924    GETTEXT2    ADDRESS. HEX LOCATION(00001D2C) IN CSECT(TE8E6   ) LENGTH(6)
                      917
  3237    GINT        ADDRESS. HEX LOCATION(00002E5E) IN CSECT(TE8E6   ) LENGTH(2)
                     1658  1659
  3603    GO          ADDRESS. HEX LOCATION(000030E4) IN CSECT(TE8E6   ) LENGTH(4)
                     3594
  2547    GOBACK      ADDRESS. HEX LOCATION(000028C2) IN CSECT(TE8E6   ) LENGTH(4)
                     2550
  1028    GOMOV       ADDRESS. HEX LOCATION(00001E2C) IN CSECT(TE8E6   ) LENGTH(4)
                     1020
  1305    GOMOVE      ADDRESS. HEX LOCATION(000020CE) IN CSECT(TE8E6   ) LENGTH(4)
                     1297
  1568    GOMOVE1     ADDRESS. HEX LOCATION(00002342) IN CSECT(TE8E6   ) LENGTH(4)
                     1560
  1417    GOPOL       ADDRESS. HEX LOCATION(000021D4) IN CSECT(TE8E6   ) LENGTH(6)
                     1428  1451  1651
  1154    GOPOLL      ADDRESS. HEX LOCATION(00001F5C) IN CSECT(TE8E6   ) LENGTH(6)
                     1165  1189  1380
   947    GOXMT       ADDRESS. HEX LOCATION(00001D5C) IN CSECT(TE8E6   ) LENGTH(6)
                      935   939   969
   989    GOXMT1      ADDRESS. HEX LOCATION(00001DBC) IN CSECT(TE8E6   ) LENGTH(4)
                      992
   840    GRFT        ADDRESS. HEX LOCATION(00001C54) IN CSECT(TE8E6   ) LENGTH(4)
                      856   900  1116
   846    GRFTX       ADDRESS. HEX LOCATION(00001C64) IN CSECT(TE8E6   ) LENGTH(4)
                      841
   852    GRFT1       ADDRESS. HEX LOCATION(00001C68) IN CSECT(TE8E6   ) LENGTH(6)
                      845   875   881
  1449    GTRFT       ADDRESS. HEX LOCATION(00002224) IN CSECT(TE8E6   ) LENGTH(4)
                     1447
  2537    HIT         ADDRESS. HEX LOCATION(000028A0) IN CSECT(TE8E6   ) LENGTH(4)
                     2523
  1777    HITIT       ADDRESS. HEX LOCATION(0000250E) IN CSECT(TE8E6   ) LENGTH(2)
                     2526  2537  2539  2547
  2543    HIT2        ADDRESS. HEX LOCATION(000028B4) IN CSECT(TE8E6   ) LENGTH(4)
                     2538
  3420    HTE         ADDRESS. HEX LOCATION(00002F84) IN CSECT(TE8E6   ) LENGTH(2)
                      465   769   776  2805  2989  2992  3027  3030  3033
                     3618  3884  3897  3925  3981  4123  4126
   335    HTOE        ABSOLUTE. HEX VALUE(0000001A)
                     2730  3421
  1825    HUN         ADDRESS. HEX LOCATION(0000254A) IN CSECT(TE8E6   ) LENGTH(1)
                     2564
  4380    IBUFF       ADDRESS. HEX LOCATION(00003796) IN CSECT(TE8E6   ) LENGTH(1)
                      648   695   705   712   721   730   739   756
   312    IDLE5       ABSOLUTE. HEX VALUE(00000003)
                     2971  2974  3122  3125  3146  3147  3591  3635
   579    IDOK        ADDRESS. HEX LOCATION(000019EA) IN CSECT(TE8E6   ) LENGTH(4)
                      549
  1774    IDSAV       ADDRESS. HEX LOCATION(00002508) IN CSECT(TE8E6   ) LENGTH(2)
                      444   451   466   557
  4392    IE          ADDRESS. HEX LOCATION(000037D5) IN CSECT(TE8E6   ) LENGTH(1)
                     3386  3880  3893
  2733    INCDTA      ADDRESS. HEX LOCATION(00002A60) IN CSECT(TE8E6   ) LENGTH(2)
                     2731
  1657    INTCB       ADDRESS. HEX LOCATION(0000243A) IN CSECT(TE8E6   ) LENGTH(2)
                     3705
  4344    INTCCVT     ADDRESS. HEX LOCATION(0000377E) IN CSECT(TE8E6   ) LENGTH(2)
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CROSS-REFERENCE LISTING

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DECLARED  NAME      ATTRIBUTES AND REFERENCES
                     2993
  2713    INTPRT      ADDRESS. HEX LOCATION(00002A24) IN CSECT(TE8E6   ) LENGTH(4)
                     2750
  1773    INTSW       ADDRESS. HEX LOCATION(00002506) IN CSECT(TE8E6   ) LENGTH(2)
                      409  2933  2969  2972  3119  3123  3241  3593
  3099    ISB         ADDRESS. HEX LOCATION(00002D4C) IN CSECT(TE8E6   ) LENGTH(2)
                     2990  3012  3017  3020  3043  3080  3090  3240
  4336    ISBPRNT     ADDRESS. HEX LOCATION(00003772) IN CSECT(TE8E6   ) LENGTH(2)
                     2990
  3100    ISBSAV      ADDRESS. HEX LOCATION(00002D4E) IN CSECT(TE8E6   ) LENGTH(2)
                     3017  3020
  1822    KE8         ADDRESS. HEX LOCATION(00002547) IN CSECT(TE8E6   ) LENGTH(1)
