

```
3 COPY LOG7843 ** MAP EC HISTORY **
4 *****
5 *
6 * ** PREREQUISITES **
7 *
8 * NONE
9 *
10 *****
11 *
12 * ** MODIFICATIONS **
13 *
14 * CHANGES MADE TO MEET PROGRAM REQUIREMENTS
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 17DEC76 DATE 04MAR77 DATE 10JUN77 DATE 01MAR78
33 * E.C. 578486 E.C. 578638 E.C. 578625 E.C. 755285
34 *
35 *****
36 I7843 START X'2500' START ADDRESS OF ALL 'I' TYPE PROG
37 @QUES EQU X'0100' EQUATED VALUE FOR MDI STATEMENT
38 @FIXT EQU X'0101' EQUATED VALUE FOR MDI STATEMENT
39 @STOP EQU X'0102' EQUATED VALUE FOR MDI STATEMENT
40 @GOTO EQU X'0200' EQUATED VALUE FOR MDI STATEMENT
41 @CALL EQU X'0201' EQUATED VALUE FOR MDI STATEMENT
42 @INPT EQU X'0300' EQUATED VALUE FOR MDI STATEMENT
43 @QUXX EQU X'0400' EQUATED VALUE FOR MDI STATEMENT
44 @TUXX EQU X'0500' EQUATED VALUE FOR MDI STATEMENT
45 @NVLD EQU X'0600' EQUATED VALUE FOR MDI STATEMENT
46 @ EQU X'0004' EQUATE FOR EQUAL
47 @ HI EQU X'0008' EQUATE FOR NOT EQUAL
48 @ NH EQU X'000C' EQUATE FOR HIGH
49 @ LO EQU X'0010' EQUATE FOR LOW
50 @ NL EQU X'0014' EQUATE FOR NOT LOW
51 @ LT EQU X'0010' EQUATE FOR LESS THAN
52 @ LE EQU X'000C' EQUATE FOR LESS THAN OR EQUAL TO
53 @ GT EQU X'0008' EQUATE FOR GREATER THAN
54 @ GE EQU X'0014' EQUATE FOR GREATER THAN OR EQUAL TO
55 @ ON EQU X'0200' EQUATE FOR ON
56 @ OFF EQU X'0202' EQUATE FOR OFF
57 @ MIX EQU X'0204' EQUATE FOR MIXED
58 @ HEX EQU X'0001' EQUATE FOR HEX DATA TRANSFER
59 @ XTRNL EQU X'0001' EQUATE FOR EXTERNAL REFERENCE
60 @ INTNL EQU X'0000' EQUATE FOR INTERNAL REFERENCE
61 @ PARM EQU X'0000' EQUATE INDICATING PARAMETER
62 @ DA EQU X'0001' EQUATE FOR DEVICE ADDRESS
63 @ UA EQU X'0002' EQUATE FOR UNIT ADDRESS
64 @ DUMMY EQU X'0000' DUMMY EQUATE
65 @ PID EQU *-X'0D00' ADDRESS OF MDI HEADER
66 @ PTYPE EQU *-X'22C3' ADDRESS OF PROCESSOR TYPE FIELD
67 @ SBD1 EQU PID+X'000C' ADDRESS OF DECIMAL STEP NUMBER
68 @ SBD2 EQU PID+X'000E' ADDRESS OF DECIMAL STEP NUMBER
69 @ OPWD1 EQU PID+X'0010' ADDRESS OF OPTION WORD ONE
70 @ OPWD2 EQU PID+X'0018' ADDRESS OF OPTION WORD TWO
71 @ TUSTATUS EQU PID+X'0018' ADDRESS OF TU STATUS WORD
72 @ TWORK EQU PID+X'001A' ADDRESS OF TU WORK AREA
73 @ TUPARM1 EQU PID+X'009A' ADDRESS OF PARM 1 POINTER
74 @ TUPARM2 EQU PID+X'009C' ADDRESS OF PARM 2 POINTER
75 @ TUPARM3 EQU PID+X'009E' ADDRESS OF PARM 3 POINTER
76 @ TUPARM4 EQU PID+X'00A0' ADDRESS OF PARM 4 POINTER
77 @ TUPARM5 EQU PID+X'00A2' ADDRESS OF PARM 5 POINTER
78 @ TUPARM6 EQU PID+X'00A4' ADDRESS OF PARM 6 POINTER
79 @ TUPARM7 EQU PID+X'00A6' ADDRESS OF PARM 7 POINTER
80 @ TUPARM8 EQU PID+X'00A8' ADDRESS OF PARM 8 POINTER
81 @ TUPARM9 EQU PID+X'00AA' ADDRESS OF PARM 9 POINTER
82 @ TUPARM10 EQU PID+X'00AC' ADDRESS OF PARM 10 POINTER
83 @ TUPARM11 EQU PID+X'00AE' ADDRESS OF PARM 11 POINTER
84 @ TUPARM12 EQU PID+X'00B0' ADDRESS OF PARM 12 POINTER
85 @ TUPARM13 EQU PID+X'00B2' ADDRESS OF PARM 13 POINTER
86 @ TUPARM14 EQU PID+X'00B4' ADDRESS OF PARM 14 POINTER
87 @ TUPARM15 EQU PID+X'00B6' ADDRESS OF PARM 15 POINTER
88 @ TUPARM16 EQU PID+X'00B8' ADDRESS OF PARM 16 POINTER
89 @ TUMSGWTR EQU PID+X'00BA' ADDRESS OF -> TO COMMON MSG WRITER
90 @ TUA EQU PID+X'00BE' ADDRESS OF UNIT ADDRESS IN EBC
91 @ TUD EQU PID+X'00C0' ADDRESS OF DEVICE ADDRESS IN EBC
92 @ TUBUFF EQU PID+X'00C2' ADDRESS OF LAST USED WORD IN MAP
93 @ TULAST EQU PID+X'00C4' ADDRESS OF LAST ADDRESSABLE WORD
94 @ TURESUL EQU PID+X'00C6' ADDRESS OF LENGTH OF TU RESULTS
95 @ TURESUL EQU PID+X'00C8' ADDRESS OF TU RESULTS FIELD
96 @ MAPNAME EQU PID+X'00FC' ADDRESS OF MAP NAME FIELD IN HEX
97 @ TUINPT EQU PID+X'0148' ADDRESS OF SINPT DATA
98 @ PARMARA EQU PID+X'016E' ADDRESS OF SINPT INPUT AREA
99 @ @DCADD1 EQU PID+X'01B8' HDI POINTER
100 @ @DCADD2 EQU PID+X'01BA' HDI POINTER
101 @ SUPSTAT EQU PID+X'01C4' ADDRESS OF MDI STATUS
102 @ DEVADD EQU PID+X'01D0' ADDRESS OF DEVICE ADDRESS TABLE 0
103 @ DEVADD1 EQU PID+X'01DA' ADDRESS OF DEVICE ADDRESS TABLE 1
104 @ DEVADD2 EQU PID+X'01E4' ADDRESS OF DEVICE ADDRESS TABLE 2
105 @ DEVADD3 EQU PID+X'01EE' ADDRESS OF DEVICE ADDRESS TABLE 3
106 @ DEVADD4 EQU PID+X'01F8' ADDRESS OF DEVICE ADDRESS TABLE 4
107 @ DEVADD5 EQU PID+X'0202' ADDRESS OF DEVICE ADDRESS TABLE 5
108 @ DEVADD6 EQU PID+X'020C' ADDRESS OF DEVICE ADDRESS TABLE 6
109 @ DEVADD7 EQU PID+X'0216' ADDRESS OF DEVICE ADDRESS TABLE 7
110
111
112
113 PRINT OFF
```

```
002500 25P2 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 ** $QUES
223 ** A) RULE EQUATE X'0100'
224 ** B) ADDRESS OF THE YES LEG RULE
225 **
226 ** $FIXT
227 ** A) RULE EQUATE X'0101'
228 ** B) ADDRESS OF MESSAGE TO PRINT
229 **
230 ** $STOP
231 ** A) RULE EQUATE X'0102'
232 ** B) ADDRESS OF MESSAGE
233 **
234 ** $GOTO
235 ** A) RULE EQUATE X'0200'
236 ** B) ADDRESS OF MESSAGE
237 ** C) NAME OF MAP TO GO TO
238 ** D) ENTRY POINT WITHIN GO TO MAP TO USE
239 ** E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE
240 **
241 ** $CALL
242 ** A) RULE EQUATE X'0201'
243 ** B) ADDRESS OF MESSAGE
244 ** C) NAME OF MAP TO CALL
245 ** D) ENTRY POINT WITHIN CALLED MAP TO USE
246 ** E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE
247 **
248 ** $INPT
249 ** A) RULE EQUATE X'0300'
250 ** B) INPUT TYPE (EBCDIC OR HEX)
251 ** C) ADDRESS OF YES LEG RULE
252 ** D) DESTINATION LOCATION OF INPUT DATA
253 ** E) LENGTH OF INPUT DATA
254 ** F) LOWER LIMIT OF GOOD DATA
255 ** G) HIGHER LIMIT OF GOOD DATA
256 **
257 ** $QUXX
258 ** A) RULE EQUATE X'0400'
259 ** B) ADDRESS OF YES LEG RULE
260 ** C) TU BRANCH TO ADDRESS (INITIAL)
261 ** D) TU BRANCH TO ADDRESS (SECONDARY)
262 ** E) LENGTH OF PARAMETER IN BYTES
263 ** F) PARAMETER TO PASS TO TU
264 ** G) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER
265 **
266 ** $TUXX
267 ** A) RULE EQUATE X'0500'
268 ** B) ADDRESS OF YES LEG RULE
269 ** C) TU BRANCH TO ADDRESS
270 ** D) TYPE OF COMPARE TO MAKE ON RESULTS
271 ** E) LENGTH OF COMPARED RESULTS
272 ** F) MASK FIELD FOR COMPARE
273 ** G) LENGTH OF PARAMETER IN BYTES
274 ** H) PARAMETER TO PASS TO THE TU
275 ** I) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER
276 **
277 ** $NVLD
278 ** A) RULE EQUATE X'0600'
279 **
280 ** ENTRY POINT TABLE
281 ** THIS TABLE CONTAINS THE ENTRY POINTS WITHIN THE MAP THAT
282 ** THE MAP CAN BE ENTERED FROM THESE ENTRY POINTS ARE
283 ** REFERENCED BY NAME AND ADDRESS. ENTRIES ARE AS FOLLOWS:
284 **
285 ** A) NAME OF ENTRY POINT
286 ** B) ADDRESS OF ENTRY POINT RULE TABLE
287 **
288 ** THE ENTRY POINT TABLE END IS INDICATED BY A X'0000'
289 **
290 ** MESSAGE TABLE
291 ** THIS TABLE CONTAINS THE MESSAGE PASSED TO THE OPERATOR
292 ** VIA THE MDI SUPERVISOR. THE TABLE IS AS FOLLOWS:
293 **
294 ** A) EQUATE FOR START OF MESSAGE BLOCK
295 ** B) NUMBER OF LINES OF MESSAGE
296 ** C) LENGTH OF FOLLOWING LINE
297 ** D) FIRST LINE OF MESSAGE
298 ** E) LENGTH OF FOLLOWING LINE
299 ** F) SECOND LINE OF MESSAGE
300 ** G) ETC.
301 **
302 *****
303 *****
304 *****
305 *****
```

