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LOCTR OBJECT TEXT      STMT SOURCE STATEMENT      COPYRIGHT IBM CORP 1976
3      COPY LOG7A68      ** MAP EC HISTORY **
4      *****
5      *
6      *      ***      PREREQUISITES      ***
7      *
8      *      NONE
9      *
10     *****
11     *
12     *      ***      MODIFICATIONS      ***
13     *
14     *      CHANGES MADE TO CORRECT ERRORS FOUND WHILE IN TEST
15     *
16     *****
17     *
18     *      ***      REA'S INCOPPORATED      ***
19     *
20     *      NONE
21     *
22     *****
23     *
24     *      ***      SPECIAL INSTRUCTIONS      ***
25     *
26     *      NONE
27     *
28     *****
29     *
30     *      ***      E. C. HISTORY      ***
31     *
32     *      DATE 17AUG78  DATE 10JAN79  DATE      DATE
33     *      E.C. 755391  E.C. 375222  E.C.      E.C.
34     *
35     *****
37     I7A68  START  X'2500'      START ADDRESS OF ALL 'I' TYPE PROG
38     @QUES  EQU   X'0100'      EQUATED VALUE FOR MDI STATEMENT
39     @FIXT  EQU   X'0101'      EQUATED VALUE FOR MDI STATEMENT
40     @STOP  EQU   X'0102'      EQUATED VALUE FOR MDI STATEMENT
41     @GOTO  EQU   X'0200'      EQUATED VALUE FOR MDI STATEMENT
42     @CALL  EQU   X'0201'      EQUATED VALUE FOR MDI STATEMENT
43     @INPT  EQU   X'0300'      EQUATED VALUE FOR MDI STATEMENT
44     @QUXX  EQU   X'0400'      EQUATED VALUE FOR MDI STATEMENT
45     @TUXX  EQU   X'0500'      EQUATED VALUE FOR MDI STATEMENT
46     @NVLD  EQU   X'0600'      EQUATED VALUE FOR MDI STATEMENT
47     EQ     EQU   X'0000'      EQUATE FOR EQUAL
48     NE     EQU   X'0004'      EQUATE FOR NOT EQUAL
49     HI     EQU   X'0008'      EQUATE FOR HIGH
50     NH     EQU   X'000C'      EQUATE FOR NOT HIGH
51     LO     EQU   X'0010'      EQUATE FOR LOW
52     NL     EQU   X'0014'      EQUATE FOR NOT LOW
53     LT     EQU   X'0018'      EQUATE FOR LESS THAN
54     LE     EQU   X'000C'      EQUATE FOR LESS THAN OR EQUAL TO
55     GT     EQU   X'0008'      EQUATE FOR GREATER THAN
56     GE     EQU   X'0014'      EQUATE FOR GREATER THAN OR EQUAL TO
57     ON     EQU   X'0200'      EQUATE FOR ON
58     OFF    EQU   X'0204'      EQUATE FOR OFF
59     HX     EQU   X'0204'      EQUATE FOR MIXED
60     EBC    EQU   X'0000'      EQUATE FOR EBCDIC DATA TRANSFER
61     HEX    EQU   X'0001'      EQUATE FOR HEX DATA TRANSFER
62     XTRNL  EQU   X'0001'      EQUATE FOR EXTERNAL REFERENCE
63     INTRNL EQU   X'0000'      EQUATE FOR INTERNAL REFERENCE
64     PARM   EQU   X'0000'      EQUATE INDICATING PARAMETER
65     DA     EQU   X'0001'      EQUATE FOR DEVICE ADDRESS
66     UA     EQU   X'0002'      EQUATE FOR UNIT ADDRESS
67     DUMMY  EQU   X'0000'      DUMMY EQUATE
68     PID    EQU   *-X'0D00'      ADDRESS OF MDI HEADER
69     PTYPE  EQU   *-X'22CE'      ADDRESS OF PROCESSOR TYPE FIELD
70     STEPNUM EQU   PID+X'000C'      ADDRESS OF DECIMAL STEP NUMBER
71     OPWD1  EQU   PID+X'000E'      ADDRESS OF OPTION WORD ONE
72     OPWD2  EQU   PID+X'0010'      ADDRESS OF OPTION WORD TWO
73     TUSTATUS EQU   PID+X'0018'      ADDRESS OF TU STATUS WORD
74     TWORK  EQU   PID+X'001A'      ADDRESS OF TU WORK AREA
75     TUPARM1 EQU   PID+X'009A'      ADDRESS OF PARM 1 POINTER
76     TUPARM2 EQU   PID+X'009C'      ADDRESS OF PARM 2 POINTER
77     TUPARM3 EQU   PID+X'009E'      ADDRESS OF PARM 3 POINTER
78     TUPARM4 EQU   PID+X'00A0'      ADDRESS OF PARM 4 POINTER
79     TUPARM5 EQU   PID+X'00A2'      ADDRESS OF PARM 5 POINTER
80     TUPARM6 EQU   PID+X'00A4'      ADDRESS OF PARM 6 POINTER
81     TUPARM7 EQU   PID+X'00A6'      ADDRESS OF PARM 7 POINTER
82     TUPARM8 EQU   PID+X'00A8'      ADDRESS OF PARM 8 POINTER
83     TUPARM9 EQU   PID+X'00AA'      ADDRESS OF PARM 9 POINTER
84     TUPARM10 EQU   PID+X'00AC'      ADDRESS OF PARM 10 POINTER
85     TUPARM11 EQU   PID+X'00AE'      ADDRESS OF PARM 11 POINTER
86     TUPARM12 EQU   PID+X'00B0'      ADDRESS OF PARM 12 POINTER
87     TUPARM13 EQU   PID+X'00B2'      ADDRESS OF PARM 13 POINTER
88     TUPARM14 EQU   PID+X'00B4'      ADDRESS OF PARM 14 POINTER
89     TUPARM15 EQU   PID+X'00B6'      ADDRESS OF PARM 15 POINTER
90     TUPARM16 EQU   PID+X'00B8'      ADDRESS OF PARM 16 POINTER
91     TUMSGWTR EQU   PID+X'00BA'      ADDRESS OF -> TO COMMON MSG WRITER
92     TUUA   EQU   PID+X'00BE'      ADDRESS OF UNIT ADDRESS IN EBC
93     TUDA   EQU   PID+X'00C0'      ADDRESS OF DEVICE ADDRESS IN EBC
94     TUBUFF EQU   PID+X'00C2'      ADDRESS OF LAST USED WORD IN MAP
95     TULAST EQU   PID+X'00C4'      ADDRESS OF LAST ADDRESSABLE WORD
96     TURESUL EQU   PID+X'00C6'      ADDRESS OF LENGTH OF TU RESULTS
97     TURESUL EQU   PID+X'00C8'      ADDRESS OF TU RESULTS FIELD
98     MAPNAME EQU   PID+X'00FC'      ADDRESS OF MAP NAME FIELD IN HEX
99     TUINPT EQU   PID+X'0148'      ADDRESS OF SINPT DATA
100    PARMARA EQU   PID+X'016E'      ADDRESS OF SINPT INPUT AREA
101    @DCADD1 EQU   PID+X'01B8'      MDI POINTER
102    @DCADD2 EQU   PID+X'01BA'      MDI POINTER
103    SUPSTAT EQU   PID+X'01C4'      ADDRESS OF MDI STATUS
104    DEVADD  EQU   PID+X'01D0'      ADDRESS OF DEVICE ADDRESS TABLE 0
105    DEVADD1 EQU   PID+X'01DA'      ADDRESS OF DEVICE ADDRESS TABLE 1
106    DEVADD2 EQU   PID+X'01E4'      ADDRESS OF DEVICE ADDRESS TABLE 2
107    DEVADD3 EQU   PID+X'01E8'      ADDRESS OF DEVICE ADDRESS TABLE 3
108    DEVADD4 EQU   PID+X'01F8'      ADDRESS OF DEVICE ADDRESS TABLE 4
109    DEVADD5 EQU   PID+X'0202'      ADDRESS OF DEVICE ADDRESS TABLE 5
110    DEVADD6 EQU   PID+X'020C'      ADDRESS OF DEVICE ADDRESS TABLE 6
111    DEVADD7 EQU   PID+X'0216'      ADDRESS OF DEVICE ADDRESS TABLE 7
112    PRINT  OFF
113

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000232
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001818
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00189A
00189C
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0018FC
001948
00196E
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0019BA
0019C4
0019D0
0019DA
0019E4
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0019F8
001A02
001A0C
001A16

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LOCTR OBJECT TEXT      STMT SOURCE STATEMENT      COPYRIGHT IBM CORP 1976
002500 25DE      198     DC      A(ENTPT)      POINT TO MAP ENTRY POINT TABLE
199     *****
200     *****
201     *
202     *      THE FOLLOWING TABLES ARE USED BY THE MDI SUPERVISOR (D3C00)
203     *      TO LOCATE THE CORRECT RULE TO INVOKE, TO OBTAIN THE PROPER
204     *      PARAMETERS TO PASS TO THE TU'S AND TO PASS TO THE OPERATOR
205     *      THE INDICATED MESSAGE(S). THERE ARE FOUR TABLES USED FOR THIS
206     *      PURPOSE THEY ARE:
207     *
208     *      STEP AND RULE ADDRESS TABLE
209     *      THIS TABLE GIVES THE ADDRESS OF THE RULE TO INVOKE AND
210     *      THE ASSOCIATED STEP DECIMAL STEP NUMBER OF THAT RULE.
211     *      ENTRIES ARE AS FOLLOWS
212     *      A) AN ADDRESS OF THE RULE DC START AREA
213     *      B) THE STEP NUMBER IN DECIMAL
214     *      C) AN EQUATE FOR THE STEP NUMBER
215     *
216     *      RULE INFORMATION TABLE
217     *      THIS TABLE CONTAINS THE REQUIRED INFORMATION TO EXECUTE
218     *      THE APPROPRIATE RULE UNDER MDI. EACH RULE HAS ITS OWN
219     *      UNIQUELY DEFINED AREA INDICATED BELOW. END OF TABLE IS
220     *      INDICATED WITH A X'0000' FOR THE RULE EQUATE.
221     *
222     *
223     *      $QUES
224     *      A) RULE EQUATE X'0100'
225     *      B) ADDRESS OF THE YES LEG RULE
226     *
227     *      $FIXT
228     *      A) RULE EQUATE X'0101'
229     *      B) ADDRESS OF MESSAGE TO PRINT
230     *
231     *      $STOP
232     *      A) RULE EQUATE X'0102'
233     *      B) ADDRESS OF MESSAGE
234     *
235     *      $GOTO
236     *      A) RULE EQUATE X'0200'
237     *      B) ADDRESS OF MESSAGE
238     *      C) NAME OF MAP TO GO TO
239     *      D) ENTRY POINT WITHIN GO TO MAP TO USE
240     *      E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE
241     *
242     *      $CALL
243     *      A) RULE EQUATE X'0201'
244     *      B) ADDRESS OF MESSAGE
245     *      C) NAME OF MAP TO CALL
246     *      D) ENTRY POINT WITHIN CALLED MAP TO USE
247     *      E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE
248     *
249     *      $INPT
250     *      A) RULE EQUATE X'0300'
251     *      B) INPUT TYPE (EBCDIC OR HEX)
252     *      C) ADDRESS OF YES LEG RULE
253     *      D) DESTINATION LOCATION OF INPUT DATA
254     *      E) LENGTH OF INPUT DATA
255     *      F) LOWER LIMIT OF GOOD DATA
256     *      G) HIGHER LIMIT OF GOOD DATA
257     *
258     *      $QUXX
259     *      A) RULE EQUATE X'0400'
260     *      B) ADDRESS OF YES LEG RULE
261     *      C) TU BRANCH TO ADDRESS (INITIAL)
262     *      D) TU BRANCH TO ADDRESS (SECONDARY)
263     *      E) LENGTH OF PARAMETER IN BYTES
264     *      F) PARAMETER TO PASS TO TU
265     *      G) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER
266     *
267     *      $TUXX
268     *      A) RULE EQUATE X'0500'
269     *      B) ADDRESS OF YES LEG RULE
270     *      C) TU BRANCH TO ADDRESS
271     *      D) TYPE OF COMPARE TO MAKE ON RESULTS
272     *      E) LENGTH OF COMPARED RESULTS
273     *      F) MASK FIELD FOR COMPARE
274     *      G) LENGTH OF PARAMETER IN BYTES
275     *      H) PARAMETER TO PASS TO THE TU
276     *      I) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER
277     *
278     *      $NVLD
279     *      A) RULE EQUATE X'0600'
280     *
281     *
282     *      ENTRY POINT TABLE
283     *      THIS TABLE CONTAINS THE ENTRY POINTS WITHIN THE MAP THAT
284     *      THE MAP CAN BE ENTERED FROM THESE ENTRY POINTS ARE
285     *      REFERENCED BY NAME AND ADDRESS. ENTRIES ARE AS FOLLOWS:
286     *
287     *      A) NAME OF ENTRY POINT
288     *      B) ADDRESS OF ENTRY POINT RULE TABLE
289     *
290     *      THE ENTRY POINT TABLE END IS INDICATED BY A X'0000'
291     *
292     *      MESSAGE TABLE
293     *      THIS TABLE CONTAINS THE MESSAGE PASSED TO THE OPERATOR
294     *      VIA THE MDI SUPERVISOR. THE TABLE IS AS FOLLOWS:
295     *
296     *      A) EQUATE FOR START OF MESSAGE BLOCK
297     *      B) NUMBER OF LINES OF MESSAGE
298     *      C) LENGTH OF FOLLOWING LINE
299     *      D) FIRST LINE OF MESSAGE
300     *      E) LENGTH OF FOLLOWING LINE
301     *      F) SECOND LINE OF MESSAGE
302     *      G) ETC.
303     *
304     *****
305     *****