                      440
  1823    KE9         ADDRESS. HEX LOCATION(00002548) IN CSECT(TE8E6   ) LENGTH(1)
                      547
  1807    K0F         ADDRESS. HEX LOCATION(00002538) IN CSECT(TE8E6   ) LENGTH(1)
                      659
  1803    K00         ADDRESS. HEX LOCATION(00002534) IN CSECT(TE8E6   ) LENGTH(1)
                     2599
  1804    K02         ADDRESS. HEX LOCATION(00002535) IN CSECT(TE8E6   ) LENGTH(1)
                     2503
  1805    K04         ADDRESS. HEX LOCATION(00002536) IN CSECT(TE8E6   ) LENGTH(1)
                     2505
  1806    K09         ADDRESS. HEX LOCATION(00002537) IN CSECT(TE8E6   ) LENGTH(1)
                      669
  1811    K1F         ADDRESS. HEX LOCATION(0000253C) IN CSECT(TE8E6   ) LENGTH(1)
                      655
  1808    K13         ADDRESS. HEX LOCATION(00002539) IN CSECT(TE8E6   ) LENGTH(1)
                     2482  2483  2489  2495  2498
  1809    K15         ADDRESS. HEX LOCATION(0000253A) IN CSECT(TE8E6   ) LENGTH(1)
                     2484  2501
  1810    K16         ADDRESS. HEX LOCATION(0000253B) IN CSECT(TE8E6   ) LENGTH(1)
                      971   997  1263  2487  2488
  1812    K22         ADDRESS. HEX LOCATION(0000253D) IN CSECT(TE8E6   ) LENGTH(1)
                     2661  2662  2721  2758
  1813    K44         ADDRESS. HEX LOCATION(0000253E) IN CSECT(TE8E6   ) LENGTH(1)
                     2723  2762
  1814    K46         ADDRESS. HEX LOCATION(0000253F) IN CSECT(TE8E6   ) LENGTH(1)
                      651
  1816    K5B         ADDRESS. HEX LOCATION(00002541) IN CSECT(TE8E6   ) LENGTH(1)
                     2528
  1817    K7C         ADDRESS. HEX LOCATION(00002542) IN CSECT(TE8E6   ) LENGTH(1)
                     2620
  1819    K80         ADDRESS. HEX LOCATION(00002544) IN CSECT(TE8E6   ) LENGTH(1)
                      460
  1820    K88         ADDRESS. HEX LOCATION(00002545) IN CSECT(TE8E6   ) LENGTH(1)
                     2725  2766
  1821    K99         ADDRESS. HEX LOCATION(00002546) IN CSECT(TE8E6   ) LENGTH(1)
                     2727  2770
  2782    LASFLG      ADDRESS. HEX LOCATION(00002ADA) IN CSECT(TE8E6   ) LENGTH(2)
                     2772
  4534    LAST        ADDRESS. HEX LOCATION(00003C4C) IN CSECT(TE8E6   ) LENGTH(2)
                      425  2693  2699  2747
   578    LINES       ADDRESS. HEX LOCATION(000019E6) IN CSECT(TE8E6   ) LENGTH(4)
                      563   567   571   575
  3342    LMSG        ADDRESS. HEX LOCATION(00002EF4) IN CSECT(TE8E6   ) LENGTH(6)
                     3711  3724  3740  3752  3862
  2693    LOGCK       ADDRESS. HEX LOCATION(000029F4) IN CSECT(TE8E6   ) LENGTH(4)
                     2660  2664  2676  2682  2687
  2705    LOGPT       ADDRESS. HEX LOCATION(00002A18) IN CSECT(TE8E6   ) LENGTH(2)
                      532  2659  2675  2686  2702  2703
  2647    LOGR        ADDRESS. HEX LOCATION(00002990) IN CSECT(TE8E6   ) LENGTH(6)
                     3956  4040  4068
  4530    LOGSV       ADDRESS. HEX LOCATION(00003A4C) IN CSECT(TE8E6   ) LENGTH(1)
                      425   532  2699  2702  2705  2711  3353
  2673    LOGT        ADDRESS. HEX LOCATION(000029C4) IN CSECT(TE8E6   ) LENGTH(6)
                     3928  3994
  3502    LOLIMIT     ADDRESS. HEX LOCATION(0000302A) IN CSECT(TE8E6   ) LENGTH(2)
                     3500
  1092    LOOPCK      ADDRESS. HEX LOCATION(00001EF2) IN CSECT(TE8E6   ) LENGTH(6)
                     1090
  1776    LOOPCNT     ADDRESS. HEX LOCATION(0000250C) IN CSECT(TE8E6   ) LENGTH(2)
                      977   991  1003  1069  1092  1113  1269  1281  1340
                     1359  1377  1528  1544  1607  1629  1648  2549  2571
  2719    LOPNXT      ADDRESS. HEX LOCATION(00002A36) IN CSECT(TE8E6   ) LENGTH(4)
                     2735
  4490    LRCERR      ADDRESS. HEX LOCATION(0000382E) IN CSECT(TE8E6   ) LENGTH(4)
                     3052
  1828    LVL         ADDRESS. HEX LOCATION(0000254C) IN CSECT(TE8E6   ) LENGTH(2)
                     2876  2892
  3318    MATCH       ADDRESS. HEX LOCATION(00002EE2) IN CSECT(TE8E6   ) LENGTH(4)
                     3302  3306  3313
  3457    MDATA       ADDRESS. HEX LOCATION(00002FCC) IN CSECT(TE8E6   ) LENGTH(2)
                     3460