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976

308 *****
309 *****
310 **
311 ** STEP AND RULE ADDRESS TABLE
312 **
313 *****
314 *****
002502 2558 DC AL2(N00001)
002504 0001 DC XL2'0001'

379 *****
380 *****
381 **
382 ** RULE INFORMATION TABLE
383 **
384 **
385 *****

86 N00001 SQUXX T7838,PLNG=02,PARM=00,REPT=TS16L,QT=(Q00035),YES=N00007,X
87+ N00001 DC A(@QUXX)
88+ DC AL2(N00007)
89+ DC A(T7838)
90+ DC AL2(TS16L)
91+ DC AL2(02)
92+ DC C'00'

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00258E F0F1 422+ DC C'01'
423+ DC ALIGN WORD
002590 196E 424+ DC AL2(PARMARA)
425+ N00008 SQUXX T7838,PLNG=02,PARM=01,REPT=TS16L,QT=(Q00106),YES=N00010,X
426+ N00008 DC A(@QUXX)
427+ DC AL2(N00010)
428+ DC A(T7838)
429+ DC AL2(TS16L)
430+ DC AL2(02)
431+ DC C'01'

492 *****
493 *****
494 **
495 ** ENTRY POINT TABLE
496 **
497 *****
498 *****
499 *****

499 ENTPT EP=A,STEP=00001
500+ DC CL2'A'
501+ DC A(N00001)
502+ ENTPT EP=B,STEP=00013
503+ DC CL2'B'
504+ DC A(N00013)
505+ DC AL2(DUMMY)
506 *****
507 *****
508 **
509 ** MESSAGE TABLE
510 **
511 *****
512 *****
513 F00063 EQU *

LOCTR OBJECT TEXT STMT SOURCE STATEMENT
00272E 0002 536 DC AL2(0002)
002730 0018 537 DC A(0024)
002732 D9C5D7C1C9D940D6D 538 DC CL0024'REPAIR OF REPLACE CABLE.'

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM COPP 1976
002CBE 5C40E5C5D9C9C6E84 650 DC CL0022'* VERIFY THE REPAIR. *'
002CD4 0001 651 F00189 EQU *
002CD6 002C 652 DC AL2(0001)
002CD8 D5D640C9E240D5D6E 653 DC A(0044)
002D04 0009 654 F00192 EQU CL0044'NO IS NOT VALID RESPONSE , GO TO NEXT STEP. '