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LOCTR	OBJECT TEXT	STMT	SOURCE STATEMENT	COPYRIGHT IBM CORP 1976
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LOCTR	OBJECT TEXT	STMT	SOURCE STATEMENT	COPYRIGHT IBM CORP 1976
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LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976

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000012 537+B50 EQU 18 2 2 * THESE BITS ARE USED WITH THE
000013 538+B51 EQU 19 3 1 * SECOND OPTION WD AND ARE TO
000014 539+B52 EQU 20 4 8 * BE ASSIGNED BY EACH PROGRAMMER
000015 540+B53 EQU 21 5 4 *
000016 541+B54 EQU 22 6 2 *
000017 542+B55 EQU 23 7 8 *
000018 543+B56 EQU 24 8 8 *
000019 544+B57 EQU 25 9 4 *
00001A 545+B58 EQU 26 10 2 *
00001B 546+B59 EQU 27 11 1 *
00001C 547+B60 EQU 28 12 8 *
00001D 548+B61 EQU 29 13 4 *
00001E 549+B62 EQU 30 14 2 *
00001F 550+B63 EQU 31 15 1 *
00001F 551+CH EQU 30 14 2 CHARACTER SUPPLIED
00001F 552+COMP EQU 31 15 1 COMPARE OPERATION
0026AE 0000 554+OPTN3 DC X'0000' PROGRAM OPTION CONTROL WORD 3
555** 0 MYSTERY INTERRUPT MI 8 CS STATUS IN PROGRESS CS
557** 1 ERROR INTERRUPT ER 9 CS AVAILABLE CSA
558** 2 EXPECTED INTERRUPT XI 10 CS STATUS INTERRUPT ERR CE
559** 3 INTERRUPT RECEIVED IN 11 ISB BITS ON (1-7) ISBON
561** 4 EXPECTED ERR/ATTENT XE 12 TEST UNIT RESULTS VOID NG
562** 5 HARD ERROR FOUND HE 13 OIO CC ERROR IOCC
563** 6 WRONG INTR LEVEL $LE 14 NO INTERRUPT NOIN
564** 7 NO INTR EXPECTED NI 15 INTERRUPT CC ERROR INCC
565** BIT HEX
000020 566+MI EQU 32 0 8 MYSTERY INTERRUPT HAPPENED
000021 567+ER EQU 33 1 4 ERROR RECEIVED ON INTERRUPT
000022 568+XI EQU 34 2 2 EXPECTED INTERRUPT CONTROL BIT
000023 569+IN EQU 35 3 1 INTERRUPT RECEIVED CONTROL BIT
000024 570+XE EQU 36 4 8 EXPECTED ERROR RESPONSE
000025 571+HE EQU 37 5 4 HARD ERROR & RETRIES
000026 572+$LE EQU 38 6 2 INTERRUPT ON WRONG LEVEL ERROR
000027 573+NI EQU 39 7 1 NO INTERRUPT EXPECTED E
000028 574+CS EQU 40 8 8 CYCLE STATUS IN PROGRESS
000029 575+CSA EQU 41 9 4 CYCLE STEAL AVAILABLE
00002A 576+CE EQU 42 10 2 CYCLE STEAL STATUS INERRRUPT ERROR
00002B 577+ISBON EQU 43 11 1 ISB BITS ON (1-7)
00002C 578+NG EQU 44 12 8 TEST UNIT RESULTS NO GOOD
00002D 579+IOCC EQU 45 13 4 OIO CC ERROR
00002E 580+NOIN EQU 46 14 2 NO INTERRUPT
00002F 581+INCC EQU 47 15 1 INTERRUPT CC ERROR
582**
583** COMMON BUFFER FOR PRINTING DATA
584**
0026B0 0000 586+$TUID DC A(*-*) TEST UNIT IDENTIFICATION
0026B2 0000 587+$IOIN DC A(*-*) I/O AND INTR CONDITION CODES
0026B4 0000 588+$ISB DC A(*-*) P7, INTR STATUS BYTE & DEV ADRS
0026B6 0000 589+$LSTIO DC A(*-*) ADRS OF LAST I/O + 4 BYTES
0026B8 0000 590+DEV1 DC A(*-*) DEVICE DEPENDENT DATA
0026BA 0000 591+DEV2 DC A(*-*) *
0026BC 0000 592+DEV3 DC A(*-*) *
0026BE 0000 593+DEV4 DC A(*-*) *
0026B8 594+$CTID EQU *DFV1 CS STATUS ERROR ISB & INTR CC
0026C0 0000 595+$DCBUF EQU *DCB1 READ ID BUFFER FOR IBIS & TERN
0026C2 0000 596+DCB1 DC A(*-*) DCB BUFFER FOR LAST DCB USED
0026C4 0000 597+DCB2 DC A(*-*) LAST DCB TABLE, CONTROL WORD
0026C6 0000 598+DCB3 DC A(*-*) LAST DCB TABLE, DEV DEP WORD
0026C8 0000 599+DCB4 DC A(*-*) LAST DCB TABLE, DEV DEP WORD
0026CA 0000 600+DCB5 DC A(*-*) LAST DCB TABLE, DEV DEP WORD
0026CC 0000 601+DCB6 DC A(*-*) LAST DCB TABLE, CHAIN ADRS
0026CE 0000 602+DCB7 DC A(*-*) LAST DCB TABLE, BYTE COUNT
0026CE 0000 603+DCB8 DC A(*-*) LAST DCB TABLE, BUFFER ADDRESS
604**
0026D0 0000 605+$SBUF EQU * CYCLE STEAL DATA BUFFER
0026D2 0000 606+$CTL1 DC A(*-*) CS STATUS WD 0, RESIDUAL ADDRESS
0026D4 0000 607+$CTL2 DC A(*-*) CS STATUS WD 1, RESIDUAL COUNT
0026D6 0000 608+$CTL3 DC A(*-*) CS STATUS WD 2, RETRY CNT WD 1
0026D8 0000 609+$CTL4 DC A(*-*) CS STATUS WD 3, RETRY CNT WD 2
0026DA 0000 610+$CTL5 DC A(*-*) CS STATUS WD 4, ERROR STATUS WD 1
0026DC 0000 611+$CTL6 DC A(*-*) CS STATUS WD 5, ERROR STATUS WD 2
0026DE 0000 612+$CTL7 DC A(*-*) CS STATUS WD 6, LAST DCB ADDRESS
0026E0 0000 613+$CTL8 DC A(*-*) CS STATUS WD 7, PREVIOUS HD/CYL
0026E2 0000 614+$CTL9 DC A(*-*) CS STATUS WD 8, CURRENT HD/CYL
0026E4 0000 615+$CTL10 DC A(*-*) CS STATUS WD 9, FLAG/SECTOR
0026E6 0000 616+$CTL11 DC A(*-*) CS STATUS WD 10, HEAD/CYLINDER
0026E8 0000 617+$CTL12 DC A(*-*) CS STATUS WD 11, DIAG BYTES 1, 2
0026E8 0000 618+$CTL13 DC A(*-*) CS STATUS WD 12, AND 3 + WRAP BYTE
619**
0026EA 0000 620+$SUBN DC A(*-*) LAST SUBROUTINE ADDRESS USED
0026EC 00000000 621+$DATA DC 2A(*-*) OPTIONAL DATA
0026F0 0021 622+$INTL DC X'0021' INTERRUPT LEVEL REQUESTED
0026F2 0000 623+$TURTN DC A(*-*) TEST UNIT RETURN ADRS TO MDI
0026F4 00 624+$DVID DC X'00' DEVICE ID
0026F6 19D0 625+$VCAL DC A(DEVADD) ADRS OF DEVICE ADDRESS
0026F8 0000 626+ DC A(*-*) IBIS CYLINDER ADDRESS
627**
628** THIS TEST UNIT WILL RETURN TO MDI WITHOUT DOING ANY PROGRAM
629** FUNCTION. THE RESULTS THAT WERE SET UP IN THE RESULTS AREA ARE
630** STILL VALID BUT A DIFFERENT TEST IS TO BE PERFORMED.
631**
0026FA 4020 26B0 7A02 632+$T7A02 MVWHI X'7A02',$TUID SET UP TEST UNIT ID
002700 5700 633+ BXS (R7) RETURN TO MDI SUPVR
635+ COPY COMEQU
636 *****
637 *
638 * EQUATED NAMES FOR SUPPORTED SVC'S
639 *
640 *****
000000 641 OUT EQU 0 OUT SVC
000001 642 OUTIN EQU 1 OUTIN SVC
000002 643 IDLE EQU 2 IDLE SVC
000003 644 IDLES EQU 3 IDLE SVC - INDEPENDENT OF CPU TYPE
000004 645 CHNGE EQU 4 CHANGE LEVEL SVC
000005 646 PGMCK EQU 5 ALLOW RETURN ON PROGRAM CHECK SVC
000006 647 EXIT EQU 6 EXIT SVC
000007 648 TERM EQU 7 TERMINATE SVC
000008 649 RESET EQU 8 RESET DEVICE SVC
000009 650 RID EQU 9 READ ID SVC
00000A 651 START EQU 10 START CYCLE STEAL SVC
00000B 652 STCSS EQU 11 START CYCLE STEAL STATUS SVC
00000C 653 PREP EQU 12 PREPARE DEVICE SVC

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LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976

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00000D 654 READ0 EQU 13 READ WITH FUNCTION BIT 3 OFF SVC
00000E 655 READ1 EQU 14 READ WITH FUNCTION BIT 3 ON SVC
00000F 656 RSTAT EQU 15 READ STATUS SVC
000010 657 WRIT0 EQU 16 WRITE WITH FUNCTION BIT 3 OFF SVC
000011 658 WRIT1 EQU 17 WRITE WITH FUNCTION BIT 3 ON SVC
000012 659 CTRL EQU 18 CONTROL SVC
000013 660 RIBC EQU 19 RELEASE INTERUPT CONTROL BLOCK SVC
000014 661 CIOB EQU 20 CONNECT INTERUPT CONTROL BLOCK SVC
000015 662 HIO EQU 21 HALT I/O
000016 663 REQSD EQU 22 REQUEST USE OF DCP DISK SVC
000017 664 RELSD EQU 23 RELEASE USE OF DCP DISK SVC
000018 665 HALT EQU 24 HALT SVC
000019 666 ETOH EQU 25 EBCDIC TO HEX SVC (STRING)
00001A 667 HTOE EQU 26 HEX TO EBCDIC SVC (STRING)
00001B 668 ATOH EQU 27 ASCII TO HEX SVC (STRING)
00001C 669 HTOA EQU 28 HEX TO ASCII SVC (STRING)
00001D 670 ETOA EQU 29 EBCDIC TO ASCII SVC (STRING)
00001E 671 ATOE EQU 30 ASCII TO EBCDIC SVC (STRING)
00001F 672 READI EQU 31 READ DATA SETS FOR MDI/UTIL
000020 673 WRITI EQU 32 WRITE DATA SETS FOR UTIL
674 *****
675 *****
676 *
677 * EQUATES USED BY TU'S AS CONSTANTS
678 *
679 *****
00004E 680 PLUS EQU C'+ ' PLUS CHAR
000060 681 MINUS EQU C'- ' MINUS CHAR
000000 683 ZERO EQU 0
000001 684 ONE EQU 1
000002 685 TWO EQU 2
000003 686 THREE EQU 3
000004 687 FOUR EQU 4
000005 688 FIVE EQU 5
000006 689 SIX EQU 6
000007 690 SEVEN EQU 7
000008 691 EIGHT EQU 8
000009 692 NINE EQU 9
00000A 693 TEN EQU 10
00000B 694 ELEVN EQU 11
00000C 695 TWELV EQU 12
00000D 696 THRRTN EQU 13
00000E 697 FIVTN EQU 15
000010 698 SIXTN EQU 16
000020 699 THRY2 EQU 32
000040 700 SIXT4 EQU 64
000080 701 ONE28 EQU 128
000100 702 TWOS6 EQU 256
000400 703 ONEK EQU 1024
000800 704 TWOK EQU 2048
000C00 705 THREEK EQU 3072
001000 706 FOURK EQU 4096
FFFFF0 708 M1 EQU -1
FFFFFE 709 M2 EQU -2
FFFFFD 710 M3 EQU -3
FFFFFC 711 M4 EQU -4
712 *****
713 *****
714 *****
715 * THE FOLLOWING ARE EQUATES FOR BIT DISPLACEMENTS FROM THE
716 * BEGINNING OF THE BYTE TO EACH BIT IN THE WORD OF SWITCHES.
717 *
718 *****
000000 719 BS0 EQU 0
000001 720 BS1 EQU 1
000002 721 BS2 EQU 2
000003 722 BS3 EQU 3
000004 723 BS4 EQU 4
000005 724 BS5 EQU 5
000006 725 BS6 EQU 6
000007 726 BS7 EQU 7
000008 727 BS8 EQU 8
000009 728 BS9 EQU 9
00000A 729 BS10 EQU 10
00000B 730 BS11 EQU 11
00000C 731 BS12 EQU 12
00000D 732 BS13 EQU 13
00000E 733 BS14 EQU 14
00000F 734 BS15 EQU 15
735 *****
736 COPY T7A00DCB 26OCT77
737 ** (T7A00DCB)
738 *
739 *****
740 *****
741 * DCB TABLES AND DC'S
742 *
743 *****
744 *
745 ***** DIAGNOSTIC DCB *****
746 *
747 DGDCB DC X'2008' DIAGNOSTIC DCB
748 DC A(*-*) FLAG / PHYSICAL SECTOR#
749 DC A(*-*) HEAD / CYLINDER#'S
750 DC X'0000' NOT USED
751 DC A(RSBA) RSB ADDRESS
752 DC A(*-*) CHAINING ADDRESS
753 DC X'0100' BYTE COUNT
754 DC A(*-*) DATA ADDRESS
755 *
756 ***** RECALIBRATE DCB *****
757 *
758 CLDCB DC X'0001' RECALIBRATE DCB
759 DC 7A(*-*)
760 *
761 ***** WRITE SECTOR ID *****
762 *
763 WSDCB DC X'002D' WRITE SECTOR ID CNTL WORD
764 DC A(*-*) FLAG / PHYSICAL SECTOR#
765 DC A(*-*) HEAD / CYLINDER#'S
766 DC X'0000' NOT USED
767 DC A(RSBA) RSB ADDRESS
768 DC A(*-*) CHAINING ADDRESS
769 DC X'0004' BYTE COUNT
770 DC A(WRSID) ADDR OF SECTOR ID DATA
771 *
772 ***** READ SECTOR ID DCB *****