  3589    MDLY        ADDRESS. HEX LOCATION(000030C4) IN CSECT(TE8E6   ) LENGTH(4)
                     3596
   473    MLTYP       ADDRESS. HEX LOCATION(00001918) IN CSECT(TE8E6   ) LENGTH(6)
                      449
  3482    MOBIT       ADDRESS. HEX LOCATION(00003000) IN CSECT(TE8E6   ) LENGTH(2)
                     3485
  3450    MOV         ADDRESS. HEX LOCATION(00002FB4) IN CSECT(TE8E6   ) LENGTH(2)
                      974  1000  1028  1266  1305  1568  2629  2631  3932
                     3986
  2682    MOVEDATA    ADDRESS. HEX LOCATION(000029DE) IN CSECT(TE8E6   ) LENGTH(2)
                     2684
  3345    MSG         ADDRESS. HEX LOCATION(00002EFC) IN CSECT(TE8E6   ) LENGTH(6)
                      468   491   623   628   664   779   825   963  1061
                     1146  1256  1330  1409  1516  1593  2604  2740  2809
                     2817  2979  3051  3058  3065  3075  3086  3092  3340
                     3598  3622  3639  3667  3887  3900  4082  4129
  3359    MSGXIT      ADDRESS. HEX LOCATION(00002F2E) IN CSECT(TE8E6   ) LENGTH(4)
                     3339  3343  3346  3348
  3260    MSK         ADDRESS. HEX LOCATION(00002E70) IN CSECT(TE8E6   ) LENGTH(4)
                      408   424   542   687  2592  2698  2713  3022  3385
                     3644  3879  3892  3941  3996  4027  4055
   343    NAKR        ABSOLUTE. HEX VALUE(00000000)
                      960  1055  1250  1324  1510  1587  2420  2444
  4442    NAKRCV      ADDRESS. HEX LOCATION(00003800) IN CSECT(TE8E6   ) LENGTH(4)
                     3797
  4435    NAKSENT     ADDRESS. HEX LOCATION(000037FA) IN CSECT(TE8E6   ) LENGTH(3)
                     3712
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CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
4328	NAT	ADDRESS. HEX LOCATION(00003762) IN CSECT(TE8E6) LENGTH(9) 2818
702	NEXQUES	ADDRESS. HEX LOCATION(00001B32) IN CSECT(TE8E6) LENGTH(4) 699
3618	NODTRDIS	ADDRESS. HEX LOCATION(000030FE) IN CSECT(TE8E6) LENGTH(4) 3615
1077	NORC	ADDRESS. HEX LOCATION(00001EB6) IN CSECT(TE8E6) LENGTH(6) 1041
1614	NORC0	ADDRESS. HEX LOCATION(000023BA) IN CSECT(TE8E6) LENGTH(6) 1573
1347	NORC1	ADDRESS. HEX LOCATION(0000213E) IN CSECT(TE8E6) LENGTH(6) 1310
3866	NORSP	ADDRESS. HEX LOCATION(00003340) IN CSECT(TE8E6) LENGTH(6) 3861
718	NXQUES	ADDRESS. HEX LOCATION(00001B5A) IN CSECT(TE8E6) LENGTH(4) 707
727	NXQUES1	ADDRESS. HEX LOCATION(00001B72) IN CSECT(TE8E6) LENGTH(4) 723
736	NXQUES2	ADDRESS. HEX LOCATION(00001B8A) IN CSECT(TE8E6) LENGTH(4) 732
3477	ODDLOOP	ADDRESS. HEX LOCATION(00002FF0) IN CSECT(TE8E6) LENGTH(2) 3491
3400	OICB	ADDRESS. HEX LOCATION(00002F74) IN CSECT(TE8E6) LENGTH(2) 3381 3383 3389
3101	OIOCC	ADDRESS. HEX LOCATION(00002D50) IN CSECT(TE8E6) LENGTH(2) 2803 2806 2807 2814
4352	OIOCCVT	ADDRESS. HEX LOCATION(0000378A) IN CSECT(TE8E6) LENGTH(2) 2806
2839	OIO7	ADDRESS. HEX LOCATION(00002B46) IN CSECT(TE8E6) LENGTH(2) 2837 3216 3696 3949 4005 4032 4060 4095
2732	ONECT	ADDRESS. HEX LOCATION(00002A5E) IN CSECT(TE8E6) LENGTH(2) 2761 2765 2773
3490	OPRTN	ADDRESS. HEX LOCATION(0000301A) IN CSECT(TE8E6) LENGTH(2) 3488
4162	OPTNS	ADDRESS. HEX LOCATION(00003612) IN CSECT(TE8E6) LENGTH(8) 773 780
362	OPTN1	ADDRESS. HEX LOCATION(0000180E) IN CSECT(TE8E6) LENGTH(2) 428 495 530 617 639 681 770 777 783 1115 1379 1650 2736 2753 2821 3338 3342 3345 3347 3393 3626 3632
4163	OPTPRT	ADDRESS. HEX LOCATION(0000361A) IN CSECT(TE8E6) LENGTH(4) 770 777
309	OUT	ABSOLUTE. HEX VALUE(00000000) 3356
3364	OUTCB	ADDRESS. HEX LOCATION(00002F34) IN CSECT(TE8E6) LENGTH(2) 3350 3351 3354
310	OUTIN	ABSOLUTE. HEX VALUE(00000001) 3390
2411	POLLT	ADDRESS. HEX LOCATION(00002754) IN CSECT(TE8E6) LENGTH(6) 1156 1220 1419 1482
2347	POLLTERM	ADDRESS. HEX LOCATION(0000274A) IN CSECT(TE8E6) LENGTH(1) 2346 2416
3079	PRCC	ADDRESS. HEX LOCATION(00002D20) IN CSECT(TE8E6) LENGTH(1) 3010 3014
539	PRCFIG	ADDRESS. HEX LOCATION(00001998) IN CSECT(TE8E6) LENGTH(6) 531
3639	PREND	ADDRESS. HEX LOCATION(0000313E) IN CSECT(TE8E6) LENGTH(4) 3633
321	PREP	ABSOLUTE. HEX VALUE(0000000C) 2878 2895
2868	PREPD	ADDRESS. HEX LOCATION(00002B4A) IN CSECT(TE8E6) LENGTH(6) 522
3862	PRESP	ADDRESS. HEX LOCATION(00003334) IN CSECT(TE8E6) LENGTH(4) 3867
3877	PRNTBUF	ADDRESS. HEX LOCATION(0000334A) IN CSECT(TE8E6) LENGTH(6) 967 1065 1260 1334 1520 1597