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
002E20 0000 767+ DC A(*-*) IBIS CYLINDER ADDRESS
768+*
769+* THIS TEST UNIT WILL RETURN TO MDI WITHOUT DOING ANY PROGRAM
770+* FUNCTION. THE RESULTS THAT WERE SET UP IN THE RESULTS AREA ARE
771+* STILL VALID BUT A DIFFERENT TEST IS TO BE PERFORMED.
772+*
002E22 4020 2DE2 3C02 773+T3C02 MVWI X'3C02',STUID SET UP TEST UNIT ID
002E28 5700 774+ BXS (R7) RETURN TO MDI SUPVR
775+ COPY COMEQU
776+*****
777+*
778+* EQUATED NAMES FOR SUPPORTED SVC'S
779+*
780+*
781+*****
782+ OUT EQU 0 OUT SVC
783+ OUTIN EQU 1 OUTIN SVC
784+ IDLE EQU 2 IDLE SVC
785+ ASCII EQU 3 HEX TO ASCII SVC
786+ CHNGE EQU 4 CHANGE LEVEL SVC
787+ PGMCK EQU 5 ALLOW RETURN ON PROGRAM CHECK SVC
788+ EXIT EQU 6 EXIT SVC
789+ TERM EQU 7 TERMINATE SVC
790+ RESET EQU 8 RESET DEVICE SVC
791+ RFD EQU 9 READ ID SVC
792+ START EQU 10 START CYCLE STEAL SVC
793+ STCSS EQU 11 START CYCLE STEAL STATUS SVC
794+ PREP EQU 12 PREPARE DEVICE SVC
795+ READ0 EQU 13 READ WITH FUNCTION BIT 3 OFF SVC
796+ READ1 EQU 14 READ WITH FUNCTION BIT 3 ON SVC
797+ RSTAT EQU 15 READ STATUS SVC
798+ WRIT0 EQU 16 WRITE WITH FUNCTION BIT 3 OFF SVC
799+ WRIT1 EQU 17 WRITE WITH FUNCTION BIT 3 ON SVC
800+ CTRL EQU 18 CONTROL SVC
801+ RICB EQU 19 RELEASE INTERRUPT CONTROL BLOCK SVC
802+ CICB EQU 20 CONNECT INTERRUPT CONTROL BLOCK SVC
803+ HIO EQU 21 HALT I/O
804+ RECDSD EQU 22 REQUEST USE OF DCP DISK SVC
805+ RELSD EQU 23 RELEASE USE OF DCP DISK SVC
806+ HALT EQU 24 HALT SVC
807+ ETOH EQU 25 EBCDIC TO HEX SVC (STRING)
808+ HTOE EQU 26 HEX TO EBCDIC SVC (STRING)
809+ ATOH EQU 27 ASCII TO HEX SVC (STRING)
810+ HTOA EQU 28 HEX TO ASCII SVC (STRING)
811+ ETOA EQU 29 EBCDIC TO ASCII SVC (STRING)
812+ ATOE EQU 30 ASCII TO EBCDIC SVC (STRING)
813+ READI EQU 31 PEAD DATA SETS FOR MDI/UTIL
814+ WRITI EQU 32 WRITE DATA SETS FOR UTIL
815+*****
816+*
817+*
818+* EQUATES USED BY TU'S AS CONSTANTS
819+*
820+*****
821+ PLUS EQU C'+ ' PLUS CHAR
822+ MINUS EQU C-' MINUS CHAR
823+ ZERO EQU 0
824+ ONE EQU 1
825+ TWO EQU 2
826+ THREE EQU 3
827+ FOUR EQU 4
828+ FIVE EQU 5
829+ SIX EQU 6
830+ SEVEN EQU 7
831+ EIGHT EQU 8
832+ NINE EQU 9
833+ TEN EQU 10
834+ ELEVN EQU 11
835+ TWELV EQU 12
836+ THRTN EQU 13
837+ PIVTN EQU 14
838+ SIXTN EQU 15
839+ THRY2 EQU 16
840+ SIXY2 EQU 32
841+ ONE28 EQU 128
842+ TWO56 EQU 256
843+ ONEK EQU 1024
844+ TWOK EQU 2048
845+ THREEK EQU 3072
846+ FOURK EQU 4096
847+ M1 EQU -1
848+ M2 EQU -2
849+ M3 EQU -3
850+ M4 EQU -4
851+*****
852+*
853+* THE FOLLOWING ARE EQUATES FOR BIT DISPLACEMENTS FROM THE
854+* BEGINNING OF THE BYTE TO EACH BIT IN THE WORD OF SWITCHES.
855+*
856+*****
857+*
858+*
859+*****
860+ BS0 EQU 0
861+ BS1 EQU 1
862+ BS2 EQU 2
863+ BS3 EQU 3
864+ BS4 EQU 4
865+ BS5 EQU 5
866+ BS6 EQU 6
867+ BS7 EQU 7
868+ BS8 EQU 8
869+ BS9 EQU 9
870+ BS10 EQU 10
871+ BS11 EQU 11
872+ BS12 EQU 12
873+ BS13 EQU 13
874+ BS14 EQU 14
875+ BS15 EQU 15
876+ COPY T7838 01DEC76
877+ TUIT S16E
878+*****06FEB76**
879+*
880+*
881+* TEST UNIT
882+*
883+* T78S16 PEAD ID TEST LOOP 12/01/76
884+*
885+* PURPOSE
886+*

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM COPP 1976
887+* FUNCTION:
888+*
889+* SELECT HEAD FROM MDI
890+* READ ID SECTOR #30
891+* LOOP UNTIL CE INPUTS ANSWER TO MAP QUESTION.
892+*
893+*
894+* CALLING SEQUENCE
895+*
896+* PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
897+* NO STATUS PASSED BACK TO MDI
898+*
899+* EXITS NORMAL
900+* MDI TERMINATES LOOP
901+*
902+* EXITS ERROR
903+* NONE
904+*
905+* RETURN CONTROL
906+*
907+* B TURTN* RETURN TO MDI SUPERVISOR
908+*
909+*****
910+* T7838 MVH R7 TURTN SAVE RETURN ADDRESS
911+* MVWI X'7838',STUID SAVE TU ID FOR DISPLAY
912+* MVA I'PT1,R4 SET UP POINTER ADRS IN R4
913+* BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
914+* DC A(S16E) ERROR ADRS FOP INVALID PREP
915+*
916+ MVWI 0,SKDCB+2 SETUP SEEK NO-OP (HEAD SELECT)
917+ MVH TUPARM1*,SKDCB+8 SELECT HEAD FROM MDI
918+ BAL \$SEEK,R6 SEEK
919+ DC A(S16E) ERROR-EXIT
920+ TS16L MVWI X'200A',PSDCB READ SECTOR ID CONTROL WORD
921+ MVWI 0,RSDCB+4 LOAD DCB WITH PHY SEC #0(LOG 30)
922+ BAL \$KID,R6 READ SECTOR ID
923+ DC A(S16E) ERROR-EXIT
924+ S16E TXII EXIT
925+ S16E B \$CONX RETURN TO MDI CONTROLLER
926+*****
927+*
928+*
929+*
930+ COPY T7872
931+*****
932+* T7872 THIS TU INHIBITS INTERRUPT 12/01/76*
933+* CALLING ROUTINE LOOPS ON T72A *****
934+*
935+*****
936+* T7872 MVH R7 TURTN SAVE RETURN ADDRESS
937+* MVWI X'0020',TODCB PREP TO LEVEL 2 WITH THE 'I' BIT OFF
938+* MVA IOBLK,R7 *
939+ SVC PREP *
940+ J T72B
941+ T72A MVW R7,TURTN SAVE RETURN ADDRESS
942+ T72B B \$CONX EXIT
943+*
944+*
945+ COPY T78DCB 01DEC76
946+* (T78DCB)
947+*****12/1/76*****
948+*
949+*
950+* DCB TABLES AND DC'S
951+*
952+*****
953+*
954+***** DIAGNOSTIC DCB *****
955+*
956+ DGDCB DC X'2008' DIAGNOSTIC DCB
957+ DC X'0000' NOT USED
958+ DC A(*-*) 0-7 = PHYSICAL SECTOR # MINUS ONE
959+ DC X'0000' NOT USED
960+ DC X'0000' NOT USED
961+ DC A(*-*) CHAINING ADDRESS
962+ DC X'0100' BYTE COUNT
963+ DC A(*-*) DATA ADDRESS
964+*
965+*
966+***** RECALIBRATE DCB *****
967+*
968+ CLDCB DC X'0007' RECALIBRATE DCB
969+ DC 7A(*-*)
970+*
971+***** WRITE SECTOR ID **
972+*
973+ WSDCB DC X'0002' WRITE SECTOR ID CONTROL WORD
974+ DC X'0000' NOT USED
975+ DC A(*-*) 0-7 = PHYSICAL SECTOR # MINUS ONE
976+ DC A(*-*) NOT USED
977+ DC A(*-*) NOT USED
978+ DC A(*-*) CHAIN ADDRESS
979+ DC X'0006' BYTE COUNT
980+ DC A(WPSID) ADDR OF SECTOR ID DATA
981+***** READ SECTOR ID DCB *****
982+*
983+ RSDCB DC X'200A' READ SECTOR ID
984+ DC X'0000' NOT USED
985+ DC X'0000' 0-7 = PHYSICAL SECTOR # MINUS ONE
986+ DC X'0000' NOT USED
987+ DC X'0000' NOT USED
988+ DC X'0000' CHAIN ADDRESS
989+ DC X'0006' BYTE COUNT FOR READ SECTOR ID
990+ DC A(SCTID) SECTOR ID DATA ADDRESS
991+*
992+*
993+***** READ SECTOR ID IMMEDIATE DCB *****
994+*
995+ RIDCB DC X'200E' READ SECTOR ID
996+ DC X'0000' NOT USED
997+ DC X'0000' NOT USED
998+ DC X'0000' NOT USED
999+ DC X'0000' NOT USED
1000+ DC A(*-*) CHAIN ADDRESS
1001+ DC X'0006' BYTE COUNT FOR READ SECTOR ID
1002+ DC A(SCTID) SECTOR ID DATA ADDRESS