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LOC TR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
1002 *
1003 \$WKEW MVA WKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1004 MVA WRSID,WKDCB+14 DATA ADDR
1005 J XIO
1006 *
1007 \$WSEC MVA WSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1008 MVA WRSID,WSDCB+14 DATA ADDR
1009 J XIO
1010 *
1011 \$DIAG MVA DGDCEB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1012 J XIO
1013 *
1014 \$WRTO MVW R6,LSTIO SAVE IAR FOR RETRY IF REQUESTED
1015 MVBI 255,R3 CLEAR CYCLE STATUS BUFFER
1016 MVA CSBUF,R5 * TO ALL ONES *
1017 MVBI 22,R7 *
1018 FPN R3,(R5) *
1019 MVA DCBUF,R5 CLEAR DCB BUFFER TO ALL ONES
1020 MVBI 16,R7 *
1021 FPN R3,(R5) *
1022 MVWI X'0708', \$IOIN OVERLAY OLD CONDITION CODES
1023 MVWZ \$ISB,R3 ZERO OUT OLD ISB VALUE
1024 TBTR (R4,IN) CLEAR INTERRUPT RECEIVED CNTL BIT
1025 TBTR (R4,ER) RESET ANY ERROR BEFORE I/O COMMAND
1026 TBTS (R4,XI) SET EXPECTED INTR CONTROL BIT
1027 MVA IOBLK,R7 SET UP CONTROL BLK FOR SUPR
1028 MVB IOMOD+1,R0 GET IDCB FUNC/MODIFIER
1029 RBTWI X'00F0',IOMOD REMOVE FUNCTION FROM 'IOMOD'
1030 SRL 4,R0 RIGHT JUSTIFY FUNCTION BITS IN R0
1031 CBI 5,R0 IDCB FUNCTION = 5
1032 JE WRIT1 SVC WRIT1 ISSUE WRITE DPC '4X' OP
1033 SVC WRIT0 GO WAIT FOR THE INTERRUPT
1034 B XIO8-4 GO WAIT FOR THE INTERRUPT
1035 \$WRT1 SVC WRIT1 ISSUE WRITE DPC '5X' OP
1036 B XIO8-4 GO WAIT FOR THE INTERRUPT
1037 *
1038 \$DGWR MVA WRDCB,IODCB SET UP CONTROL BLK FOR SVC CALL
1039 B XIODG ISSUE START CS DIAG CMD
1040 *
1041 \$DGRD MVA RDDCB,IODCB SET UP CONTROL BLK FOR SVC CALL
1042 MVW RDDCB+12,R7 GET NO. OF BYTES TO CLEAR
1043 MVW RDDCB+14,R5 ADDR OF READ BUFFER
1044 MVBI X'FF',R3 CLEAR TO F'S
1045 FPN R3,(R5) *
1046 B XIODG ISSUE START CS DIAG CMD
1048 COPY T7AXEQ 09HAR78
1049 PRINT OFF
1050 T7AXEQ
1614 *****29JUL76**
1615**
1616** SUB-ROUTINE
1617** EXECUTE INPUT AND OUTPUT COMMANDS
1618**
1619**
1620** PURPOSE
1621**
1622** TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
1623** THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:
1624**
1625** 1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED
1626** THE I/O COMMAND.
1627** 2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS
1628** ISSUED BY THIS SUBROUTINE.
1629** 3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE
1630** START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.
1631** 4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT
1632** SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,
1633** MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.
1634** 5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE
1635** EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC START'.
1636** 6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING
1637** STARTS TO DETERMINE A LOST INTERRUPT.
1638** 7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF IT
1639** WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.
1640** 8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.
1641** 9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.
1642** 10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.
1643** 11. CHECK TO SEE IF THE EXERCISER IS TO BE TERMINATED.
1644** 12. CHECK IF A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS
1645** ISSUED BY THIS SUBROUTINE.
1646** 13. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A
1647** CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON,
1648** COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.
1649**
1650** CALLING SEQUENCE
1651** THIS ROUTINE HAS THE FOLLOWING ENTRIES:
1652**
1653** --> BAL XIO OR XEO ANY CYCLE STEAL COMMAND, MOD=0
1654** --> BAL XIO1 MOD PARM PRELOADED IN 'IOMOD'
1655** --> BAL XIOCS,R6 OR XEO START CYCLE STEAL STATUS, MOD=F
1656** --> BAL XIOCS+4,R6 AUTO CS STATUS (FOLLOWING OTHER XIO
1657** AND DOES NOT POST INTERRUPT STATUS)
1658**
1659** RETURN CONTROL
1660**
1661**
1662** OR BXS (R6,2) RETURN TO USER NO ERROR
1663** OR B (R6)* RETURN AND RETRY ON ERROR
1664** *****
1665** XIO MVWZ IOMOD,R3 SET MOP OF 0 FOR CYCLE STEAL OP
1666** J XIO1 CS I/O'S ARE NOT RETRIED
1667**
1668**
1669** XIODG MVWI X'00D',IOMOD SET MODIFIER FOR DIAGNOSTIC OPS
1670** J XIO1 GO TO CS OPS
1671**
1672** TBTR (R4,CE) RESET CS STATUS INTER ERROR INDICAT.
1673** TBTS (R4,CS) SET 'CYCLE STEAL STATUS' IN PROGRESS
1674** XIOCS MVA CSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1675** MVWI X'00F0',IOMOD SET CYCLE STEAL MODIFIER
1676** TBTR (R4,CS) IS CS IN PROGRESS, ERROR CONDITION
1677** JON XIO2 * YES, BYPASS SAVING I/O ADRS
1678** XIO1 MVW R6,LSTIO SAVE IAR FOR RETRY IF REQUESTED
1679** MVA DCBUF,R3 SET UP TO ADRS TO MOVE DCB TABLE
1680** MVW IODCB,R5 * AND THE FROM ADRS, ALONG WITH

LOC TR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
1681+ MVBI 26,R7 * THE NUMBER OF MOVES
1682+ MVFN (R5),(R3) MOVE 1 STATUS WORD AND ADJUST
1683+ MVBI 255,R3 CLEAR CYCLE STATUS BUFFER
1684+ MVA CSBUF,R5 * TO ALL ONES *
1685+ MVBI 26,R7 *
1686+ FPN R3,(R5) *
1687+ MVWI X'0708', \$IOIN OVERLAY OLD CONDITION CODES
1688+ MVWZ \$ISB,R3 ZERO OUT OLD ISB VALUE
1689+
1690+ TBTR (R4,ER) RESET ANY ERROR BEFORE I/O COMMAND
1691+ XIO2 TBTR (R4,IN) CLEAR INTERRUPT RECEIVED CNTL BIT
1692+ MVA IOBLK,R7 SET UP CONTROL BLOCK FOR SUPVR
1693+ TBTR (R4,SLE) RESET LEVEL ERROR INDICATOR
1694+ TBTS (R4,XI) SET EXPECTED INTR CONTROL BIT
1695+ SVC START CALL SUPVR FOR I/O COMMAND
1696+
1697+ TBTR (R4,NI) IS AN INTR EXPECTED
1698+ BN (R6,2) * NO, RETURN TO USER
1699+
1700+ THE INTR SHOULD OCCUR WHILE SPINNING IN THE NEXT SECTION
1701+
1702+ MVWI 0,R5 SET UP WORK REG FOR 'LOST INTR'
1703+ XIO8 TBTR (R4,IN) HAS INTERRUPT BEEN RECEIVED
1704+ JON XIOCK * YES, CHECK IF ALL WAS SATISFACTORY
1705+ SVC IDLE ALLOW ANOTHER PROGRAM A CHANCE TO RUN
1706+ SUPVR WILL RETURN HERE
1707+ SVC IDLE ALLOW ANOTHER PROGRAM A CHANCE TO RUN
1708+ SUPVR WILL RETURN HERE
1709+ ADVANCE TIME OUT COUNT
1710+ JNZ XIO8 BCH IF TIME OUT NOT REACHED
1711+ TBTS (R4,ER) SET ON ERROR CONTROL BIT
1712+ B (R6)* ERR 'NO INTERRUPT'
1713+ *****03FEB76**
1714+
1715+
1716+ SUBROUTINE
1717+
1718+ I/O EXECUTE ERROR HANDLING ROUTINE
1719+
1720+ PURPOSE
1721+ THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE
1722+ PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE
1723+ SUPERVISOR AND IT WAS NOT ACCEPTED.
1724+
1725+ CALLING SEQUENCE
1726+ SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND
1727+
1728+
1729+ RETURN CONTROL
1730+
1731+ B (R6)* RETURN TO USERS ERROR HANDLER
1732+
1733+
1734+ *****
1735+
1736+ CC 0= DEVICE NOT ATTACHED
1737+ FOR 1= DEVICE BUSY
1738+ I/O 2= DEVICE BUSY AFTER RESET
1739+ 3= COMMAND REJECT
1740+ 4= INTERVENTION REQUIRED
1741+ 5= INTERFACE DATA CHECK
1742+ 6= CONTROLLER BUSY
1743+ 7= I/O COMMAND EXPECTED
1744+
1745+ XIOER CPLSR R3 COPY STATUS ANY LEVEL INTO R3
1746+ SRL 13,R3 POSITION CC CODE TO BITS 13-15
1747+ MVW R3,\$IOIN * PUT IN LOG OUT AREA
1748+ B (R6)* RETURN TO USER ERROR HANDLER
1749+ *****14A PR76**
1750+
1751+
1752+ SUB-ROUTINE
1753+
1754+ ERROR INTERRUPT RUNS ON INTERRUPT LEVEL '\$INTL'
1755+
1756+ PURPOSE
1757+ THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR
1758+ OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE
1759+ EXPECTED CODE.
1760+
1761+ CALLING SEQUENCE
1762+ SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT
1763+
1764+
1765+ RETURN CONTROL
1766+
1767+ SVC EXIT RETURN TO USER VIA SUPVR
1768+
1769+
1770+ *****
1771+
1772+ CC 0= CONTROLLER END ISB 0= ADD STATUS
1773+ FOR 1= PROGRAM CONTROL INTERRUPT BITS 1= COND REJECT
1774+ INTR 2= EXCEPTION INTERRUPT FOR 2= INCOR LENGTH
1775+ 3= DEVICE END INTERRUPT INTR 3= DCB SPEC CK
1776+ 4= ATTENTION INTERRUPT 4= STG DATA CK
1777+ 5= ATTENTION / PROGRAM CNTL INTR 5= INV STG ADRS
1778+ 6= ATTENTION / EXCEPTION INTR 6= PROTRCT CK
1779+ 7= ATTENTION / DEVICE END INTR 7= I-FACE DATA
1780+
1781+ INTER CPLSR R3 COPY STATUS ANY LEVEL INTO R3
1782+ SRL 13,R3 POSITION INDICATORS IN R3
1783+ MVA OPTN1,R4 SET UP BASE ADRS
1784+ TBTR (R4,CS) IS CS IN PROGRESS
1785+ JOFF INTES * NO
1786+ TBTS (R4,CE) TURN ON CYCLE STEAL INTER ERROR
1787+ MVW R7,DEV4 SAVE CS ERR ISB VALUE, BITS 0-7
1788+ MVW R3,DEV4+1 * AND THE COND CODE
1789+ J INTR1
1790+ INTES TBT (R4,XE) TEST EXPECTED ATTEN / ERROR IND
1791+ JOFF INTET BCH IF NOT EXPECTED
1792+ CBI 4,R3 IS THIS AN 'ATTENTION' INTR
1793+ JE INTR1 * YES, BCH TO END INTR SEQUENCE
1794+ INTET TBTS (R4,ER) SET ERROR ON I/O COMMAND CNTL BIT
1795+ J INTR1
1796+ THE ERROR INTERRUPT USES THE SAME