2710	PRNTLOG	ADDRESS. HEX LOCATION(00002A1A) IN CSECT(TE8E6) LENGTH(6) 533 1114 1378 1649 3628
3073	PRTSTAT	ADDRESS. HEX LOCATION(00002D14) IN CSECT(TE8E6) LENGTH(4) 3047
1761	PTTCTABL	ADDRESS. HEX LOCATION(000024E6) IN CSECT(TE8E6) LENGTH(1) 2516 2522
3379	QUEST	ADDRESS. HEX LOCATION(00002F36) IN CSECT(TE8E6) LENGTH(2) 435 645 692 702 709 718 727 736 745 753 772
1791	QUESTFL	ADDRESS. HEX LOCATION(00002526) IN CSECT(TE8E6) LENGTH(2) 679 684 767
4512	RBUF	ADDRESS. HEX LOCATION(00003842) IN CSECT(TE8E6) LENGTH(1) 1702 1711 2459 2490 2596 2625 2649 2655 2663 3784 3787 3792 3803 3813 3821 3832 3841 3852 3885 3898 3942 3997 4028 4056
4513	RBUFEND	ADDRESS. HEX LOCATION(0000390A) IN CSECT(TE8E6) LENGTH(1) 2633 3942 3997 4028 4056
1704	RCDCB2	ADDRESS. HEX LOCATION(0000248A) IN CSECT(TE8E6) LENGTH(2) 954 1050 1244 1319 1505 1582 2579
1695	RCTSTDCB	ADDRESS. HEX LOCATION(0000247A) IN CSECT(TE8E6) LENGTH(2) 844 874 880 916 1691 2417 2439 3731 3747
2780	RCVMSG	ADDRESS. HEX LOCATION(00002AD6) IN CSECT(TE8E6) LENGTH(2) 2760
4106	READID	ADDRESS. HEX LOCATION(00003588) IN CSECT(TE8E6) LENGTH(6) 442
4018	RECEIVE	ADDRESS. HEX LOCATION(000034A2) IN CSECT(TE8E6) LENGTH(6) 2580 4039
753	RECK	ADDRESS. HEX LOCATION(00001BC0) IN CSECT(TE8E6) LENGTH(4) 734 741
4046	RECV	ADDRESS. HEX LOCATION(000034EE) IN CSECT(TE8E6) LENGTH(6) 4067
3498	REGSAV	ADDRESS. HEX LOCATION(00003024) IN CSECT(TE8E6) LENGTH(2) 413 839 2411 2428 2436 2450 2458 2509 2561 2572 2578 2581 2590 2635 2647 2673 2691 2710 2868 2884 2904 2917 2924 2942 2964 3096 3115 3131 3143 3149 3206 3223 3261 3270 3292 3318 3352 3358 3380 3396 3422 3436 3451 3461 3472 3492 3586 3612 3654 3672 3675 3694 3704 3709 3720 3722 3732 3734 3738 3748 3750 3780 3865 3877 3904 3923 3958 3979 4013 4018 4042 4046 4070 4077 4100 4106 4117 4121 4133
435	REQNO	ADDRESS. HEX LOCATION(000018AC) IN CSECT(TE8E6) LENGTH(4) 472
2823	RESCC	ADDRESS. HEX LOCATION(00002B18) IN CSECT(TE8E6) LENGTH(2) 2815

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
2826	RESCC1	ADDRESS. HEX LOCATION(00002B1C) IN CSECT(TE8E6) LENGTH(4) 2822
317	RESET	ABSOLUTE. HEX VALUE(00000008) 2915
2635	RETOCAL	ADDRESS. HEX LOCATION(0000298C) IN CSECT(TE8E6) LENGTH(4) 2609
2827	RETRYCC1	ADDRESS. HEX LOCATION(00002B20) IN CSECT(TE8E6) LENGTH(1) 2824
3096	RETUR	ADDRESS. HEX LOCATION(00002D46) IN CSECT(TE8E6) LENGTH(4) 2967 2987 2996 3042 3045 3072 3082
2428	RETURN	ADDRESS. HEX LOCATION(0000277C) IN CSECT(TE8E6) LENGTH(4) 2425
2450	RETURN1	ADDRESS. HEX LOCATION(000027A2) IN CSECT(TE8E6) LENGTH(4) 2443
3131	RETUR0	ADDRESS. HEX LOCATION(00002D96) IN CSECT(TE8E6) LENGTH(4) 3118
3461	RFMS	ADDRESS. HEX LOCATION(00002FD4) IN CSECT(TE8E6) LENGTH(4) 3459
3860	RFRD	ADDRESS. HEX LOCATION(0000332E) IN CSECT(TE8E6) LENGTH(4) 3788 3799 3809 3828 3838 3848 3855
837	RFTBR	ADDRESS. HEX LOCATION(00001C48) IN CSECT(TE8E6) LENGTH(6) 3039
1951	RFTE	ADDRESS. HEX LOCATION(000025C6) IN CSECT(TE8E6) LENGTH(1) 1898
1779	RFTERR	ADDRESS. HEX LOCATION(00002512) IN CSECT(TE8E6) LENGTH(2) 857 1173 1436 2507
1899	RFTMSG	ADDRESS. HEX LOCATION(00002592) IN CSECT(TE8E6) LENGTH(1) 860 861 1183 1445 1898
2122	RFTMSG2	ADDRESS. HEX LOCATION(0000266E) IN CSECT(TE8E6) LENGTH(1) 864 865 1186 1448 2121
2174	RFT2E	ADDRESS. HEX LOCATION(000026A2) IN CSECT(TE8E6) LENGTH(1) 2121
328	RICB	ABSOLUTE. HEX VALUE(00000013) 3631
318	RID	ABSOLUTE. HEX VALUE(00000009) 4116
2904	RSET	ADDRESS. HEX LOCATION(00002BA0) IN CSECT(TE8E6) LENGTH(6) 514 2828 3613
3863	RSPCODE	ADDRESS. HEX LOCATION(00003338) IN CSECT(TE8E6) LENGTH(2) 3781 3797 3808 3818 3827 3837 3847 3857 3860 3866
3869	RSPWD	ADDRESS. HEX LOCATION(00003348) IN CSECT(TE8E6) LENGTH(2) 866 893 897 933 937 956 1032 1036 1051 1166 1170 1224 1246 1320 1429 1433 1486 1507 1583 2419 2441 3782 3796 3807 3817 3825 3826 3836 3845 3846 3856
360	RTNE	ADDRESS. HEX LOCATION(0000180A) IN CSECT(TE8E6) LENGTH(2) 399 487 807 1136 1399 4124
4178	RTNUM	ADDRESS. HEX LOCATION(0000364C) IN CSECT(TE8E6) LENGTH(2) 4124
2917	RTRN	ADDRESS. HEX LOCATION(00002BC4) IN CSECT(TE8E6) LENGTH(4) 2879 2896
398	RT01	ADDRESS. HEX LOCATION(00001868) IN CSECT(TE8E6) LENGTH(6) 396 398 486 2826
1136	RT03	ADDRESS. HEX LOCATION(00001F40) IN CSECT(TE8E6) LENGTH(6) 787
1399	RT04	ADDRESS. HEX LOCATION(000021B8) IN CSECT(TE8E6) LENGTH(6) 789