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
1003 *
1004 *
1005 ***** SEEK DCB *****
1006 *
1007 SKDCB DC X'0005' SEEK DCB
1008 DC X'0000' BIT 0-3=0;BIT4=DIRECTION;5-15=DIFFER
1009 DC F'0'
1010 DC F'0'
1011 DC X'0000' 0-7 = HEAD;8-15 NOT USED
1012 DC A(*-*) CHAIN ADDRESS
1013 DC F'0' NOT USED
1014 DC F'0' NOT USED
1015 *
1016 ***** CYCLE STEAL STATUS DCB *****
1017 *
1018 CSDCB DC X'2000' CONTROL WORD
1019 DC F'0' NOT USED
1020 DC F'0' NOT USED
1021 DC F'0' NOT USED
1022 DC F'0' NOT USED
1023 DC F'0' NOT USED
1024 DC X'0008' 4 WORDS OF STATS
1025 DC A(CSBUF) ADDRESS OF CYCLE STEAL STATUS DATA
1026 *
1027 ***** WRITE DCB *****
1028 *
1029 WRDCB DC X'0001' WRITE CONTROL WORD
1030 DC F'0' NOT USED
1031 DC X'0000' 0-7=0;8-15 = FLAG BYTE
1032 DC X'0000' SEARCH ARGUMENT CYLINDER
1033 DC X'0000' SEARCH ARGUMENT HEAD-SECTOR
1034 DC A(*-*) CHAIN ADDRESS
1035 DC F'0' BYTE COUNT
1036 DC A(*-*) WRITE DATA ADDRESS
1037 *
1038 ***** VERIFY DCB *****
1039 *
1040 VRDCB DC X'200C' CONTROL WORD
1041 DC F'0' NOT USED
1042 DC X'0000' 0-7=0;8-15 = FLAG BYTE
1043 DC X'0000' CYLINDER
1044 DC X'0000' HEAD - SECTOR
1045 DC A(*-*) CHAIN ADDRESS
1046 DC F'0' BYTE COUNT
1047 DC A(*-*) VERIFY DATA ADDRESS
1048 *
1049 ***** READ DCB *****
1050 *
1051 RDDCB DC X'2009' READ DCB CONTROL WORD
1052 DC F'0' NOT USED
1053 DC X'0000' 0-7=0;8-15 = FLAG BYTE
1054 DC X'0000' SEARCH ARGUMENT CYLINDER
1055 DC X'0101' SEARCH ARGUMENT H-R
1056 DC A(*-*) CHAIN ADDRESS
1057 DC F'0' BYTE COUNT
1058 DC A(*-*) READ DATA ADDRESS
1059 *
1060 ***** WRITE SECTOR ID SKEWED *****
1061 *
1062 WKDCB DC X'0003' CONTROL WORD
1063 DC X'0000' NOT USED
1064 DC A(*-*) 0-7 = PHYSICAL SECTOR # MINUS ONE
1065 DC A(*-*) NOT USED
1066 DC A(*-*) NOT USED
1067 DC A(*-*) CHAIN ADDRESS
1068 DC X'0006' BYTE COUNT
1069 DC A(WRSID) ADDR OF SECTOR ID DATA
1070 *
1071 ***** READ SECTOR ID SKEWED *****
1072 *
1073 RKDCB DC X'200B' CONTROL WORD
1074 DC X'0000' NOT USED
1075 DC X'0000' 0-7 = PHYSICAL SECTOR # MINUS ONE
1076 DC X'0000' NOT USED
1077 DC X'0000' NOT USED
1078 DC A(*-*) CHAIN ADDRESS
1079 DC X'0006' BYTE COUNT FOR READ SECTOR ID
1080 DC A(SCTID) SECTOR ID DATA ADDRESS
1081 *
1082 ***** CONSTANTS AND DEFINED STORAGE LOCATIONS *****
1083 ZERO DC X'0000' CONSTANT ZERO
1084 ONE DC X'0001' CONSTANT ONE
1085 TIMEOUT DC 2A(*-*) TIMEOUT COUNTER
1086 TONE DC X'0000' CONSTANT FOR ADD DOUBLE
1087 *
1088 COUNT DC F'1280' BYTE COUNT (1280)
1089 DIFF DC A(*-*) SEEK DIFFERENCE
1090 XXX DC A(*-*) WORK WORD INT TO ZERO
1091 BCNT DC X'0000' BYTE COUNT
1092 JOE DC A(*-*) WRITE PARAMETER POINTER
1093 JOE1 DC A(*-*) SAVE LOC FOR PARM LIST ADDRESS
1094 WDATA DC X'DEB6' WRITE DATA
1095 *
1096 TABLE DC A(*-*) ADDR OF WRT PAR LIST FOR FORMAT RTNS
1097 LGSEC DC X'0000' LOGICAL SECTOR #
1098 PHYSEC DC X'0000' CONVERTED PHYSICAL SEC #
1099 CB29 DC X'1000' CONSTANT BYTE 29
1100 FIVE9 DC X'3000' CONSTANT BYTE 59
1101 WRSID DC X'0000' FLAG,CYLINDER (WRT SECTOR ID DATA)
1102 DC X'0000' CYLINDER,HEAD
1103 DC X'0000' LOG SECTOR,NOT USED
1104 CDAT DC X'00FF' INVALID DATA CONSTANT
1105 WSIDT DC X'FE34' WRITE SECTOR ID TEST DATA
1106 DC X'5578' *
1107 DC X'9800' *
1108 SCTST DC X'0000' READ SECTOR ID TEST DATA BUFFER
1109 DC X'0000' *
1110 DC X'0000' *
1111 CTR01 DC X'0000' COUNTER
1112 CTR02 DC X'0000' COUNTER
1113 CTR03 DC X'0000' COUNTER
1114 CTR04 DC X'0000' COUNTER
1115 CTR05 DC X'0000' COUNTER
1116 CTR06 DC X'0000' COUNTER