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
1797** ENDING SEQUENCE AS THE NORMAL INTR IL
1799** *****14APR76** IL
1800** IL
1801** SOUBROUTINE IL
1802** IL
1803** OKAY INTERRUPT RUNS ON INTERRUPT LEVEL 'SINTL' IL
1804** IL
1805** PURPOSE IL
1806** TO CHECK THE INTERRUPT AND CONTINUE THE TEST IL
1807** IL
1808** IL
1809** CALLING SEQUENCE IL
1810** IL
1811** SUPERVISOR WILL ENTER HERE IF INTR CC IS AS REQUESTED IL
1812** THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE IL
1813** AFTER THE SPECIAL PART HAS BEEN COMPLETED AND THE IL
1814** COMMON SECTION IS HANDLED HERE. IL
1815** IL
1816** RETURN CONTROL IL
1817** IL
1818** SVC EXIT RETURN TO USER VIA SUPVR IL
1819** IL
1820** ***** IL
1821** INTOK CPLSR R3 COPY STATUS ANY LEVEL INTO R3 IL
1822** SRL 13,R3 POSITION INDICATORS IN R3 IL
1823** MVA OPTN1,R4 SET UP BASE ADRS IL
1824** INTR1 TBTS (R4,IN) SET INTERRUPT RECEIVED IL
1825** TBT (R4,CS) IS 'CS IN PROGRESS' ON IL
1826** JON INTR2 * YES, BCH AROUND UPDATE IL
1827** MVB R3,\$IOIN+1 SAVE INTERRUPTING CC CODE IL
1828** MVW R7,\$ISB SAVE INTR STATUS AND DEV ADRS IL
1829** INTR2 EQU * IL
1830** CPCL R5 CURRENT LEVEL COPIED BY DCP IL
1831** SLL 4,R5 POSITION INTR LEVEL AND PUT IL
1832** ABI 1,R5 * IN 'I' BIT IL
1833** CH \$INTL,R5 IS THIS THE CORRECT INTR LEVEL IL
1834** JE INTR3 * YES, GO EXIT THIS LEVEL IL
1835** TBTS (R4,SLE) SET INTR LEVEL ERROR CONTROL BIT IL
1836** TBTS (R4,ER) SET ERROR ON I/O COMMAND CNTL BIT IL
1837** INTR3 TBTR (R4,XI) WAS INTERRUPT EXPECTED IL
1838** JON INTRX * YES, EXIT OFF THIS INTR LEVEL IL
1839** TBTS (R4,MI) * NO, SET MYSTERY INTR CONTROL BIT IL
1840** CBI 4,R3 ATTENTION INTERRUPT? IL
1841** JE INTRX YES IL
1842** TBTS (R4,NG) ERROR, UNEXPECTED INTERRUPT IL
1843** INTRX SVC EXIT EXIT THIS LEVEL VIA SUPVR TO PGM IL
1844** *****03FEB76** IL
1845** IL
1846** THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT IL
1848** HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN IL
1849** RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS. IL
1850** IL
1851** IL
1852** XIOCK TBTR (R4,XE) WAS AN ERROR EXPECTED IL
1853** BN (R6,2) * YES, EXIT THIS ROUTINE IL
1854** TBTR (R4,CS) WAS AUTO CS IN PROGRESS IL
1855** JOFF XIOCV * NO, CONTINUE CHECKING IL
1856** TBT (R4,CE) IS CS IN AN ERR CONDITION IL
1857** JOFF XIOCQ * NO, BCH IL
1858** B (R6) CS ERROR IL
1859** XIOCO TBTS (R4,CSA) TURN ON CS STATS AVAIL FLAG IL
1860** BYS (R6,2) GO TO USER IL
1861** XIOCV TBT (R4,ER) WAS ERROR INTR CONTROL BIT ON IL
1862** JOFF XIOCX * NO, EXIT THIS ROUTINE IL
1863** IL
1864** MVB \$IOIN+1,R5 GET LAST INTR CC CODE IL
1865** CBI 2,R5 IS THIS CC=2 IL
1866** JE XIOCQ YES IL
1867** CBI 6,R5 IS THIS CC=6 IL
1868** BNE (R6)* * NO, BCH TO ERROR HANDLER IL
1869** XIOCQ MVB \$ISB,R5 GET LAST ISB DATA BYTE AND IF CS IL
1870** BN XIOCQ-4 * AVAILABLE, GO AND GET IT IL
1871** B (R6) ERROR IL
1872** XIOCX MVWZ OPTN3,R3 CLEAR OUT OPTION 3 CNTL BITS IL
1873** BXS (R6,2) RETURN TO USER VIA REG 6 IL
1874** IL
1875** I/O PARAMETER LIST IL
1876** IL
1877** IOBLK DC A(DEVADD) ADRS OF DEVICE ADRS IL
1878** DC A(XIOEP) ERROR ROUTINE ADRS IL
1879** IODCB DC A(*-*) DCB ADRS OR LEVEL & INTR IL
1880** IOMOD DC A(*-*) MODIFIER IL
1881** DC A(*-*) ADRS OF LAST SVC CALL IL
1882** IORSP DC A(*-*) SECOND WORD OF LAST IDCB IL
1883** IL
1884** INTERRUPT CONTROL BLOCK FOR I/O COMMANDS IL
1885** IL
1886** INTBL DC A(DEVADD) ADRS OF DEVICE ADRS IL
1887** DC A(INTOK) INTERRUPT OK RETURN ADRS IL
1888** DC A(INTER) INTERRUPT ERROR ADRS IL
1889** INTCC DC X'0003' INTERRUPT CODE EXPECTED IL
1890** *****11MAY76** IL
1891** IL
1892** IL
1893** SUBROUTINE IL
1894** IL
1895** CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE IL
1896** IL
1897** PURPOSE IL
1898** IL
1899** TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND IL
1900** PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE IL
1901** TO INTERRUPT. IL
1902** IL
1903** CALLING SEQUENCE IL
1904** IL
1905** THIS SUBROUTINE HAS THE FOLLOWING ENTRIES: IL
1906** IL
1907** --> BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BLK IL
1908** --> BAL \$CONF,R6 PREPARE DEVICE ONLY, ALREADY CONNECT IL
1909** IL
1910** RETURN CONTROL IL
1911** IL
1912** BXS (R6,2) RETURN TO USER VIA REG 6 IF OKAY IL
1913** OR B (R6)* IF THE DEVICE COULD NOT BE CONNECTED

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
1914**
1915** *****06APR76**
1916** \$CONC MVBI 6,R7 NUMBER OF BYTE TO CLEAR
1917** MVBI 0,R3 * AND THE DATA TO USE
1918** MVA DEV1,R5 * ALONG WITH THE ADRS TO USE
1919** PFN R3,(R5)
1920** MVWZ OPTN3,R3 CLEAR OLD CONTROLS FOR NEW ROUTINE
1921** MVA INTBL,R7 SET R7 TO CONTROL BLOCK AND
1922** SVC CIBC * CONNECT IT TO THIS DEVICE
1923** BN (R6)* ERROR RETURN TO USER
1924**
1925** \$CONP MVW \$INTL,IODCB PUT IN LEVEL & INTR PARAMETER
1926** MVA IOBLK,R7 SET R7 TO CONTROL BLOCK TO PREPARE
1927** MVWZ X'0708', \$IOIN INITIALIZE CONDITION CODE STORAGE
1928** MVWZ \$ISB,R3 * AND CLEAR OLD ISB VALUE
1929** MVW R6,LSTIO SET UP ADDRESS THAT STARTED LAST I/O
1930** SVC PREP * AND CALL ON SUPVR
1931** BXS (R6,2) RETURN TO USER
1932** *****
1933** *****06APR76**
1934** IL
1935** SUBROUTINE
1936** IL
1937** DISCONNECT THE INTERRUPT CONTROL BLOCK AND LOG ERRORS
1938** IL
1939** PURPOSE
1940** IL
1941** DISCONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
1942** SET THE 'NO GOOD' CONTROL BIT, THEN LOG THE DATA THAT HAS
1943** BEEN FOUND TO HELP THE OPERATOR DEFINE THE ERROR CONDITION.
1944** IL
1945** CALLING SEQUENCE
1946** IL
1947** THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
1948** IL
1949** --> B \$ERR\$ SET 'NG' BIT AND CONVERT DATA TO LOG
1950** --> B \$CONX RETURN TO MDI SUPERVISOR TO TEST STS
1951** IL
1952** RETURN CONTROL
1953** IL
1954** OR B TURTN* RETURN TO MDI
1955** (R6)* IF THE DEVICE COULD NOT BE CONNECTED
1956** IL
1957** *****
1958** \$ERR\$ MVWI X'8000',TUSTATUS SET ON 'NO GOOD' STATUS BIT
1959** MVA HEBLK,R7 GET ADRS OF CONTROL BLOCK
1960** SVC HTOE CONVERT HEX TO EBC VIS DCP
1961** MVWI X'4040',TUWORK+116
1962** MVWI X'4040',TUWORK+118
1963** MVWI X'4040',TUWORK+120
1964** \$PRNT MVBI 4,R5
1965** MVA TUWORK,R3 SET UP BUFFER STORAGE
1966** MVW R3,BUFPT
1967** MVA LINE1,R1
1968** MVBI 4,R7
1969** MVBI 8,R6
1970** MVBUF MVFN (R3),(R1)
1971** MVBI 4,R7
1972** MVBI X'40',R2
1973** MVBI B2,(R1)+
1974** JCT MVBUF,R6
1975** MVBI 8,R6
1976** AWI 44,R1
1977** JCT MVBUF,R5
1978** MVWI PIDMSG10,PID+2
1979** MVA FAKETU,@DCADD1
1980** MVA DC2PT,@DCADD2
1981** OWI BIT0080,SUPSTAT
1982** MVA \$TUID,R3
1983** BAL TUMSGWTR*,R7 SET UP BUFFER STORAGE
GO TO MESSAGE WRITER
1984** IL
1985** \$CONX EQU *
1986** MVB DEVADD,R7 GET DEVICE ADDRESS FROM MDI
1987** SVC RICB RELEASE INTERRUPT CONTROL BLOCK
1988** B TURTN* RETURN TO MDI SUPERVISOR
1989** IL
1990** BEGIN DC A(0009) NUMBER OF LINES TO PRINT
1991** DC A(0008) LINE LENGTH = 8 CHAR
1992** DC 5C5C40C1C2D6D9E3
1993** DC A(0040) LINE LENGTH = 40 CHAR
1994** DC C'TUID IOIN ISB INST SECT ID DATA CSCC '
1995** DC A(0040) LINE LENGTH = 40 CHAR
1996** LINE1 DC C'
1997** DC A(0040) LINE LENGTH = 40 CHAR
1998** DC C'CNTRL DCB1 DCB2 DCB3 DCB4 CHAD BYCT ADRS '
1999** DC A(0040) LINE LENGTH = 40 CHAR
2000** LINE2 DC C'
2001** DC A(0040) LINE LENGTH = 40 CHAR
2002** DC C'CS-0 CS-1 CS-2 CS-3 CS-4 CS-5 CS-6 CS-7 '
2003** DC A(0040) LINE LENGTH = 40 CHAR
2004** LINE3 DC C'
2005** DC A(0040) LINE LENGTH = 40 CHAR
2006** DC C'CS-8 CS-9 CS-A CS-B CS-C '
2007** DC A(0040) LINE LENGTH = 40 CHAR
2008** LINE4 DC C'
2009** IL
2010** BUFPT DC A(*-*)
2011** DC2PT DC A(BEGIN)
2012** FIXTU DC X'0101'
2013** FAKETU DC X'0101'
2014** PIDMSG10 EQU X'F1F0'
2015** BIT0080 EQU X'0080'
2016** IL
2017** DATA CONTROL BLOCK FOR CONVERTING HEX TO EBCDIC
2018** IL
2019** HEBLK DC A(58) NUMBER OF BYTES TO CONVERT
2020** DC A(\$TUID) FROM ADRS
2021** DC A(TUWORK) AND THE TO ADRS
2022** COPY T7A20 18APR78
2023** T7A20 TUIT S03E
2024** *****06FEB76**
2025** IL
2026** TEST UNIT
2027** IL
2028** READ DEVICE ID