1798	RT3FL	ADDRESS. HEX LOCATION(00002530) IN CSECT(TE8E6) LENGTH(2) 742 786
1799	RT4FL	ADDRESS. HEX LOCATION(00002532) IN CSECT(TE8E6) LENGTH(2) 688 715 788
0	R0	REGISTER. HEX VALUE(00000000) 421 695 696 705 706 712 713 721 722 730 731 739 740 748 756 757 2526 2537 2547 2598 2601 2612 2623 2624 2674 2684 3266 3267 3269
0	R1	REGISTER. HEX VALUE(00000001) 428 429 438 439 440 441 457 458 459 460 461 488 579 580 584 588 592 596 599 603 639 640 681 682 783 784 866 867 893 894 897 898 933 934 937 938 955 958 960 1032 1033 1036 1037 1051 1053 1054 1161 1167 1170 1171 1224 1225 1228 1246 1248 1250 1320 1322 1324 1429 1430 1433 1434 1486 1487 1490 1507 1508 1510 1583 1585 1587 2419 2420 2422 2424 2426 2441 2442 2444 2490 2491 2493 2495 2498 2500 2501 2503 2505 2520 2522 2528 2530 2532 2596 2599 2611 2618 2620 2622 2801 2802 2803 2966 2968 2975 2976 3012 3013 3036 3037 3041 3043 3044 3080 3081 3144 3148 3237 3238 3239 3262 3264 3269 3393 3394 3452 3455 3457 3458 3473 3475 3477 3490
0	R2	REGISTER. HEX VALUE(00000002) 610 613 2494 2497 2521 2522 2524 2540 2543 2597 2602 2659 2661 2662 2665 2675 2678 2679 2683 2686 2689 2690 2694 2703 2711 2719 2721 2723 2725 2727 2732 2733 2748 2758 2762 2766 2770 3263 3264 3265 3268 3454 3457 3474 3475 3476 3491 3589 3595
0	R3	REGISTER. HEX VALUE(00000003) 611 613 614 616 2663 2665 2681 2683 2717 2720 2734 2760 2760 2764 2764 2772 2772 2807 2965 2977 3073 3084 3090 3293 3298 3299 3303 3309 3310 3311 3315 3353 3453 3455 3458 3480 3485 3588 3596 3620
0	R4	REGISTER. HEX VALUE(00000004) 2654 2656 2658 2666 3294 3305 3317 3477 3478 3481 3482 3486 3489 3490
0	R5	REGISTER. HEX VALUE(00000005) 2540 2541 2544 2545 2562 2563 2564 2568 2570 2571 2718 2735 3412 3420 3441
0	R6	REGISTER. HEX VALUE(00000006) 557 558 559 562 566 570 574 2411 2436 2458 2459 2460 2462 2464 2469 2471 2473 2543 2544 2561 2565 2566 2569 2570 2578 2590 2647 2655 2656 2660 2664 2673 2676 2682 2687 2695 2704 2710 2755 2868 2884 2904 2924 2964 2969 2972 2986 2994 2995 3009 3115 3119 3123 3143 3206 3241 3261 3292 3352 3380 3436 3451 3472 3586 3654 3672 3694 3704 3709 3722 3734 3738

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		3750 3780 3784 3785 3877 3916 3917 3918 3918 3919 3920 3921 3923 3974 3975 3976 3976 3977 3979 4018 4046 4077 4106 4121
0	R7	REGISTER. HEX VALUE(00000007) 408 412 424 435 442 443 444 445 447 448 451 452 453 455 465 468 491 506 514 522 533 542 546 560 564 568 572 576 578 612 616 623 628 642 645 648 649 653 657 661 664 670 679 684 687 692 698 702 709 718 727 736 745 753 769 772 776 779 786 788 815 816 825 830 840 842 846 854 855 857 862 869 870 872 876 878 896 905 909 911 913 914 918 926 927 930 936 940 949 952 963 967 968 974 987 989 995 1000 1014 1019 1028 1035 1040 1044 1048 1061 1065 1066 1081 1085 1087 1091 1101 1103 1105 1108 1111 1113 1114 1143 1144 1146 1156 1163 1164 1169 1173 1182 1184 1187 1196 1208 1212 1220 1221 1222 1227 1237 1238 1242 1256 1260 1266 1278 1280 1291 1296 1305 1309 1313 1317 1330 1334 1351 1355 1357 1358 1367 1369 1372 1375 1377 1378 1406 1407 1409 1419 1426 1427 1432 1436 1444 1446 1449 1458 1470 1474 1482 1483 1484 1489 1499 1500 1503 1516 1520 1523 1525 1527 1537 1541 1543 1554 1559 1568 1572 1576 1580 1593 1597 1602 1604 1606 1618 1622 1624 1626 1628 1638 1641 1643 1646 1648 1649 2413 2415 2437 2447 2466 2475 2477 2485 2517 2546 2567 2568 2580 2592 2604 2614 2616 2625 2626 2629 2631 2649 2677 2678 2679 2688 2689 2690 2693 2694 2698 2713 2729 2740 2745 2747 2748 2768 2805 2809 2814 2817 2823 2828 2830 2831 2833 2835 2837 2838 2872 2877 2888 2894 2908 2912 2913 2928 2933 2934 2935 2940 2963 2966 2979 2989 2992 3018 3022 3027 3030 3033 3035 3051 3058 3065 3069 3071 3075 3086 3092 3114 3116 3117 3142 3144 3210 3217 3221 3240 3260 3262 3263 3266 3268 3281 3291 3293 3294 3295 3296 3298 3300 3349 3351 3351 3354 3359 3385 3381 3382 3383 3385 3389 3392 3435 3437 3438 3439 3440 3450 3452 3453 3454 3471 3473 3474 3479 3590 3592 3593 3598 3613 3616 3618 3622 3628 3629 3630 3634 3636 3639 3644 3658 3662 3667 3697 3700 3705 3711 3718 3724 3729 3740 3745 3752 3781 3782 3783 3785 3787 3791 3802 3812 3820 3831 3840 3851 3860 3862 3879 3884 3887 3892 3897 3900 3916 3916 3916 3920 3922 3925 3928 3932 3935 3939 3941 3945 3950 3953 3956 3957 3974 3974 3974 3978 3981 3986 3989 3993 3994 3996 4000 4001 4002 4003 4006 4009 4022 4027 4031 4033 4036 4038 4040 4041 4050 4055 4059 4061 4064 4066 4068 4069 4078 4082 4089 4096 4099 4110 4114 4115 4123 4126 4129