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1117 SAVR3 DC X'0000' SAVE AREA
1118 SAVR5 DC X'0000' SAVE AREA
1119 WR2 DC X'0000'
1120 SVSEK DC X'0000'
1121 LCT DC X'0000'
1122 T56AA DC X'0000'
1123 T56BB DC X'0000'
1124 T56CC DC X'0000'
1125 T56DD DC X'0000'
1126 T56EE DC X'0000'
1127 T56FE DC X'0000'
1128 T56GG DC X'0000'
1129 T86AA DC X'0000'
1130 T86BB DC X'0000'
1131 T86CC DC X'0000'
1132 T86DD DC X'0000'
1133 T86EE DC X'0000'
1134 T86FF DC X'0000'
1135 T86GG DC X'0000'
1136 T41D DC X'0000'
1137 T41P DC X'0000'
1138 WRLCT DC X'0000'
1139 CYLOC DC X'0000'
1140 PASS1 DC A(*-*)
1141 HEAD0 DC A(*-*)
1142 HEAD1 DC A(*-*)
1143 GDSE0 DC A(*-*)
1144 GDSE1 DC A(*-*)
1145 ER00 DC A(*-*)
1146 ER01 DC A(*-*)
1147 HD0SV DC A(*-*)
1148 HD1SV DC A(*-*)
1149 EROSV DC A(*-*)
1150 ER1SV DC A(*-*)
1151 ERATP DC A(*-*)
1152 CECYL DC A(*-*)
1153 STATS DC A(*-*)
1154 *
1155 COPY T78DPCIO 01DEC76
1157 ** (T78DPCIO)
1158 *
1159 * EXECUTE DPC INPUT/OUTPUT COMMANDS
1160 * THIS ROUTINE HAS THE FOLLOWING ENTRIES:
1161 * 1 BAL CEOP1,R6 CE DIAGNOSTIC OP1(TURN ON DIAG MODE)
1162 * 2 BAL CEOP2,R6 WRITE DIAG CLOCK STEP DATA
1163 * 3 BAL SENS0,R6 CE READ SENSE WORD ZERO
1164 * 4 BAL SENS1,R6 CE READ SENSE WORD ONE
1165 * 5 BAL WFAP,R6 READ DIAGNOSTIC WRAP
1166 *
1167 *
1168 *
1169 *
1170 *
1171 *
1172 * BXS (R6,2) RETURN
1173 *
1174 *
1175 *
1176 * CE DIAGNOSTIC OP2 DATA WORD (CLOCK STEP)
1177 *
1178 * BIT 00 - SET READY
1179 * BIT 01 - RESET READY
1180 * BIT 02 - SET WRITE CLOCK
1181 * BIT 03 - SET READ CLOCK
1182 * BIT 04 - INDEX PULSE
1183 * BIT 05 - SECTOR PULSE
1184 * BIT 06 - STANDARD READ DATA
1185 * BIT 07 - SPEED PULSE
1186 * BIT 08 - BEHIND HOME
1187 * BIT 09 - SET SEEK COMPLETE
1188 * BIT 10 - RESET SEEK COMPLETE
1189 * BIT 11 - PIO OUT OF SYNC
1190 * BIT 12 - RST RD/WRT CLOCK
1191 * BIT 13 -
1192 * BIT 14 -
1193 * BIT 15 - RESET DIAGNOSTIC MODE
1194 *
1195 *
1196 *
1197 *
1198 * WRAP MVB R6,LSTIO SAVE ADDRESS OF LAST IO
1199 * HVB DEVADD,IDCBRAP+1 LOAD DEVICE ADDRESS IN IDCB
1200 * IO IDCBRA1 READ SENSE WORD 1
1201 * BNCC 7,CCERR CHECK COND CODE
1202 * BXS (R6,2) RETURN TO CALLER
1203 *
1204 * CEOP1 MVB R6,LSTIO SAVE ADDRESS OF LAST IO
1205 * HVB DEVADD,IDCBCE1+1 LOAD DEVICE ADDRESS IN IDCB
1206 * IO IDCBCE1 SET DIAGNOSTIC MODE
1207 * BNCC 7,CCERR CHECK COND CODE
1208 * BXS (R6,2) RETURN TO CALLER
1209 *
1210 * CEOP2 MVB R6,LSTIO SAVE ADDRESS OF LAST IO
1211 * HVB DEVADD,IDCBCE2+1 LOAD DEVICE ADDRESS IN IDCB
1212 * IO IDCBCE2 WRITE DIAG CLOCK STEP
1213 * BNCC 7,CCERR CHECK COND CODE
1214 * BXS (R6,2) RETURN TO CALLER
1215 *
1216 *
1217 * SENS1 MVB R6,LSTIO SAVE ADDRESS OF LAST IO
1218 * HVB DEVADD,IDCB1+1 LOAD DEVICE ADDRESS IN IDCB
1219 * IO IDCB1 READ SENSE WORD 2
1220 * BNCC 7,CCERR CHECK COND CODE
1221 * BXS (R6,2) RETURN TO CALLER
1222 *
1223 * SENS0 MVB R6,LSTIO SAVE ADDRESS OF LAST IO
1224 * HVB DEVADD,IDCB0+1 LOAD DEVICE ADDRESS IN IDCB
1225 * IO IDCB0 READ SENSE WORD 1
1226 * BNCC 7,CCERR CHECK COND CODE
1227 * BXS (R6,2) RETURN TO CALLER
1228 *
1229 * CCERR DC X'706E' COPY STATUS ANY LEVEL INTO R3
1230 * SRL 13,R3 POSITION CC CODE TO BITS 13-15
1231 * HVB R3,\$TOIN * PUT IN LOG AREA