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
2029** PURPOSE
2030** FUNCTION: LOOP ON READ DEVICE ID.
2031**
2032** PROGRAM INITIALIZES ATTACHMENT.
2033** READ DEVICE ID.
2034** LOOP UNTIL CE VERIFIES SCOPE PICTURE.
2035**
2036** CALLING SEQUENCE
2037** PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
2038** NO STATUS PASSED BACK TO MDI
2039**
2040** EXITS NORMAL
2041** MDI TERMINATES LOOP.
2042**
2043** EXITS ERROR
2044** NONE
2045**
2046** RETURN CONTROL
2047** B TURTN* RETURN TO MDI SUPERVISOR
2048**
2049** *****
2050** MVW R7,TURTN SAVE RETURN ADDRESS
2051** MVWI X'7A20',STUID SAVE TU ID FOR DISPLAY
2052** MVA OPTN1,R4 SET UP POINTER ADRS IN R4
2053** BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
2054** DC A(S10E) ERROR ADRS FOR INVALID PREP
2055**
2056** TS03 MVA IOBLK,R7 SETUP FOR READ DEVICE ID
2057** MVA S03E,R6 SETUP RETURN ADDRESS IF ERROR
2058** TQ3D SVC RID READ ID
2059** S03E B TURTN* RETURN TO MDI SUPERVISOR
2060**
2061** COPY T7A21 18APR78
2062** TUIT S10E
2063** *****06FEB76**
2064** TEST UNIT
2065** RECALIBRATE 3/21/77
2066**
2067** PURPOSE
2068** FUNCTION: LOOP ON RECAL.
2069**
2070** PROGRAM INITIALIZES ATTACHMENT.
2071** RECALIBRATE.
2072** LOOP UNTIL CE VERIFIES SCOPE PICTURE.
2073**
2074** CALLING SEQUENCE
2075** PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
2076** NO STATUS PASSED BACK TO MDI
2077**
2078** EXITS NORMAL
2079** MDI TERMINATES LOOP.
2080**
2081** EXITS ERROR
2082** NONE
2083**
2084** RETURN CONTROL
2085** B TURTN* RETURN TO MDI SUPERVISOR
2086**
2087** *****
2088** MVW R7,TURTN SAVE RETURN ADDRESS
2089** MVWI X'7A21',STUID SAVE TU ID FOR DISPLAY
2090** MVA OPTN1,R4 SET UP POINTER ADRS IN R4
2091** BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
2092** DC A(S10E) ERROR ADRS FOR INVALID PREP
2093**
2094** MVWI X'E000',XIO8-2 CHANGE TIMEOUT FOR NO-INTERRUPT
2095** MVWI X'0F7C',R0 DELAY ABOUT 2 SEC
2096** SVC IDLE5
2097** JCT T10T5
2098** MVA IOBLK,R7 SETUP IO BLOCK
2099** SVC RESET ISSUE IO RESET
2100** MVWI X'00FF',R1 SETUP TIME OUT CONSTANT FOR
2101** SVC IDLE5 * DELAY TO ALLOW 'BUSY AFTER
2102** JCT DLY1,R1 * RESET' CONDITION TO EXPIRE
2103** TBTS (R4,XE) SET EXPECTED ERROR
2104** BAL \$RECL,R6 RECALIBRATE
2105** DC A(S10E) ERROR-EXIT
2106** S10E B TURTN* RETURN TO MDI
2107** COPY T7A22 18APR78
2108** TUIT S11E
2109** *****06FEB76**
2110** TEST UNIT
2111** SEEK 3/21/77
2112**
2113** PURPOSE
2114** FUNCTION: LOOP ON SEEK.
2115**
2116** PROGRAM INITIALIZES ATTACHMENT.
2117** RECALIBRATE AND DO A SIX TRACK SEEK (FORWARD-OUT DIRECTION)
2118** DO A SIX TRACK SEEK (REVERSE-IN DIRECTION).
2119** LOOP UNTIL CE VERIFIES SCOPE PICTURE.
2120**
2121** CALLING SEQUENCE
2122** PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
2123** NO STATUS PASSED BACK TO MDI
2124**
2125** EXITS NORMAL
2126** MDI TERMINATES LOOP.
2127**
2128** EXITS ERROR
2129**
2130**
2131**
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2138**
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2140**
2141**
2142**
2143**
2144**

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2145** NONE
2146**
2147** RETURN CONTROL
2148**
2149** B TURTN* RETURN TO MDI SUPERVISOR
2150**
2151** *****
2152** MVW R7,TURTN SAVE RETURN ADDRESS
2153** MVWI X'7A22',STUID SAVE TU ID FOR DISPLAY
2154** MVA OPTN1,R4 SET UP POINTER ADRS IN R4
2155** BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
2156** DC A(S11E) ERROR ADRS FOR INVALID PREP
2157**
2158** MVWI X'0F7C',R0 DELAY ABOUT 2 SEC
2159** SVC IDLE5
2160** JCT T11T5
2161** TBTR (R4,B4B)
2162** MVWI X'E000',XIO8-2 CHANGE TIMEOUT FOR NO-INTERRUPT
2163** MVA IOBLK,R7 SETUP IO BLOCK
2164** SVC RESET ISSUE IO RESET
2165** MVWI X'00FF',R1 SETUP TIME OUT CONSTANT FOR
2166** SVC IDLE5 * DELAY TO ALLOW 'BUSY AFTER
2167** JCT DLY2,R1 * RESET' CONDITION TO EXPIRE
2168** TBTS (R4,XE) SET EXPECTED ERROR
2169** BAL \$RECL,R6 RECALIBRATE
2170** DC A(S11E) ERROR-EXIT
2171** TBTR (R4,ER) ANY ERROR?
2172** JOFF TSS11
2173** TBTS (R4,B4B) NO
2174** J S11E SET ERROR INDICATION
2175** TBTR (R4,B4B) EXIT
2176** JON T111 RECAL ERROR?
2177** MVWI X'FF00',XIO8-2 YES-RETRY
2178** MVWI X'0000',SKDCB CHANGE TIMEOUT FOR NO-INTERRUPT
2179** MVWI X'0406',SKDCB+4 LOAD SEEK CNTL WD IN DCB
2180** TBTS (R4,XE) SET EXPECTED ERROR
2181** BAL \$SEEK,R6 SEEK TO CYL# 6 WITH HEAD 1 SEL
2182** DC A(S11E) ERROR-EXIT
2183** TBTR (R4,ER) ANY ERROR?
2184** JOFF TSS11
2185** TBTS (R4,B4B) NO
2186** J S11E SET ERROR INDICATION
2187** TBTR (R4,XE) EXIT
2188** MVWI X'0400',SKDCB+4 REVERSE DIRECTION SIX TRACKS
2189** BAL \$SEEK,R6 SET EXPECTED ERROR
2190** DC A(S11E) SEEK BACK TO CYL# 0 WITH HEAD 1 SEL
2191** TBTR (R4,ER) ERROR-EXIT
2192** JOFF S11E ANY ERROR?
2193** TBTS (R4,B4B) NO
2194** S11E B TURTN* SET ERROR INDICATION
2195** COPY T7A23 RETURN TO MDI
2196** TUIT S15E 18APR78
2197** *****06FEB76**
2198** TEST UNIT
2199**
2200** READ SECTOR ID 3/21/77
2201**
2202** PURPOSE
2203**
2204** FUNCTION: LOOP ON READ SECTOR ID.
2205**
2206** PROGRAM INITIALIZES ATTACHMENT.
2207** RECALIBRATE AND SEEK TO CE TRACK.
2208** READ SECTOR ID (CYL-0167, LOGICAL SECTOR-01, HEAD-1).
2209** LOOP UNTIL CE VERIFIES SCOPE PICTURE.
2210**
2211** CALLING SEQUENCE
2212**
2213** PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
2214** NO STATUS PASSED BACK TO MDI
2215**
2216** EXITS NORMAL
2217** MDI TERMINATES LOOP.
2218**
2219** EXITS ERROR
2220** NONE
2221**
2222** RETURN CONTROL
2223**
2224** B TURTN* RETURN TO MDI SUPERVISOR
2225**
2226** *****
2227** MVW R7,TURTN SAVE RETURN ADDRESS
2228** MVWI X'7A23',STUID SAVE TU ID FOR DISPLAY
2229** MVA OPTN1,R4 SET UP POINTER ADRS IN R4
2230** BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
2231** DC A(S15E) ERROR ADRS FOR INVALID PREP
2232**
2233** MVWI X'0F7C',R0 DELAY ABOUT 2 SEC
2234** SVC IDLE5
2235** JCT T15T5
2236** TBTR (R4,B4B)
2237** MVWI X'E000',XIO8-2 CHANGE TIMEOUT FOR NO-INTERRUPT
2238** MVA IOBLK,R7 SETUP IO BLOCK
2239** SVC RESET ISSUE IO RESET
2240** MVWI X'00FF',R1 SETUP TIME OUT CONSTANT FOR
2241** SVC IDLE5 * DELAY TO ALLOW 'BUSY AFTER
2242** JCT DLY3,R1 * RESET' CONDITION TO EXPIRE
2243** TBTS (R4,XE) SET EXPECTED ERROR
2244** BAL \$RECL,R6 RECALIBRATE
2245** DC A(S15E) ERROR-EXIT
2246** TBTR (R4,ER) ANY ERROR?
2247** JOFF TSS15F
2248** TBTS (R4,B4B) NO
2249** J S15E SET ERROR INDICATION
2250** MVWI X'0000',SKDCB EXIT
2251** MVWI X'0567',SKDCB+4 LOAD SEEK DCB CONTROL WORD
2252** TBTS (R4,XE) SEEK TO CE CYLIN WITH HEAD 1 SEL
2253** MVWI X'E000',XIO8-2 SET EXPECTED ERROR
2254** BAL \$SEEK,R6 CHANGE TIMEOUT FOR NO-INTERRUPT
2255** DC A(S15E) SEEK
2256** TBTR (R4,ER) ERROR
2257** JOFF TS15 INTERRUPT ERROR?
2258** TS15F NO