2610	SAVE	ADDRESS. HEX LOCATION(00002942) IN CSECT(TE8E6) LENGTH(1) 2600
2590	SAVEDATA	ADDRESS. HEX LOCATION(0000290A) IN CSECT(TE8E6) LENGTH(6) 926 1221 1483
4504	SBERR	ADDRESS. HEX LOCATION(0000383E) IN CSECT(TE8E6) LENGTH(3) 3066
3298	SBMOR	ADDRESS. HEX LOCATION(00002EB4) IN CSECT(TE8E6) LENGTH(2) 3305
3291	SCANB	ADDRESS. HEX LOCATION(00002E98) IN CSECT(TE8E6) LENGTH(2) 3791 3802 3812 3820 3831 3840 3851
3812	SCAND	ADDRESS. HEX LOCATION(000032A4) IN CSECT(TE8E6) LENGTH(4) 3806
3851	SCANEOB	ADDRESS. HEX LOCATION(00003316) IN CSECT(TE8E6) LENGTH(4) 3844
3831	SCANEOT	ADDRESS. HEX LOCATION(000032DC) IN CSECT(TE8E6) LENGTH(4) 3816 3824
3791	SCANNAK	ADDRESS. HEX LOCATION(0000326A) IN CSECT(TE8E6) LENGTH(4) 3786
3840	SCANTXTB	ADDRESS. HEX LOCATION(000032F6) IN CSECT(TE8E6) LENGTH(4) 3835
3802	SCANYAK	ADDRESS. HEX LOCATION(0000328A) IN CSECT(TE8E6) LENGTH(4) 3795
909	SDEOT1	ADDRESS. HEX LOCATION(00001D0E) IN CSECT(TE8E6) LENGTH(4) 906
1212	SDMSG	ADDRESS. HEX LOCATION(00001FEC) IN CSECT(TE8E6) LENGTH(4) 1209
1474	SDMSG1	ADDRESS. HEX LOCATION(00002264) IN CSECT(TE8E6) LENGTH(4) 1471
3590	SEC1	ADDRESS. HEX LOCATION(000030C8) IN CSECT(TE8E6) LENGTH(4) 3595
2437	SENDAD	ADDRESS. HEX LOCATION(00002786) IN CSECT(TE8E6) LENGTH(4) 2445 2449
2478	SENDCC	ADDRESS. HEX LOCATION(000027E6) IN CSECT(TE8E6) LENGTH(6) 1039 2461 2463 2468
1781	SENDCFL	ADDRESS. HEX LOCATION(00002516) IN CSECT(TE8E6) LENGTH(2) 855 1164 1427 2478
985	SENDCR	ADDRESS. HEX LOCATION(00001DB0) IN CSECT(TE8E6) LENGTH(6) 950
1099	SENDEND0	ADDRESS. HEX LOCATION(00001EFA) IN CSECT(TE8E6) LENGTH(6) 1005 1071
1111	SENDEND1	ADDRESS. HEX LOCATION(00001F24) IN CSECT(TE8E6) LENGTH(4) 1109
1365	SENDEND2	ADDRESS. HEX LOCATION(00002178) IN CSECT(TE8E6) LENGTH(6) 1271 1283 1342
1635	SENDEND3	ADDRESS. HEX LOCATION(000023FA) IN CSECT(TE8E6) LENGTH(6) 1530 1546 1609
2477	SENDYCC	ADDRESS. HEX LOCATION(000027E2) IN CSECT(TE8E6) LENGTH(4) 2470 2472
995	SEND2741	ADDRESS. HEX LOCATION(00001DCC) IN CSECT(TE8E6) LENGTH(4) 988 1004
1235	SENECH	ADDRESS. HEX LOCATION(00002018) IN CSECT(TE8E6) LENGTH(6) 1226 1229 1261
1497	SENECH1	ADDRESS. HEX LOCATION(00002290) IN CSECT(TE8E6) LENGTH(6) 1488 1491 1521
1375	SENEND	ADDRESS. HEX LOCATION(0000219C) IN CSECT(TE8E6) LENGTH(4) 1373
1641	SENEND0	ADDRESS. HEX LOCATION(00002412) IN CSECT(TE8E6) LENGTH(4)

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
		1639
2549	SETCNT	ADDRESS. HEX LOCATION(000028C8) IN CSECT(TE8E6) LENGTH(6) 2529 2531 2533
2623	SETDCNT	ADDRESS. HEX LOCATION(00002968) IN CSECT(TE8E6) LENGTH(4) 2619 2621
2620	SETDS	ADDRESS. HEX LOCATION(0000295E) IN CSECT(TE8E6) LENGTH(4) 2617
2622	SETEOB	ADDRESS. HEX LOCATION(00002964) IN CSECT(TE8E6) LENGTH(4) 2615
2507	SETERR	ADDRESS. HEX LOCATION(0000284A) IN CSECT(TE8E6) LENGTH(6) 2496 2502 2527 2535
2511	SETEST1	ADDRESS. HEX LOCATION(00002854) IN CSECT(TE8E6) LENGTH(6) 2504
2513	SETEST2	ADDRESS. HEX LOCATION(0000285C) IN CSECT(TE8E6) LENGTH(6) 2506
765	SETOPTNS	ADDRESS. HEX LOCATION(00001BD6) IN CSECT(TE8E6) LENGTH(6) 685 725 758
670	SETRATE	ADDRESS. HEX LOCATION(00001AE8) IN CSECT(TE8E6) LENGTH(4) 643 652 656 660
742	SETRT3	ADDRESS. HEX LOCATION(00001B9A) IN CSECT(TE8E6) LENGTH(6) 714
457	SET80	ADDRESS. HEX LOCATION(000018F2) IN CSECT(TE8E6) LENGTH(4) 454
669	SET950	ADDRESS. HEX LOCATION(00001AE2) IN CSECT(TE8E6) LENGTH(6) 662
2702	SKPCLR	ADDRESS. HEX LOCATION(00002A0A) IN CSECT(TE8E6) LENGTH(6) 2696
3629	SKPLOG	ADDRESS. HEX LOCATION(00003120) IN CSECT(TE8E6) LENGTH(4) 3627
2756	SRAX	ADDRESS. HEX LOCATION(00002A92) IN CSECT(TE8E6) LENGTH(4) 2754
1029	STADDR	ADDRESS. HEX LOCATION(00001E30) IN CSECT(TE8E6) LENGTH(2) 1017 1021
1569	STADDR0	ADDRESS. HEX LOCATION(00002346) IN CSECT(TE8E6) LENGTH(2) 1557 1561
1306	STADDR1	ADDRESS. HEX LOCATION(000020D2) IN CSECT(TE8E6) LENGTH(2) 1294 1298
319	START	ABSOLUTE. HEX VALUE(0000000A)
610	STATEND	ADDRESS. HEX LOCATION(00001A58) IN CSECT(TE8E6) LENGTH(4) 604
1675	STATUS0	ADDRESS. HEX LOCATION(0000244E) IN CSECT(TE8E6) LENGTH(2) 2654 3028 3073 3783 3945 4000 4031 4059
1676	STATUS1	ADDRESS. HEX LOCATION(00002450) IN CSECT(TE8E6) LENGTH(2) 3031 3036 3046 3048 3055 3062