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00303C 68D2 0000 1232 * B (R6)* RETURN TO USER
1233 *
1234 IORST DC X'6F05' RESET IO
1235 IDCBO DC X'2205' SENSE WORD ZERO
1236 RDATA0 DC A(*-*) DATA WORD
1237 IDCBI DC X'2105' SENSE WORD ONE
1238 RDATA DC A(*-*)
1239 IDCBC1 DC X'4005' CE DIAG OP1
1240 CEDAT DC A(*-*) SENSE DATA
1241 IDCBC2 DC X'4105' CE DIAG OP2
1242 CEDAT2 DC A(*-*) SENSE DATA
1243 IDCBRAP DC X'2F05' READ DIAG WRAP
1244 RAPDAT DC A(*-*) SENSE DATA
1245 CPUID EQU X'0232' CPU ID
1246 *
1248 * COPY T78IO 01DEC76
1249 ** (T78IO)
1250 *****12/01/76*****
1251 *
1252 * SUBROUTINE
1253 *
1254 * PURPOSE
1255 *
1256 * COMPARE READ SECTOR ID DATA TO WRITE SECTOR ID DATA
1257 * NORMAL AND TEST DATA.
1258 *
1259 * CALLING SEQUENCE
1260 *
1261 * BAL CMPRW,R6 (NORMAL)
1262 * BAL CMPRT,R6 (TEST)
1263 *
1264 * RETURN
1265 *
1266 * BXS (R6,2) - NORMAL
1267 *
1268 *
1269 *****
1270 *
1271 CMPRT MVWI 5,R7 BYTE COUNT
1272 MVA SCTST+1,R3 ADDR OF RD SECT ID DATA (TEST)
1273 MVA WSDT,R5 ADDR OF WR SECT ID DATA (TEST)
1274 J TT4Y
1275 CMPRW MVWI 5,R7 COMPARE BYTE COUNT
1276 MVA SCTID+1,R3 ADDR OF RD SEC ID DATA
1277 MVA WRSID,R5 ADDR OF WR SEC ID DATA
1278 TT4Y CFNEN (R3),(R5) COMPARE ID DATA
1279 BE (R6,2) BCH IF WRITE ID DATA OK
1280 B (R6)* COMPARE ERROR
1281 *
1282 *****
1283 *
1284 * SUBROUTINE
1285 *
1286 * PURPOSE
1287 * CONVERT LOGICAL SECTOR NUMBER TO A PHYSICAL SECTOR MINUS
1288 * ONE.
1289 * SETUP LOGICAL SECTOR # IN LOCATION 'LGSEC'
1290 * PHYSICAL SECTOR # WILL BE LOADED IN LOCATION 'PHYS'
1291 *
1292 * LOGICAL SECTOR# TO PHYSICAL SECTOR# CONVERSION
1293 * LOGICAL- X 00, 1E, 01, 1F, 02, 20, 03, 21, 04, 22, 05, 23, 06, 24,
1294 * PHYSICAL X 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B, 0C, 0D,
1295 *
1296 * LOGICAL- 07, 25, 08, 26, 09, 27, 0A, 28, 0B, 29, 0C, 2A, 0D, 2B,
1297 * PHYSICAL 0E, 0F, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 1A, 1B,
1298 *
1299 * LOGICAL- 0E, 2C, 0F, 2D, 10, 2E, 11, 2F, 12, 30, 13, 31, 14, 32,
1300 * PHYSICAL 1C, 1D, 1E, 1F, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29,
1301 *
1302 * LOGICAL- 15, 33, 16, 34, 17, 35, 18, 36, 19, 37, 1A, 38, 1B, 39,
1303 * PHYSICAL 2A, 2B, 2C, 2D, 2E, 2F, 30, 31, 32, 33, 34, 35, 36, 37,
1304 *
1305 * LOGICAL- 1C, 3A, 1D, 3B, X
1306 * PHYSICAL 38, 39, 3A, 3B, X
1307 *
1308 *
1309 * CALLING SEQUENCE
1310 *
1311 * BAL CONV, R6
1312 *
1313 * RETURN
1314 *
1315 * B (TT304+2)
1316 *
1317 *****
1318 *
1319 CONV, MVW R6, TT304+2 SETUP RETURN ADDR
1320 CB ZER0, LGSEC+1 CK FOR LOG # ZERO
1321 JE TT303 BCH IF LOG # IS ZERO
1322 CB LGSEC+1, CB29 COMP LOG TO 29
1323 JGE RTT01 BCH IF LGSEC EQ OR LESS THAN CB29
1324 MVWI 2,R0 SETUP MULTIPLIER
1325 MB LGSEC+1,R0 LOG SECTOR # TIMES 2
1326 SWI 60,P0 LOG SEC TIMES 2 MINUS 60
1327 MVB R0,PHYS+1 PHYSICAL SECTOR NUMBER
1328 J TT304 RETURN TO CALLER
1329 TT303 MVB FIVE9,PHYS+1 PHYSICAL SECTOR # 59
1330 J TT304 RETURN TO CALLER
1331 RTT01 MVWI 2,R0 LOAD MULTIPLIER
1332 MB LGSEC+1,P0 LOG SECTOR # TIMES 2
1333 SWI 1,R0 SUBTRACT ONE
1334 MVB R0,PHYS+1 LOAD PHYSICAL SECTOR #
1335 TT304 B *-* RETURN TO CALLER
1336 *
1337 *****
1338 *
1339 * SUBROUTINE
1340 *
1341 * PURPOSE
1342 *
1343 * LOAD WRITE SECTOR ID DATA BUFFER FROM RD SEC ID BUFFER
1344 *
1345 * CALLING SEQUENCE
1346 *

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1347 * BAL LWSID,R6
1348 *
1349 * RETURN
1350 *
1351 * BXS (R6)
1352 *
1353 *****
1354 *
1355 *
1356 LWSID MVWI 5,R7 BYTE COUNT
1357 MVA SCTID+1,R3 ADDR OF RD SECT ID DATA BUFFER
1358 MVA WRSID,R5 ADDR OF WR SECT ID DATA BUFFER
1359 MVFN (R3),(R5) MOV DATA FROM RD TO WR BUFFER
1360 BXS (R6) RETURN TO CALLER
1361 *
1362 *
1363 *
1364 * EXECUTE INPUT & OUTPUT COMMANDS
1365 * TO EXECURE ALL I/O COMMANDS FROM A COMMON PLACE.
1366 * EACH OF THESE ENTRIES SET R7 WITH THE ADRS OF ITS PARAMETER
1367 * LIST AND ANY SPECIAL SWITCHES BEFORE BRANCHING TO THE
1368 * SUPVR CALL.
1369 *
1370 * THIS SUBROUTINE WILL CHECK FOR THE FOLLOWING:
1371 *
1372 * 1. LOST INTERRUPTS BY TIMING OUT A COUNTING LOOP
1373 * 2. ERROR INTERRUPTS RECEIVED FROM SUPVR
1374 *
1375 * THIS ROUTINE HAS THE FOLLOWING ENTRIES:
1376 *
1377 * 1 BAL \$RKEW,R6 READ SECTOR ID SKEWED
1378 *
1379 * 2 BAL \$WKST,R6 WRITE SECTOR ID SKEWED (TEST)
1380 *
1381 * 3 BAL \$RWST,R6 READ SECTOR ID SKEWED (TEST)
1382 *
1383 * 4 BAL \$RIDS,R6 READ SECTOR ID (TEST)
1384 *
1385 * 5 BAL \$WKEW,R6 WRITE SECTOR ID SKEWED
1386 *
1387 * 6 BAL \$WSEC,P6 WRITE SECTOR ID
1388 *
1389 * 7 BAL \$WSTS,R6 WRITE SECTOR ID (TEST)
1390 *
1391 * 8 BAL \$DIAG,P6 DIAGNOSTIC
1392 *
1393 * 9 BAL \$XIOCS,P6 CYCLE STEAL STATUS
1394 *
1395 * 10 BAL \$SEEK,R6 SEEK
1396 *
1397 * 11 BAL \$RECL,R6 RECALIBRATE
1398 *
1399 * 12 BAL \$RDID,R6 READ SECTOR ID
1400 *
1401 * 13 BAL \$RD,R6 READ
1402 *
1403 * 14 BAL \$PDVY,R6 READ VERIFY
1404 *
1405 * 15 BAL \$WRT,R6 WRITE
1406 *
1407 *
1408 * \$SEEK MVA SKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1409 J XIO
1410 *
1411 * \$RECL MVA CLDCB,IODCB SET UP BLOCK FOR SVC CALL
1412 J XIO
1413 *
1414 * \$RDID MVA RSDCB,IODCB SET UP BLOCK FOR SVC CALL
1415 MVB X'FF',R3 SET BUFFER TO F'S
1416 MVA SCTID,R5 SETUP READ SECTOR ID BUFFER ADRS
1417 MVWI 6,R7 SETUP BUFFER LENGTH
1418 PFN R3,(R5) INIT READ SECTOR ID BUFFER
1419 MVA SCTID,RSDCB+14 DATA ADDR
1420 J XIO
1421 *
1422 * \$RD MVB X'FF',R3 SETRD BUFFER TO ALL F'S
1423 MVW RDDCB+14,R5 SET UP READ BUFFER ADRS
1424 MVWI X'0100',R7 SET UP BUFFER LENGTH
1425 PFN R3,(R5) CLEAR READ BUFFER
1426 \$RDS MVA RDDCB,IODCB SET UP BLOCK FOR SVC CALL
1427 J XIO
1428 *
1429 * \$RDVY MVA VRDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1430 J XIO
1431 *
1432 * \$WRT MVA WRDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1433 J XIO
1434 *
1435 * \$RKEW MVA RKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1436 MVB X'FF',R3 SET BUFFER TO F'S
1437 MVA SCTID,R5 SETUP READ SECTOR ID BUFFER ADRS
1438 MVWI 6,R7 SETUP BUFFER LENGTH
1439 PFN R3,(R5) INIT READ SECTOR ID BUFFER
1440 MVA SCTID,RKDCB+14 DATA ADDR
1441 J XIO
1442 *
1443 * \$WKST MVA WKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1444 MVA WSDT,WKDCB+14 DATA ADDR
1445 J XIO
1446 *
1447 * \$RWST MVA RKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1448 MVA SCTST,RKDCB+14 DATA ADDR
1449 J XIO
1450 *
1451 * \$RIDS MVA RSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1452 MVB X'FF',R3 SET BUFFER TO F'S
1453 MVA SCTST,R5 SETUP READ SECTOR ID BUFFER ADRS
1454 MVWI 6,R7 SETUP BUFFER LENGTH
1455 PFN R3,(R5) INIT READ SECTOR ID BUFFER
1456 MVA SCTST,RSDCB+14 DATA ADDR
1457 J XIO
1458 *
1459 * \$WKEW MVA WKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1460 MVA WRSID,WKDCB+14 DATA ADDR
1461 J XIO