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002D7C 4C50 2260 TBTS (R4,B48) SET ERROR INDICATION
002D7E 5012 2261 J SVC IDLE5 EXIT
002D80 4C90 2262 TS15 TBTR (R4,B48) ERROR INDICATION ON
002D82 12DB 2263 JON TT715 YES - GO RECALIBRATE FILE
002D84 4020 296E FF00 2264 MVWI X'FF00',X108-2 CHANGE TIMEOUT FOR NO-INTERRUPT
002D8A 4020 2734 0009 2265 MVWI X'0009',WSDCB+2 LOAD PHYS# 9 FOR LGSEC 1, HEAD 1
002D90 4020 2736 0567 2266 MVWI X'0567',WSDCB+4 LOAD HEAD/CYL# IN WRITE SECTOR ID DCB
002D96 4C64 2267 TBTS (R4,XE) SET EXPECTED ERROR
002D98 4E03 281C 2268 BAL \$RDID,R6 READ SECT ID AT LGSEC 1
002D9C 2DA4 2269 DC A(S16E) ERROR-EXIT
002D9E 9028 26B8 27D0 2270 MVD SCTID,WRSID SAVE SECTOR ID FOR WRITE SECTOR TU
002DA4 6812 26F2 2271 B TURTN* RETURN TO MDI
2272 S15E B COPY T7A24 18APR78
2273 T7A24 TUIT S16E
2274 *****06FEB76**
2275** TEST UNIT
2276**
2277** WRITE SECTOR ID 3/21/77
2278**
2279**
2280**
2281** PURPOSE
2282**
2283** FUNCTION: LOOP ON WRITE SECTOR ID.
2284**
2285** PROGRAM INITIALIZES ATTACHMENT.
2286** RECALIBRATE AND SEEK TO CE TRACK.
2287** WRITE SECTOR ID (CYL-359, LOGICAL SECTOR 1, HEAD 1).
2288** LOOP UNTIL CE VERIFIES SCOPE PICTURE.
2289**
2290** CALLING SEQUENCE
2291**
2292** PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
2293** NO STATUS PASSED BACK TO MDI
2294**
2295** EXITS NORMAL
2296** MDI TERMINATES LOOP.
2297**
2298** EXITS ERROR
2299** NONE
2300**
2301** RETURN CONTROL
2302**
2303** B TURTN* RETURN TO MDI SUPERVISOR
2304**
2305*****
2306+T7A24 MVW R7,TURTN SAVE RETURN ADDRESS
2307+ MVWI X'7A24',STUID SAVF TU ID FOR DISPLAY
2308+ MVA OPTN1,R4 SET UP POINTER ADRS IN R4
2309+ BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
2310+ DC A(S16E) ERROR ADRS FOR INVALID PREP
2311**
2312**
2313 T16T5 MVWI X'0F7C',R0 DELAY ABOUT 2 SEC
2314 SVC IDLE5 *
2315 JCT T16T5,R0 *
2316 TBTR (R4,B48) *
2317 TT716 MVWI X'E000',X108-2 RESET ERROR INDICATION
2318 MVA IOBLK,R7 CHANGE TIMEOUT FOR NO-INTERRUPT
2319 SVC RESET SETUP IO BLOCK
2320 MVWI X'00FF',R1 ISSUE IO RESET
2321 DLY4 SVC SETUP TIMEOUT CONSTANT FOR
2322 JCT DLY4,R1 * DELAY TO ALLOW 'BUSY AFTER
2323 TBTS (R4,XE) * RESET' CONDITION TO EXPIRE
2324 BAL \$RECL,R6 SET EXPECTED ERROR
2325 DC A(S16E) RECALIBRATE
2326 TBTR (R4,ER) ERROR-EXIT
2327 JOFF S16E INTERRUPT ERROR?
2328 J NO
2329 TBTS (R4,B48) SET ERROR INDICATION
2330 J SVC IDLE5 EXIT
2331 S16F MVWI X'0000',SKDCB LOAD SEEK DCB CONTROL WORD
2332 DC X'0567',SKDCB+4 SEEK TO CE CYL WITH HEAD 1 SELECTED
2333 MVWI X'E000',X108-2 CHANGE TIMEOUT FOR NO-INTERRUPT
2334 TBTS (R4,XE) SET EXPECTED ERROR
2335 BAL \$SEEK,R6 SEEK
2336 DC A(S16E) ERROR-EXIT
2337 TBTR (R4,ER) INTERRUPT ERROR?
2338 JOFF S16E NO
2339 TBTS (R4,B48) SET ERROR INDICATION
2340 J SVC IDLE5 EXIT
2341 TS16 TBTR (R4,B48) ANY ERROR?
2342 JON TT716 YES-RECAL
2343 MVWI X'FF00',X108-2 CHANGE TIMEOUT FOR NO-INTERRUPT
2344 MVWI X'0009',WSDCB+2 LOAD PHYS# 9 FOR LGSEC 1, HEAD 1
2345 MVWI X'0567',WSDCB+4 LOAD HEAD/CYL# IN WRITE SECT ID DCB
2346 TBTS (R4,XE) SET EXPECTED ERROR
2347 BAL \$WSEC,R6 WRITE SECTOR ID
2348 DC A(S16E) ERROR
2349 B TURTN* RETURN TO MDI
2350 T7A25 TUIT S18E 18APR78
2351*****06FEB76**
2352** TEST UNIT
2353**
2354** WRITE DATA 3/24/77
2355**
2356** PURPOSE
2357**
2358** FUNCTION: LOOP ON WRITE DATA.
2359**
2360** PROGRAM INITIALIZES ATTACHMENT.
2361** RECALIBRATE AND SEEK TO CE TRACK.
2362** WRITE DATA (AAAA)-(CYL-359, LOGICAL SECTOR 1, HEAD 0).
2363** LOOP UNTIL CE VERIFIES SCOPE PICTURE.
2364**
2365** CALLING SEQUENCE
2366**
2367** PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
2368** NO STATUS PASSED BACK TO MDI
2369**
2370** EXITS NORMAL
2371** MDI TERMINATES LOOP.
2372**
2373** EXITS ERROR
2374** NONE
2375**

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2376**
2377** RETURN CONTROL
2378**
2379** B TURTN* RETURN TO MDI SUPERVISOR
2380**
2381*****
2382+T7A25 MVW R7,TURTN SAVE RETURN ADDRESS
2383+ MVWI X'7A25',STUID SAVE TU ID FOR DISPLAY
2384+ MVA OPTN1,R4 SET UP POINTER ADRS IN R4
2385+ BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
2386+ DC A(S18E) ERROR ADRS FOR INVALID PREP
2387**
2388**
2389 T18T5 MVWI X'0F7C',R0 DELAY ABOUT 2 SEC
2390 SVC IDLE5 *
2391 JCT T18T5,R0 *
2392 TBTR (R4,B48) *
2393 TT718 MVWI X'E000',X108-2 RESET ERROR INDICATION
2394 MVA IOBLK,R7 CHANGE TIMEOUT FOR NO-INTERRUPT
2395 SVC RESET SETUP IO BLOCK
2396 DLY6 MVWI X'00FF',R1 ISSUE IO RESET
2397 SVC SETUP TIMEOUT CONSTANT FOR
2398 JCT DLY6,R1 * DELAY TO ALLOW 'BUSY AFTER
2399 TBTS (R4,XE) * RESET' CONDITION TO EXPIRE
2400 BAL \$RECL,R6 SET EXPECTED ERROR
2401 DC A(S18E) RECALIBRATE
2402 TBTR (R4,ER) ERROR-EXIT
2403 JOFF S18E INTERRUPT ERROR?
2404 J NO
2405 TBTS (R4,B48) SET ERROR INDICATION
2406 J SVC IDLE5 EXIT
2407 S18F MVWI X'0000',SKDCB LOAD SEEK DCB CONTROL WORD
2408 MVWI X'0567',SKDCB+4 LOAD HEAD 1, CYL 359 IN SEEK DCB
2409 TBTS (R4,XE) SET EXPECTED ERROR
2410 MVWI X'E000',X108-2 CHANGE TIMEOUT FOR NO-INTERRUPT
2411 BAL \$SEEK,R6 SEEK TO CE CYLINDER, HD 1 SELECTED
2412 DC A(S18F) ERROR-EXIT
2413 TBTR (R4,ER) INTERRUPT ERROR?
2414 JOFF S18E NO
2415 TS18 TBTR (R4,B48) SET ERROR INDICATION
2416 JON TT718 ANY ERROR?
2417 MVWI X'FF00',X108-2 YES-RECAL
2418 MVWI X'0000',SKDCB CHANGE TIMEOUT FOR NO-INTERRUPT
2419 MVWI X'0567',WSDCB+4 LOAD FLAG 0, RECORD 0 IN WRITE DCB
2420 MVWI X'0100',WSDCB+12 LOAD HEAD 1, CYL 359 IN WRITE DCB
2421 MVA DATA18,WSDCB+14 BYTE COUNT
2422 TBTS (R4,XE) DATA ADDRESS
2423 BAL \$WRIT,R6 SET EXPECTED ERROR
2424 DC A(S18E) WRITE DATA
2425 B TURTN* ERROR
2426 S18E B RETURN TO MDI
2427 DATA18 DC 128X'AAAA' WRITE BUFFER
2428 *
2429**
2430** COPY T7A26 18APR78
2431 T7A26 TUIT S17E
2432*****06FEB76**
2433** TEST UNIT
2434**
2435** READ DATA 3/24/77
2436**
2437** PURPOSE
2438**
2439** FUNCTION: LOOP ON READ DATA.
2440**
2441** PROGRAM INITIALIZES ATTACHMENT.
2442** RECALIBRATE AND SEEK TO CE TRACK.
2443** READ DATA (CYL-359, LOGICAL SECTOR 1, HEAD 1).
2444** LOOP UNTIL CE VERIFIES SCOPE PICTURE.
2445**
2446** CALLING SEQUENCE
2447**
2448** PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
2449** NO STATUS PASSED BACK TO MDI
2450**
2451** EXITS NORMAL
2452** MDI TERMINATES LOOP.
2453**
2454** EXITS ERROR
2455** NONE
2456**
2457** RETURN CONTROL
2458**
2459** B TURTN* RETURN TO MDI SUPERVISOR
2460**
2461*****
2462+T7A26 MVW R7,TURTN SAVE RETURN ADDRESS
2463+ MVWI X'7A26',STUID SAVE TU ID FOR DISPLAY
2464+ MVA OPTN1,R4 SET UP POINTER ADRS IN R4
2465+ BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
2466+ DC A(S17E) ERROR ADRS FOR INVALID PREP
2467**
2468**
2469 T17T5 MVWI X'0F7C',R0 DELAY ABOUT 2 SEC
2470 SVC IDLE5 *
2471 JCT T17T5,R0 *
2472 TBTR (R4,B48) *
2473 TT717 MVWI X'E000',X108-2 RESET ERROR INDICATION
2474 MVA IOBLK,R7 CHANGE TIMEOUT FOR NO-INTERRUPT
2475 SVC RESET SETUP IO BLOCK
2476 DLY5 MVWI X'00FF',R1 ISSUE IO RESET
2477 SVC SETUP TIMEOUT CONSTANT FOR
2478 JCT DLY5,R1 * DELAY TO ALLOW 'BUSY AFTER
2479 TBTS (R4,XE) * RESET' CONDITION TO EXPIRE
2480 BAL \$RECL,R6 SET EXPECTED ERROR
2481 DC A(S17E) RECALIBRATE
2482 TBTR (R4,ER) ERROR-EXIT
2483 JOFF S17E INTERRUPT ERROR?
2484 J NO
2485 TBTS (R4,B48) SET ERROR INDICATION
2486 J SVC IDLE5 EXIT
2487 S17F MVWI X'0000',SKDCB LOAD SEEK DCB CONTROL WORD
2488 MVWI X'0567',SKDCB+4 LOAD HEAD 1, CYL 359 PARAMS IN DCB
2489 TBTS (R4,XE) SET EXPECTED ERROR
2490 MVWI X'E000',X108-2 CHANGE TIMEOUT FOR NO-INTERRUPT
2491 BAL \$SEEK,R6 SEEK TO CE CYLINDER, HD 1 SELECTED

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00301A	304E	2491	DC A(S17E)	ERROR-EXIT
00301C	4CA1	2492	TBTR (R4,ER)	INTERRUPT ERROR?
00301E	1002	2493	JOFF TS17	NO
003020	4C50	2494	TBTS (R4,B48)	SET ERROR INDICATION
003022	5015	2495	J S17E	EXIT
003024	4C90	2496	TS17 TBTR (R4,B48)	ANY ERROR?
003026	12DB	2497	JON TT17	YES-RECAL
003028	4020 296E FF00	2498	MVWI X'FF00',XIO8-2	CHANGE TIMEOUT FOR NO-INTERRUPT
00302E	4020 2784 0000	2499	MVWI 0,RDDCB+2	LOAD FLAG 0, RECORD 0 IN RD DCB
003034	4020 2786 0567	2500	MVWI X'0567',RDDCB+4	LOAD HEAD 1, CYL 359 IN RD DCB
00303A	4020 278E 0100	2501	MVWI X'0100',RDDCB+12	BYTE COUNT
003040	4020 2790 3052	2502	MVA DATA17,RDDCB+14	DATA ADDRESS
003046	4C64	2503	TBTS (R4,KE)	SET EXPECTED ERROR
003048	6E03 284A	2504	BAL SRD,R6	READ DATA
00304C	304E	2505	DC A(S17E)	ERROR
00304E	6812 26F2	2506	S17E B TURTN*	RETURN TO MDI
003052	0000000000000000	2507	*	
		2508	DATA17 DC 128A(*-*)	READ BUFFER
		2509	*	
		2511	COPY T7A27	18APR78
		2512	T7A27 TUIT S19E	
		2513	*****06FEB76**	
		2514	**	
		2515	TEST UNIT	
		2516	**	
		2517	READ CYCLE STEAL STATUS	3/15/77
		2518	**	
		2519	PURPOSE	
		2520	**	
		2521	FUNCTION: LOOP ON READ CYCLE STEAL STATUS	
		2522	**	
		2523	PROGRAM INITIALIZES ATTACHMENT.	
		2524	READ CYCLE STEAL STATUS.	
		2525	LOOP UNTIL CE VERIFIES SCOPE PICTURE.	
		2526	**	
		2527	CALLING SEQUENCE	
		2528	**	
		2529	PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:	
		2530	NO STATUS PASSED BACK TO MDI	
		2531	**	
		2532	EXITS NORMAL	
		2533	MDI TERMINATES LOOP.	
		2534	**	
		2535	EXITS ERROR	
		2536	NONE	
		2537	**	
		2538	RETURN CONTROL	
		2539	**	
		2540	B TURTN*	RETURN TO MDI SUPERVISOR
		2541	**	
		2542	*****	
003152	6F0D 26F2	2543	T7A27 MVW R7,TURTN	SAVE RETURN ADDRESS
003156	4020 26B0 7A27	2544	MVWI X'7A27',STUID	SAVE TU ID FOR DISPLAY
00315C	4424 26AA	2545	MVA OPTN1,R4	SET UP POINTER ADRS IN R4
003160	6E03 2A34	2546	BAL \$CONC,R6	CLEAR DEV DEP STG AND CONNECT I/O BL
003164	3182	2547	DC A(S19E)	ERROR ADRS FOR INVALID PREP
		2548	**	
003166	4020 296E FFFF	2549	MVWI X'FFFF',XIO8-2	CHANGE TIMEOUT FOR NO-INTERRUPT
00316C	4724 2A20	2550	TS19 MVA IOBLK,R7	SETUP IO BLOCK
003170	6008	2551	SVC RESET	ISSUE IO RESET
003172	4124 00FF	2552	MVWI X'00FF',R1	SETUP TIMEOUT CONSTANT FOR
003176	6003	2553	SVC IDLES	* DELAY TO ALLOW *BUSY A PTER
003178	89FE	2554	JCT DLY7,R1	* RESET CONDITION TO EXPIRE
00317A	4C64	2555	TBTS (R4,KE)	SETUP EXPECTED ERROR
00317C	6E03 2924	2556	BAL XIOCS,R6	READ CYCLE STEAL STATUS
003180	3182	2557	DC A(S19E)	ERROR-EXIT
003182	6812 26F2	2558	S19E B TURTN*	RETURN TO MDI
		2559	*	
000232		2560	CPUID EQU X'0232'	CPU ID LOCATION
		2561	*	
000000		2563	END	