1677	STATUS2	ADDRESS. HEX LOCATION(00002452) IN CSECT(TE8E6) LENGTH(2) 579 3034 3655 3659 3673 4079
320	STCSS	ABSOLUTE. HEX VALUE(0000000B)
1795	STCTRL	ADDRESS. HEX LOCATION(0000252A) IN CSECT(TE8E6) LENGTH(2) 2937
3210	SVC1	ADDRESS. HEX LOCATION(00002E34) IN CSECT(TE8E6) LENGTH(4) 743
3695	SVC2	ADDRESS. HEX LOCATION(000031A6) IN CSECT(TE8E6) LENGTH(6) 3216
3935	SVC3	ADDRESS. HEX LOCATION(000033D2) IN CSECT(TE8E6) LENGTH(4) 3696
3989	SVC4	ADDRESS. HEX LOCATION(00003456) IN CSECT(TE8E6) LENGTH(4) 3949
4022	SVC5	ADDRESS. HEX LOCATION(000034B4) IN CSECT(TE8E6) LENGTH(4) 4005
4050	SVC6	ADDRESS. HEX LOCATION(00003500) IN CSECT(TE8E6) LENGTH(4) 4032
4089	SVC7	ADDRESS. HEX LOCATION(00003560) IN CSECT(TE8E6) LENGTH(4) 4060
3309	SWMOR	ADDRESS. HEX LOCATION(00002EC8) IN CSECT(TE8E6) LENGTH(4) 4095
3307	SWORD	ADDRESS. HEX LOCATION(00002EC6) IN CSECT(TE8E6) LENGTH(2) 3297 3317
584	S3BIT1	ADDRESS. HEX LOCATION(000019FE) IN CSECT(TE8E6) LENGTH(2) 3281 3296
588	S3BIT2	ADDRESS. HEX LOCATION(00001A0E) IN CSECT(TE8E6) LENGTH(2) 581
592	S3BIT3	ADDRESS. HEX LOCATION(00001A1E) IN CSECT(TE8E6) LENGTH(2) 585
596	S3BIT4	ADDRESS. HEX LOCATION(00001A2E) IN CSECT(TE8E6) LENGTH(2) 589
599	S3BIT5	ADDRESS. HEX LOCATION(00001A38) IN CSECT(TE8E6) LENGTH(2) 593
603	S3BIT6	ADDRESS. HEX LOCATION(00001A48) IN CSECT(TE8E6) LENGTH(2) 597
3738	TCIRC	ADDRESS. HEX LOCATION(0000321A) IN CSECT(TE8E6) LENGTH(6) 600
3709	TCIRN	ADDRESS. HEX LOCATION(000031CE) IN CSECT(TE8E6) LENGTH(6) 846 918
3722	TCIRY	ADDRESS. HEX LOCATION(000031F2) IN CSECT(TE8E6) LENGTH(6) 3071
3716	TC001	ADDRESS. HEX LOCATION(000031E2) IN CSECT(TE8E6) LENGTH(6) 869 896 936 1035 1169 1227 1432 1489 2477
3720	TC002	ADDRESS. HEX LOCATION(000031EE) IN CSECT(TE8E6) LENGTH(4) 3736 3758
1826	TENS	ADDRESS. HEX LOCATION(0000254B) IN CSECT(TE8E6) LENGTH(1) 3702 3707
316	TERM	ABSOLUTE. HEX VALUE(00000007) 2569
2348	TERMAD1	ADDRESS. HEX LOCATION(0000274B) IN CSECT(TE8E6) LENGTH(1) 478 3648
2357	TERMAD2	ADDRESS. HEX LOCATION(00002752) IN CSECT(TE8E6) LENGTH(1) 750
2350	TERME	ADDRESS. HEX LOCATION(0000274D) IN CSECT(TE8E6) LENGTH(1) 751
2608	TERMERR	ADDRESS. HEX LOCATION(0000293A) IN CSECT(TE8E6) LENGTH(6) 2346
2010	TESEND	ADDRESS. HEX LOCATION(00002600) IN CSECT(TE8E6) LENGTH(1) 2613
1953	TESTCNT	ADDRESS. HEX LOCATION(000025C6) IN CSECT(TE8E6) LENGTH(2) 1953
2176	TESTCNT2	ADDRESS. HEX LOCATION(000026A2) IN CSECT(TE8E6) LENGTH(2) 904 1207 1469
1780	TESTFL	ADDRESS. HEX LOCATION(00002514) IN CSECT(TE8E6) LENGTH(2) 908 1211 1473
		883 1197 1459 2511 2513

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
1954	TESTMSG	ADDRESS. HEX LOCATION(000025C8) IN CSECT(TE8E6) LENGTH(1) 903 1206 1468 1953
2177	TESTMSG2	ADDRESS. HEX LOCATION(000026A4) IN CSECT(TE8E6) LENGTH(1) 907 1210 1472 2176
1011	TEST2	ADDRESS. HEX LOCATION(00001DF6) IN CSECT(TE8E6) LENGTH(6) 884
2233	TEST2E	ADDRESS. HEX LOCATION(000026DC) IN CSECT(TE8E6) LENGTH(1) 2176
1551	TES2	ADDRESS. HEX LOCATION(0000230C) IN CSECT(TE8E6) LENGTH(6) 1460
4516	TEXTCNT	ADDRESS. HEX LOCATION(0000390C) IN CSECT(TE8E6) LENGTH(2) 1013 1016 1290 1293 1553 1556
4452	TEXTRCV	ADDRESS. HEX LOCATION(00003808) IN CSECT(TE8E6) LENGTH(4) 3827 3847
4517	TEXTSAVE	ADDRESS. HEX LOCATION(0000390E) IN CSECT(TE8E6) LENGTH(1) 1031 1068 1089 1308 1339 1571
303	TE8E6	CSECT. START(00001800) LENGTH(9294) ESDID(1) 303
2969	TIME	ADDRESS. HEX LOCATION(00002C18) IN CSECT(TE8E6) LENGTH(4) 2975 2977
3132	TIMEISUP	ADDRESS. HEX LOCATION(00002D9A) IN CSECT(TE8E6) LENGTH(6) 3129
3122	TIME0	ADDRESS. HEX LOCATION(00002D78) IN CSECT(TE8E6) LENGTH(2) 3127
3119	TIME1	ADDRESS. HEX LOCATION(00002D6A) IN CSECT(TE8E6) LENGTH(4) 3130 3133
3586	TMR	ADDRESS. HEX LOCATION(000030BA) IN CSECT(TE8E6) LENGTH(6) 4099
3338	TMSG	ADDRESS. HEX LOCATION(00002EEA) IN CSECT(TE8E6) LENGTH(6) 2872 2888 2908 2928 3210 3935 3989 4022 4050 4089 4110
3427	TOADDR	ADDRESS. HEX LOCATION(00002F90) IN CSECT(TE8E6) LENGTH(2) 3438
497	TOK	ADDRESS. HEX LOCATION(00001956) IN CSECT(TE8E6) LENGTH(6) 489
3580	TOPADDR	ADDRESS. HEX LOCATION(000030B8) IN CSECT(TE8E6) LENGTH(2) 413 839 3498 3499 3612
1240	TRANSM	ADDRESS. HEX LOCATION(00002028) IN CSECT(TE8E6) LENGTH(1) 1254 1270
1503	TRANSM1	ADDRESS. HEX LOCATION(000022A0) IN CSECT(TE8E6) LENGTH(4) 1514 1529
1686	TRDCB	ADDRESS. HEX LOCATION(0000246A) IN CSECT(TE8E6) LENGTH(2) 3946 3947 4001 4003 4004 4012
3750	TREOT	ADDRESS. HEX LOCATION(00003234) IN CSECT(TE8E6) LENGTH(6) 913 930 940 968 1066 1091 1357 1523 1602 1624
1288	TST2	ADDRESS. HEX LOCATION(00002098) IN CSECT(TE8E6) LENGTH(6) 1198
2758	TST22	ADDRESS. HEX LOCATION(00002A96) IN CSECT(TE8E6) LENGTH(6) 2722
2762	TST44	ADDRESS. HEX LOCATION(00002AA4) IN CSECT(TE8E6) LENGTH(6) 2724
2766	TST88	ADDRESS. HEX LOCATION(00002AB2) IN CSECT(TE8E6) LENGTH(6) 2726
2770	TST99	ADDRESS. HEX LOCATION(00002AC2) IN CSECT(TE8E6) LENGTH(6) 2728
3320	TWA	ADDRESS. HEX LOCATION(00002EE8) IN CSECT(TE8E6) LENGTH(2) 3309 3311 3312
1276	TWEOT	ADDRESS. HEX LOCATION(0000207C) IN CSECT(TE8E6) LENGTH(6) 1239 1282
1535	TWEOT1	ADDRESS. HEX LOCATION(000022EA) IN CSECT(TE8E6) LENGTH(6) 1501 1545
1796	T2741FL	ADDRESS. HEX LOCATION(0000252C) IN CSECT(TE8E6) LENGTH(2) 724 987 1087 1103 2616
2884	UNPREP	ADDRESS. HEX LOCATION(00002B72) IN CSECT(TE8E6) LENGTH(6) 3629
4497	VRCERR	ADDRESS. HEX LOCATION(00003836) IN CSECT(TE8E6) LENGTH(4) 3059
2963	WINT	ADDRESS. HEX LOCATION(00002C00) IN CSECT(TE8E6) LENGTH(2) 2940 3221 3700 4009 4036
3114	WINTS	ADDRESS. HEX LOCATION(00002D56) IN CSECT(TE8E6) LENGTH(2) 3953 4064
3319	WVTS	ADDRESS. HEX LOCATION(00002EE6) IN CSECT(TE8E6) LENGTH(2) 3295 3300 3312
4311	XADDR	ADDRESS. HEX LOCATION(00003750) IN CSECT(TE8E6) LENGTH(4) 412 3933 3939 3987 3993
3971	XDEND	ADDRESS. HEX LOCATION(00003416) IN CSECT(TE8E6) LENGTH(2) 3299 3310
2753	XITPRT	ADDRESS. HEX LOCATION(00002A86) IN CSECT(TE8E6) LENGTH(6) 2737 2746 2749
2522	XLAT	ADDRESS. HEX LOCATION(0000287A) IN CSECT(TE8E6) LENGTH(4) 2516 2519 2525
2515	XLATE	ADDRESS. HEX LOCATION(00002862) IN CSECT(TE8E6) LENGTH(1) 2512
2520	XLATE2	ADDRESS. HEX LOCATION(00002874) IN CSECT(TE8E6) LENGTH(2) 2518 2542
2691	XLGR	ADDRESS. HEX LOCATION(000029F0) IN CSECT(TE8E6) LENGTH(4) 2650 2657 2756
1091	XMEOT	ADDRESS. HEX LOCATION(00001EEE) IN CSECT(TE8E6) LENGTH(4) 1088
3974	XMIT	ADDRESS. HEX LOCATION(0000341C) IN CSECT(TE8E6) LENGTH(4) 876 909 989 995 1085 1105 1111 1187 1212 1278 1355 1369 1375 1449 1474 1537 1622 1641 1643 3718
3916	XMITRCV	ADDRESS. HEX LOCATION(0000338C) IN CSECT(TE8E6) LENGTH(4) 842 872 878 914 952 1048 1242 1317 1503 1580 2415 2437 3729 3745
3069	XMNAK	ADDRESS. HEX LOCATION(00002D04) IN CSECT(TE8E6) LENGTH(4) 3063
1775	XMNAKFL	ADDRESS. HEX LOCATION(0000250A) IN CSECT(TE8E6) LENGTH(2) 3069 4038 4066
952	XMTAGAIN	ADDRESS. HEX LOCATION(00001D68) IN CSECT(TE8E6) LENGTH(4) 961 978
1752	XMTCTL	ADDRESS. HEX LOCATION(000024E0) IN CSECT(TE8E6) LENGTH(2) 843 879 915
1048	XMTMORE1	ADDRESS. HEX LOCATION(00001E72) IN CSECT(TE8E6) LENGTH(4) 1045 1070
1040	XMTMORE2	ADDRESS. HEX LOCATION(00001E4E) IN CSECT(TE8E6) LENGTH(4) 1034 1038 1059 1067
1085	XMTMORE3	ADDRESS. HEX LOCATION(00001EDA) IN CSECT(TE8E6) LENGTH(4) 1082 1093

CROSS-REFERENCE LISTING

DECLARED	NAME	ATTRIBUTES AND REFERENCES
1309	XMTMORE4	ADDRESS. HEX LOCATION(000020D8) IN CSECT(TE8E6) LENGTH(4) 1328
1317	XMTMORE5	ADDRESS. HEX LOCATION(000020FC) IN CSECT(TE8E6) LENGTH(4) 1314 1341
1355	XMTMORE6	ADDRESS. HEX LOCATION(00002162) IN CSECT(TE8E6) LENGTH(4) 1352 1360
1572	XMTMOR4	ADDRESS. HEX LOCATION(0000234C) IN CSECT(TE8E6) LENGTH(4) 1591
1580	XMTMOR5	ADDRESS. HEX LOCATION(00002370) IN CSECT(TE8E6) LENGTH(4) 1577 1608
1622	XMTMOR6	ADDRESS. HEX LOCATION(000023DE) IN CSECT(TE8E6) LENGTH(4) 1619 1630
2781	XMTMSG	ADDRESS. HEX LOCATION(00002AD8) IN CSECT(TE8E6) LENGTH(2) 2764
902	XMTMSG11	ADDRESS. HEX LOCATION(00001CF0) IN CSECT(TE8E6) LENGTH(1) 895 899 931 941
1218	XMTPOL	ADDRESS. HEX LOCATION(00001FF2) IN CSECT(TE8E6) LENGTH(6) 1223 1230
2413	XMTPOLL	ADDRESS. HEX LOCATION(0000275A) IN CSECT(TE8E6) LENGTH(4) 2421 2423 2427
1480	XMTPOL1	ADDRESS. HEX LOCATION(0000226A) IN CSECT(TE8E6) LENGTH(6) 1485 1492
2736	XPTLIN	ADDRESS. HEX LOCATION(00002A66) IN CSECT(TE8E6) LENGTH(6) 2769
3972	XSAV	ADDRESS. HEX LOCATION(00003418) IN CSECT(TE8E6) LENGTH(2) 3926 3933 3933 3982 3987 3987
1797	X2740FL	ADDRESS. HEX LOCATION(0000252E) IN CSECT(TE8E6) LENGTH(2) 733 840 870 911
344	YAKR	ABSOLUTE. HEX VALUE(00000001) 958 1053 1248 1322 1508 1585 2442
4428	YAKRCV	ADDRESS. HEX LOCATION(000037F2) IN CSECT(TE8E6) LENGTH(4) 3808
4421	YAKSENT	ADDRESS. HEX LOCATION(000037EC) IN CSECT(TE8E6) LENGTH(3) 3725

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