DECLARED	NAME	ATTRIBUTES AND REFERENCES	COPYRIGHT IBM CORP 1976
1916	\$CONC	ADDRESS. HEX LOCATION (00002A34) IN CSECT (I7A68) LENGTH (2)	
622	\$INTL	ADDRESS. HEX LOCATION (000026F0) IN CSECT (I7A68) LENGTH (2)	
587	\$IOIN	ADDRESS. HEX LOCATION (000026B2) IN CSECT (I7A68) LENGTH (2)	
588	\$ISB	ADDRESS. HEX LOCATION (000026B4) IN CSECT (I7A68) LENGTH (2)	
572	\$LE	ABSOLUTE. HEX VALUE (00000026)	
982	\$RD	ADDRESS. HEX LOCATION (0000284A) IN CSECT (I7A68) LENGTH (2)	
967	\$RDID	ADDRESS. HEX LOCATION (0000281C) IN CSECT (I7A68) LENGTH (6)	
964	\$RECL	ADDRESS. HEX LOCATION (00002814) IN CSECT (I7A68) LENGTH (6)	
961	\$SEEK	ADDRESS. HEX LOCATION (0000280C) IN CSECT (I7A68) LENGTH (6)	
586	\$TUID	ADDRESS. HEX LOCATION (000026B0) IN CSECT (I7A68) LENGTH (2)	
992	\$WRT	ADDRESS. HEX LOCATION (00002866) IN CSECT (I7A68) LENGTH (6)	
1035	\$WRT1	ADDRESS. HEX LOCATION (000028EC) IN CSECT (I7A68) LENGTH (2)	
1007	\$WSEC	ADDRESS. HEX LOCATION (00002896) IN CSECT (I7A68) LENGTH (6)	
102	@DCADD1	ADDRESS. HEX LOCATION (000019B8) IN CSECT (I7A68) LENGTH (1)	
103	@DCADD2	ADDRESS. HEX LOCATION (000019BA) IN CSECT (I7A68) LENGTH (1)	
44	@QUXX	ABSOLUTE. HEX VALUE (00000400)	
40	@STOP	ABSOLUTE. HEX VALUE (00000102)	
1990	BEGIN	ADDRESS. HEX LOCATION (00002AD4) IN CSECT (I7A68) LENGTH (2)	
2015	BIT0080	ABSOLUTE. HEX VALUE (00000080)	
2010	BUPPT	ADDRESS. HEX LOCATION (00002C30) IN CSECT (I7A68) LENGTH (2)	
535	B48	ABSOLUTE. HEX VALUE (00000010)	
576	CE	ABSOLUTE. HEX VALUE (0000002A)	
661	CICB	ABSOLUTE. HEX VALUE (00000014)	
758	CLDCB	ADDRESS. HEX LOCATION (00002712) IN CSECT (I7A68) LENGTH (2)	
574	CS	ABSOLUTE. HEX VALUE (00000028)	
575	CSA	ABSOLUTE. HEX VALUE (00000029)	
605	CSBUF	ADDRESS. HEX LOCATION (000026D0) IN CSECT (I7A68) LENGTH (1)	
796	CSDCB	ADDRESS. HEX LOCATION (00002752) IN CSECT (I7A68) LENGTH (2)	
2508	DATA17	ADDRESS. HEX LOCATION (00003052) IN CSECT (I7A68) LENGTH (2)	
2427	DATA18	ADDRESS. HEX LOCATION (00002EC0) IN CSECT (I7A68) LENGTH (2)	
595	DCBUF	ADDRESS. HEX LOCATION (000026C0) IN CSECT (I7A68) LENGTH (1)	
2011	DC2PT	ADDRESS. HEX LOCATION (00002C32) IN CSECT (I7A68) LENGTH (2)	
105	DEVADD	ADDRESS. HEX LOCATION (000019D0) IN CSECT (I7A68) LENGTH (1)	
590	DEV1	ADDRESS. HEX LOCATION (000026B8) IN CSECT (I7A68) LENGTH (2)	
593	DEV4	ADDRESS. HEX LOCATION (000026BE) IN CSECT (I7A68) LENGTH (2)	
747	DGDCB	ADDRESS. HEX LOCATION (00002702) IN CSECT (I7A68) LENGTH (2)	
2112	DLY1	ADDRESS. HEX LOCATION (00002C8C) IN CSECT (I7A68) LENGTH (2)	
2166	DLY2	ADDRESS. HEX LOCATION (00002CCA) IN CSECT (I7A68) LENGTH (2)	
2243	DLY3	ADDRESS. HEX LOCATION (00002D4A) IN CSECT (I7A68) LENGTH (2)	
2320	DLY4	ADDRESS. HEX LOCATION (00002DD6) IN CSECT (I7A68) LENGTH (2)	
2477	DLY5	ADDRESS. HEX LOCATION (00002FEE) IN CSECT (I7A68) LENGTH (2)	
2396	DLY6	ADDRESS. HEX LOCATION (00002E5C) IN CSECT (I7A68) LENGTH (2)	
2553	DLY7	ADDRESS. HEX LOCATION (00003176) IN CSECT (I7A68) LENGTH (2)	
67	DUMMY	ABSOLUTE. HEX VALUE (00000000)	
474	ENTPT	ADDRESS. HEX LOCATION (000025DE) IN CSECT (I7A68) LENGTH (1)	
567	ER	ABSOLUTE. HEX VALUE (00000021)	
647	EXIT	ABSOLUTE. HEX VALUE (00000006)	
2013	FAKETU	ADDRESS. HEX LOCATION (00002C36) IN CSECT (I7A68) LENGTH (2)	
493	F00079	ADDRESS. HEX LOCATION (000025E4) IN CSECT (I7A68) LENGTH (1)	
497	F00086	ADDRESS. HEX LOCATION (000025FA) IN CSECT (I7A68) LENGTH (1)	
501	F00093	ADDRESS. HEX LOCATION (00002610) IN CSECT (I7A68) LENGTH (1)	
505	F00100	ADDRESS. HEX LOCATION (00002626) IN CSECT (I7A68) LENGTH (1)	
509	F00107	ADDRESS. HEX LOCATION (0000263C) IN CSECT (I7A68) LENGTH (1)	
513	F00114	ADDRESS. HEX LOCATION (00002652) IN CSECT (I7A68) LENGTH (1)	

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
517	F00121	445 ADDRESS. HEX LOCATION(00002668) IN CSECT(I7A68) LENGTH(1)
521	F00128	457 ADDRESS. HEX LOCATION(0000267E) IN CSECT(I7A68) LENGTH(1)
525	F00130	469 ADDRESS. HEX LOCATION(00002694) IN CSECT(I7A68) LENGTH(1)
2019	HEBLK	472 ADDRESS. HEX LOCATION(00002C38) IN CSECT(I7A68) LENGTH(2)
667	HTOE	1959 ABSOLUTE. HEX VALUE(0000001A)
643	IDLE	1960 ABSOLUTE. HEX VALUE(00000002)
644	IDLE5	1705 1707 ABSOLUTE. HEX VALUE(00000003)
888	ID00	2107 2112 2159 2166 2236 2243 2313 2320 2389 ADDRESS. HEX LOCATION(000027EC) IN CSECT(I7A68) LENGTH(2)
569	IN	2396 2470 2477 2553 ABSOLUTE. HEX VALUE(00000023)
1886	INTBL	869 977 ADDRESS. HEX LOCATION(00002A2C) IN CSECT(I7A68) LENGTH(2)
1781	INTER	1024 1691 1703 1824 ADDRESS. HEX LOCATION(00002990) IN CSECT(I7A68) LENGTH(2)
1790	INTES	1921 ADDRESS. HEX LOCATION(000029A8) IN CSECT(I7A68) LENGTH(2)
1794	INTET	1888 ADDRESS. HEX LOCATION(000029B0) IN CSECT(I7A68) LENGTH(2)
1821	INTOK	1791 ADDRESS. HEX LOCATION(000029B4) IN CSECT(I7A68) LENGTH(2)
1843	INTRX	188 ADDRESS. HEX LOCATION(000029E4) IN CSECT(I7A68) LENGTH(2)
1824	INTR1	1838 1841 ADDRESS. HEX LOCATION(000029BC) IN CSECT(I7A68) LENGTH(2)
1829	INTR2	1789 1793 1795 ADDRESS. HEX LOCATION(000029CA) IN CSECT(I7A68) LENGTH(1)
1837	INTR3	1826 ADDRESS. HEX LOCATION(000029D8) IN CSECT(I7A68) LENGTH(2)
1877	IOBLK	1834 ADDRESS. HEX LOCATION(00002A20) IN CSECT(I7A68) LENGTH(2)
1879	IODCB	1027 1692 1926 2060 2109 2163 2240 2317 2393 ADDRESS. HEX LOCATION(00002A24) IN CSECT(I7A68) LENGTH(2)
1880	IOMOD	2474 2550 ADDRESS. HEX LOCATION(00002A24) IN CSECT(I7A68) LENGTH(2)
37	I7A68	961 964 967 975 986 989 992 995 1003 ADDRESS. HEX LOCATION(00002A26) IN CSECT(I7A68) LENGTH(2)
1996	LINE1	1007 1011 1038 1041 1674 1680 1925 ADDRESS. HEX LOCATION(00002500) LENGTH(3206) ESDID(1)
589	LSTIO	37 ADDRESS. HEX LOCATION(00002B0C) IN CSECT(I7A68) LENGTH(40)
566	MI	1967 ADDRESS. HEX LOCATION(000026B6) IN CSECT(I7A68) LENGTH(2)
1970	MVBUF	1014 1678 1929 ABSOLUTE. HEX VALUE(00000020)
578	NG	1839 ADDRESS. HEX LOCATION(00002A98) IN CSECT(I7A68) LENGTH(2)
573	NI	1974 1977 ABSOLUTE. HEX VALUE(0000002C)
375	N00001	1842 ABSOLUTE. HEX VALUE(00000027)
384	N00002	1697 ADDRESS. HEX LOCATION(00002548) IN CSECT(I7A68) LENGTH(2)
387	N00003	315 484 ADDRESS. HPX LOCATION(00002556) IN CSECT(I7A68) LENGTH(2)
396	N00004	318 ADDRESS. HEX LOCATION(0000255A) IN CSECT(I7A68) LENGTH(2)
399	N00005	321 376 ADDRESS. HEX LOCATION(00002568) IN CSECT(I7A68) LENGTH(2)
408	N00006	324 ADDRESS. HEX LOCATION(0000256C) IN CSECT(I7A68) LENGTH(2)
411	N00007	327 388 ADDRESS. HEX LOCATION(0000257A) IN CSECT(I7A68) LENGTH(2)
420	N00008	330 ADDRESS. HEX LOCATION(0000257E) IN CSECT(I7A68) LENGTH(2)
423	N00009	333 400 ADDRESS. HEX LOCATION(0000258C) IN CSECT(I7A68) LENGTH(2)
432	N00010	336 ADDRESS. HEX LOCATION(00002590) IN CSECT(I7A68) LENGTH(2)
435	N00011	339 412 ADDRESS. HEX LOCATION(0000259E) IN CSECT(I7A68) LENGTH(2)
444	N00012	342 ADDRESS. HEX LOCATION(000025A2) IN CSECT(I7A68) LENGTH(2)
447	N00013	345 424 ADDRESS. HEX LOCATION(000025B0) IN CSECT(I7A68) LENGTH(2)
456	N00014	348 ADDRESS. HEX LOCATION(000025B4) IN CSECT(I7A68) LENGTH(2)
459	N00015	351 436 ADDRESS. HEX LOCATION(000025C2) IN CSECT(I7A68) LENGTH(2)
468	N00016	354 ADDRESS. HEX LOCATION(000025C6) IN CSECT(I7A68) LENGTH(2)
471	N00017	357 448 ADDRESS. HEX LOCATION(000025D4) IN CSECT(I7A68) LENGTH(2)
531	OPTN1	360 ADDRESS. HEX LOCATION(000025D8) IN CSECT(I7A68) LENGTH(2)
554	OPTN3	363 460 ADDRESS. HEX LOCATION(000026AA) IN CSECT(I7A68) LENGTH(2)
101	PARMARA	1783 1823 2056 2101 2154 2231 2308 2384 2465 ADDRESS. HEX LOCATION(000026AE) IN CSECT(I7A68) LENGTH(2)
69	PID	1872 1920 ADDRESS. HEX LOCATION(0000196E) IN CSECT(I7A68) LENGTH(1)
2014	PIDMSG10	382 394 406 418 430 442 454 466 ADDRESS. HEX LOCATION(00001800) IN CSECT(I7A68) LENGTH(1)
653	PREP	71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 ABSOLUTE. HEX VALUE(0000PF0)

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829	RDDCB	983 984 986 1041 1042 1043 2499 2500 2501 ADDRESS. HEX LOCATION(00002782) IN CSECT(I7A68) LENGTH(2)
649	RESET	2502 ABSOLUTE. HEX VALUE(00000008)
660	RICB	2110 2164 2241 2318 2394 2475 2551 ABSOLUTE. HEX VALUE(00000013)
650	RID	1987 ABSOLUTE. HEX VALUE(00000009)
851	RKDCB	2062 ADDRESS. HEX LOCATION(000027A2) IN CSECT(I7A68) LENGTH(2)
862	RMDCB	995 1000 ADDRESS. HEX LOCATION(000027B2) IN CSECT(I7A68) LENGTH(2)
885	RSBA	975 ADDRESS. HEX LOCATION(000027DC) IN CSECT(I7A68) LENGTH(2)
774	RSDCB	751 767 778 789 811 822 833 844 855 ADDRESS. HEX LOCATION(00002732) IN CSECT(I7A68) LENGTH(2)
0	R0	866 REGISTER. HEX VALUE(00000000)
0	R1	967 972 2265 2266 REGISTER. HEX VALUE(00000000)
0	R2	1028 1030 1031 2106 2108 2158 2160 2235 2237 REGISTER. HEX VALUE(00000001)
0	R3	2312 2314 2388 2390 2469 2471 REGISTER. HEX VALUE(00000002)
0	R4	1967 1970 1973 1976 2111 2113 2165 2167 2242 REGISTER. HEX VALUE(00000003)
0	R5	2244 2319 2321 2395 2397 2476 2478 2552 2554 REGISTER. HEX VALUE(00000004)
0	R6	1972 1973 REGISTER. HEX VALUE(00000005)
0	R7	914 916 968 971 978 979 982 985 996 REGISTER. HEX VALUE(00000006)
594	SCTID	993 1015 1018 1021 1023 1044 1045 1682 1686 1688 1742 1746 1747 1781 1782 1788 1792 1821 1822 1827 1840 1872 1917 1919 REGISTER. HEX VALUE(00000007)
785	SKDCB	1920 1928 1965 1966 1970 1982 REGISTER. HEX VALUE(00000008)
651	START	1024 1025 1026 1672 1673 1676 1690 1691 1693 REGISTER. HEX VALUE(00000009)
104	SUPSTAT	1694 1697 1703 1711 1783 1784 1786 1790 1794 1823 1824 1825 1835 1836 1837 1839 1842 1852 1854 1856 1859 1861 2056 2101 2114 2154 2161 2168 2171 2173 2175 2180 2183 2185 2188 2191 2193 2231 2238 2245 2248 2250 2254 2258 2260 2262 2266 2308 2315 2322 2325 2327 2332 2335 2341 2343 2445 2448 2491 2492 2498 2499 2488 2492 2494 2496 2503 2545 2555 REGISTER. HEX VALUE(00000010)
2063	S03E	915 916 969 971 977 979 983 985 997 999 1016 1018 1019 1021 1043 1045 1680 1682 1684 1686 1687 1869 1918 1919 1964 1977 REGISTER. HEX VALUE(00000011)
2117	S10E	1860 1868 1871 1873 1923 1929 1931 1969 1974 1975 2057 2061 2102 2115 2155 2169 2181 2189 2236 2246 2256 2268 300 2323 2333 2345 2385 2409 2423 2466 2480 2490 2504 2546 2556 REGISTER. HEX VALUE(00000012)
2194	S11E	633 913 970 976 984 998 1017 1020 1027 REGISTER. HEX VALUE(00000013)
2271	S15E	1042 1681 1685 1692 1787 1828 1916 1921 1926 1959 1968 1971 1983 1986 2054 2060 2099 2109 2152 2163 2229 2240 2306 2317 2382 2393 2463 2474 2543 2550 REGISTER. HEX VALUE(00000014)
2347	S16E	781 858 914 969 972 997 1000 2270 ADDRESS. HEX LOCATION(000026E8) IN CSECT(I7A68) LENGTH(2)
2329	S16F	961 2178 2179 2187 2252 2253 2329 2330 2405 ADDRESS. HEX LOCATION(00002742) IN CSECT(I7A68) LENGTH(2)
2506	S17E	2406 2486 2487 ABSOLUTE. HEX VALUE(0000000A)
2486	S17F	1695 ADDRESS. HEX LOCATION(000019C4) IN CSECT(I7A68) LENGTH(1)
2425	S18E	1981 ADDRESS. HEX LOCATION(00002C5C) IN CSECT(I7A68) LENGTH(4)
2405	S18F	2058 2061 ADDRESS. HEX LOCATION(00002C98) IN CSECT(I7A68) LENGTH(4)
2558	S19E	2103 2116 ADDRESS. HEX LOCATION(00002D18) IN CSECT(I7A68) LENGTH(4)
2187	TSS11	2156 2170 2174 2182 2186 2190 2192 ADDRESS. HEX LOCATION(00002DA4) IN CSECT(I7A68) LENGTH(4)
2060	TS03	2235 2247 2251 2257 2261 2269 ADDRESS. HEX LOCATION(00002E2A) IN CSECT(I7A68) LENGTH(4)
2109	TS10	2310 2324 2328 2334 2338 2346 ADDRESS. HEX LOCATION(00002DEA) IN CSECT(I7A68) LENGTH(6)
2175	TS11	2326 ADDRESS. HEX LOCATION(0000304E) IN CSECT(I7A68) LENGTH(4)
2262	TS15	2467 2481 2485 2491 2495 2505 ADDRESS. HEX LOCATION(00003002) IN CSECT(I7A68) LENGTH(6)
2252	TS15F	2483 ADDRESS. HEX LOCATION(00002EBC) IN CSECT(I7A68) LENGTH(4)
2339	TS16	2386 2400 2404 2410 2414 2424 ADDRESS. HEX LOCATION(00002E70) IN CSECT(I7A68) LENGTH(6)
2496	TS17	2402 ADDRESS. HEX LOCATION(00003182) IN CSECT(I7A68) LENGTH(4)
2415	TS18	2547 2557 ADDRESS. HEX LOCATION(00002D04) IN CSECT(I7A68) LENGTH(6)
2550	TS19	2184 ADDRESS. HEX LOCATION(00002C52) IN CSECT(I7A68) LENGTH(4)

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2162	TT711	ADDRESS. HEX LOCATION(00002CBA) IN CSECT(I7A68) LENGTH(6)
2239	TT715	ADDRESS. HEX LOCATION(00002D3A) IN CSECT(I7A68) LENGTH(6)
2316	TT716	ADDRESS. HEX LOCATION(00002DC6) IN CSECT(I7A68) LENGTH(6)
2473	TT717	ADDRESS. HEX LOCATION(00002FDE) IN CSECT(I7A68) LENGTH(6)
2392	TT718	ADDRESS. HEX LOCATION(00002E4C) IN CSECT(I7A68) LENGTH(6)
92	TUMSGWTR	ADDRESS. HEX LOCATION(000018BA) IN CSECT(I7A68) LENGTH(1)
623	TURTN	ADDRESS. HEX LOCATION(000026F2) IN CSECT(I7A68) LENGTH(2)
74	TUSTATUS	ADDRESS. HEX LOCATION(00001818) IN CSECT(I7A68) LENGTH(1)
75	TUWORK	ADDRESS. HEX LOCATION(0000181A) IN CSECT(I7A68) LENGTH(1)
2107	T10T5	ADDRESS. HEX LOCATION(00002C7E) IN CSECT(I7A68) LENGTH(2)
2159	T11T5	ADDRESS. HEX LOCATION(00002CB4) IN CSECT(I7A68) LENGTH(2)
2236	T15T5	ADDRESS. HEX LOCATION(00002D34) IN CSECT(I7A68) LENGTH(2)
2313	T16T5	ADDRESS. HEX LOCATION(00002DC0) IN CSECT(I7A68) LENGTH(2)
2470	T17T5	ADDRESS. HEX LOCATION(00002FD8) IN CSECT(I7A68) LENGTH(2)
2389	T18T5	ADDRESS. HEX LOCATION(00002E46) IN CSECT(I7A68) LENGTH(2)
2054	T7A20	ADDRESS. HEX LOCATION(00002C3E) IN CSECT(I7A68) LENGTH(4)
2099	T7A21	ADDRESS. HEX LOCATION(00002C60) IN CSECT(I7A68) LENGTH(4)
2152	T7A22	ADDRESS. HEX LOCATION(00002C9C) IN CSECT(I7A68) LENGTH(4)
2229	T7A23	ADDRESS. HEX LOCATION(00002D1C) IN CSECT(I7A68) LENGTH(4)
2306	T7A24	ADDRESS. HEX LOCATION(00002DA8) IN CSECT(I7A68) LENGTH(4)
2382	T7A25	ADDRESS. HEX LOCATION(00002E2E) IN CSECT(I7A68) LENGTH(4)
2463	T7A26	ADDRESS. HEX LOCATION(00002FC0) IN CSECT(I7A68) LENGTH(4)
2543	T7A27	ADDRESS. HEX LOCATION(00003152) IN CSECT(I7A68) LENGTH(4)
818	VRDCB	ADDRESS. HEX LOCATION(00002772) IN CSECT(I7A68) LENGTH(2)
840	WKDCB	ADDRESS. HEX LOCATION(00002792) IN CSECT(I7A68) LENGTH(2)
807	WRDCB	ADDRESS. HEX LOCATION(00002762) IN CSECT(I7A68) LENGTH(2)
657	WRITO	ABSOLUTE. HEX VALUE(00000010)
658	WRIT1	ABSOLUTE. HEX VALUE(00000011)
879	WRSID	ADDRESS. HEX LOCATION(000027D0) IN CSECT(I7A68) LENGTH(2)
763	WSDCB	ADDRESS. HEX LOCATION(00002722) IN CSECT(I7A68) LENGTH(2)
570	XE	ABSOLUTE. HEX VALUE(00000024)
568	XI	ABSOLUTE. HEX VALUE(00000022)
1666	XIO	ADDRESS. HEX LOCATION(00002912) IN CSECT(I7A68) LENGTH(4)
1852	XIOCK	ADDRESS. HEX LOCATION(000029E6) IN CSECT(I7A68) LENGTH(2)
1859	XIOCO	ADDRESS. HEX LOCATION(000029F8) IN CSECT(I7A68) LENGTH(2)
1869	XIOCQ	ADDRESS. HEX LOCATION(00002A0E) IN CSECT(I7A68) LENGTH(4)
1674	XIOCS	ADDRESS. HEX LOCATION(00002924) IN CSECT(I7A68) LENGTH(6)
1861	XIOCV	ADDRESS. HEX LOCATION(000029FC) IN CSECT(I7A68) LENGTH(2)
1872	XIOCX	ADDRESS. HEX LOCATION(00002A1A) IN CSECT(I7A68) LENGTH(4)
1669	XIODG	ADDRESS. HEX LOCATION(00002918) IN CSECT(I7A68) LENGTH(6)
1745	XIOER	ADDRESS. HEX LOCATION(00002984) IN CSECT(I7A68) LENGTH(2)
1678	XIO1	ADDRESS. HEX LOCATION(00002934) IN CSECT(I7A68) LENGTH(4)
1691	XIO2	ADDRESS. HEX LOCATION(0000295A) IN CSECT(I7A68) LENGTH(2)
1703	XIO8	ADDRESS. HEX LOCATION(00002970) IN CSECT(I7A68) LENGTH(2)