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1462 *
1463 SWSEC MVA WSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1464 MVA WRSID,WSDCB+14 DATA ADDR
1465 J XIO
1466 SWSTS MVA WSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1467 MVA WSIDT,WSDCB+14 DATA ADDR
1468 J XIO
1469 *
1470 SDIAG MVA DGDCE,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1471 J XIO
1472 XEQTT
1473 *****29JUL76**
1474**
1475** SUB-ROUTINE
1476** EXECUTE INPUT AND OUTPUT COMMANDS
1477**
1478** PURPOSE
1479**
1480** TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
1481** THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:
1482**
1483** 1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED
1484** THE I/O COMMAND.
1485** 2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS
1486** ISSUED BY THIS SUBROUTINE.
1487** 3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE
1488** START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.
1489** 4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT
1490** SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,
1491** MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.
1492** 5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE
1493** EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC START'.
1494** 6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING
1495** STARTS TO DETERMINE A LOST INTERRUPT.
1496** 7. CHECKS THE INTERRUPT AND GATHERS INFORMATION TO DETERMINE IF IT
1497** WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.
1498** 8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.
1499** 9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.
1500** 10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.
1501** 11. CHECK TO SEE IF THE EXERCISER IS TO BE TERMINATED.
1502** 12. CHECK IF A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS
1503** ISSUED BY THIS SUBROUTINE.
1504** 13. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A
1505** CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON,
1506** COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.
1507**
1508** CALLING SEQUENCE
1509**
1510** THIS ROUTINE HAS THE FOLLOWING ENTRIES:
1511**
1512** --> BAL XIO OR XEQ ANY CYCLE STEAL COMMAND, MOD=0
1513** --> BAL XIO1 MOD PARM PRELOADED IN 'IOMOD'
1514** --> BAL XIOCS,R6 OR XEQ START CYCLE STEAL STATUS, MOD=F
1515** --> BAL XIOCS-4,R6 AUTO CS STATUS (FOLLOWING OTHER XIO
1516** AND DOES NOT POST INTERRUPT STATUS)
1517**
1518** RETURN CONTROL
1519**
1520** BXS (R6,2) RETURN TO USER NO ERROR
1521** OR B (R6,1) RETURN AND REPLY ON ERROR
1522** *****
1523** XIO MVWZ IOMOD,R3 SET NOF OF 0 FOR CYCLE STEAL OP
1524** J XIO1 CS I/O'S ARE NOT RETRIED
1525**
1526** TBTR (R4,CE) RESET CS STATUS INTER ERROR INDICAT.
1527** TBTS (R4,CS) SET 'CYCLE STEAL STATUS' IN PROGRESS
1528** XIOCS MVA CSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1529** MVWI X'000F',IOMOD SET CYCLE STEAL MODIFIER
1530** TBTR (R4,CS) IS CS IN PROGRESS, ERROR CONDITION
1531** JON XTO2 SAVE I/O BYPASS SAVING I/O ADRES
1532** XIO1 MVA LSTIO SAVE I/O FOR REPLY IF REQUESTED
1533** MVA DCBUR,R3 SET UP TO ADRES TO MOVE DCB TABLE
1534** MVW TODCB,R5 * AND THE FROM ADRES, ALONG WITH
1535** MVBI 16,R * THE NUMBER OF MOVES
1536** MVFN (R5),(R3) MOVE 1 STATUS WORD AND ADJUST
1537** MVBI 255,R3 CLEAR CYCLE STATUS BUFFER
1538** MVA CSBUR,R5 * TO ALL ONES *
1539** MVBI 16,R *
1540** FFF R3,(R5) *
1541** MVWI X'0708',SIOIN OVERLAY OLD CONDITION CODES
1542** MVWZ SISB,R3 ZERO OUT OLD ISB VALUE
1543**
1544** TBTR (R4,ER) RESET ANY ERROR BEFORE I/O COMMAND
1545** TBTR (R4,IN) CLEAR INTERRUPT RECEIVED CNTL BIT
1546** MVA IOBLK,R7 SET UP CONTROL BLOCK FOR SUPVR
1547** TBTR (R4,SIE) RESET LEVEL ERROR INDICATOR
1548** TBTS (R4,XI) SET EXPECTED INTR CONTROL BIT
1549** SVC START CALL SUPVR FOR I/O COMMAND
1550**
1551** TBTR (R4,NI) IS AN INTR EXPECTED
1552** BN (R6,2) * NO, RETURN TO USER
1553** *****
1554** THE INTR SHOULD OCCUR WHILE SPINNING IN THE NEXT SECTION
1555**
1556** MVBI X'00',R5 SET UP WORK REG FOR 'LOST INTR'
1557** XIO8 TBTR (R4,IN) HAS INTERRUPT BEEN RECEIVED
1558** JON XIOCR * YES, CHECK IF ALL WAS SATISFACTORY
1559** SVC IDLE ALLOW ANOTHER PROGRAM A CHANCE TO RUN
1560** SUPVR WILL RETURN HERE
1561** ADVANCE TIME OUT COUNT
1562** AWI 1,R5 BCH IF TIME OUT NOT REACHED
1563** JNZ XIO8 SET ON ERROR CONTROL BIT
1564** TBTS (R4,ER) ERR 'NO INTERRUPT'
1565** B (R6) *
1566** *****03FEB76**
1567** SUBROUTINE
1568**
1569** I/O EXECUTE ERROR HANDLING ROUTINE
1570**
1571** PURPOSE
1572** THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE
1573** PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE

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1578** SUPERVISOR AND IT WAS NOT ACCEPTED.
1579**
1580** CALLING SEQUENCE
1581**
1582** SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND
1583**
1584** RETURN CONTROL
1585**
1586** B (R6) * RETURN TO USERS ERROR HANDLER
1587** *****
1588**
1589**
1590** CC 0= DEVICE NOT ATTACHED
1591** FOR 1= DEVICE BUSY
1592** I/O 2= DEVICE BUSY AFTER RESET
1593** 3= COMMAND REJECT
1594** 4= INTERVENTION REQUIRED
1595** 5= INTERFACE DATA CHECK
1596** 6= CONTROLLER BUSY
1597** 7= I/O COMMAND EXPECTED
1598**
1599** XIOER DC X'706E' COPY STATUS ANY LEVEL INTO R3
1600** SRL 13,R3 POSITION CC CODE TO BITS 13-15
1601** MVB R3,SIOIN * PUT IN LOG OUT AREA
1602** B (R6) * RETURN TO USER ERROR HANDLER
1603** *****14APR76**
1604**
1605** SUB-ROUTINE
1606**
1607** ERROR INTERRUPT RUNS ON INTERRUPT LEVEL 'SINTL'
1608**
1609** PURPOSE
1610** THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR
1611** OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE
1612** EXPECTED CODE.
1613**
1614** CALLING SEQUENCE
1615**
1616** SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT
1617**
1618** RETURN CONTROL
1619**
1620** SVC EXIT RETURN TO USER VIA SUPVR
1621**
1622** *****
1623**
1624**
1625**
1626** CC 0= CONTROLLER END ISB 0= ADD STATUS
1627** FOR 1= PROGRAM CONTROL INTERRUPT BITS 1= COMD REJECT
1628** INTR 2= EXCEPTION INTERRUPT FOR 2= INCOR LENGTH
1629** 3= DEVICE END INTERRUPT INTR 3= DCB SPEC CK
1630** 4= ATTENTION INTERRUPT 4= STG DATA CK
1631** 5= ATTENTION / PROGRAM CNTL INTR 5= INV STG ADRS
1632** 6= ATTENTION / EXCEPTION INTR 6= PROTRCT CK
1633** 7= ATTENTION / DEVICE END INTR 7= I-FACE DATA
1634**
1635** INTER DC X'706E' COPY STATUS ANY LEVEL INTO R3
1636** SRL 13,R3 POSITION INDICATORS IN R3
1637** MVA OFN1,R4 SET UP BASE ADRES
1638** TBTR (R4,CS) IS CS IN PROGRESS
1639** JOFF INTES * NO
1640** TBTS (R4,CE) TURN ON CYCLE STEAL INTER ERROR
1641** MVW R7,CSTL8 SAVE CS ERR ISB VALUE, BITS 0-7
1642** MVB R3,CSTL8+1 * AND THE COND CODE
1643** J INTR1
1644** INTES TBT (R4,XE) TEST EXPECTED ATTEN / ERROR IND
1645** JOFF INTET BCH IF NOT EXPECTED
1646** CBI 4,R3 IS THIS AN 'ATTENTION' INTR
1647** JE INTR1 * YES, BCH TO END INTR SEQUENCE
1648** INTET TBTS (R4,ER) SET ERROR ON I/O COMMAND CNTL BIT
1649** J INTR1
1650** THE ERROR INTERRUPT USES THE SAME
1651** ENDING SEQUENCE AS THE NORMAL INTR
1652** *****14APR76**
1653**
1654** SOUBROUTINE
1655**
1656** OKAY INTERRUPT RUNS ON INTERRUPT LEVEL 'SINTL'
1657**
1658** PURPOSE
1659** TO CHECK THE INTERRUPT AND CONTINUE THE TEST
1660**
1661** CALLING SEQUENCE
1662**
1663** SUPERVISOR WILL ENTER HERE IF INTR CC IS AS REQUESTED
1664** THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE
1665** AFTER THE SPECIAL PART HAS BEEN COMPLETED AND THE
1666** COMMON SECTION IS HANDLED HERE.
1667**
1668** RETURN CONTROL
1669**
1670** SVC EXIT RETURN TO USER VIA SUPVR
1671**
1672** *****
1673**
1674**
1675** INTOK DC X'706E' COPY STATUS ANY LEVEL INTO R3
1676** SRL 13,R3 POSITION INDICATORS IN R3
1677** MVA OFN1,R4 SET UP BASE ADRES
1678** INTR1 TBTS (R4,IN) SET INTERRUPT RECEIVED
1679** TBT (R4,CS) IS 'CS IN PROGRESS' ON
1680** JON INTR2 * YES, BCH AROUND UPDATE
1681** MVB R3,SIOIN+1 SAVE INTERRUPTING CC CODE
1682** MVW R7,SISB SAVE INTR STATUS AND DEV ADRES
1683** INTR2 EQU *
1684** CPCL R5 CURRENT LEVEL COPIED BY DCP
1685** SLL 4,R5 POSITION INTR LEVEL AND PUT
1686** ABT 1,R5 * IN 'IT' BIT
1687** CW \$INTL,R5 IS THIS THE CORRECT INTR LEVEL
1688** JE INTR3 * YES, GO EXIT THIS LEVEL
1689** TBTS (R4,SLE) SET INTR LEVEL ERROR CONTROL BIT
1690** TBTS (R4,ER) SET ERROR ON I/O COMMAND CNTL BIT
1691** INTR3 TBTR (R4,XI) WAS INTERRUPT EXPECTED
1692** JON INTRX * YES, EXIT OFF THIS INTR LEVEL
1693** TBTS (R4,MI) * NO, SET MYSTERY INTR CONTROL BIT

LOCTR	OBJECT TEXT	STMT	SOURCE STATEMENT	COPYRIGHT IBM CORP 1976
00325C	F304	1694+	CBI 4,R3	ATTENTION INTERRUPT? IL
00325B	1001	1695+	JF INTR	YES IL
00326B	4C6C	1696+	TBTS (R4,NG)	ERROR UNEXPECTED INTERRUPT IL
003262	6006	1697+	INTRY SVC	EXIT THIS LEVEL VIA SUPERV TO PGM IL
		1699+	*****03FEB76**	
		1700**	THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.	
003264	4CA4	1705**	XIOCK TETR (R4,XE)	0002 WAS AN ERROR EXPECTED
003266	6AC0	1707+	BH (R6,2)	* YES, EXIT THIS ROUTINE
00326A	4C88	1708+	TETR (R4,CS)	* NO, AUTO CS IN PROGRESS
00326C	1006	1709+	JOFF XIOCV	* NO, CONTINUE CHECKING
00326E	4C2A	1710+	TET (R4,CE)	IS CS IN AN ERR CONDITION
003270	1002	1711+	JOFF XIOCO	* NO, CS ERROR
003272	68D2	1712+	B (R6)*	CS ERROR
003276	4C69	1713+XIOCO	TBTS (R4,CSA)	TURN ON CS STATS AVAIL FLAG
003278	5601	1714+	BXS (R6,2)	GO TO USER
00327A	4C21	1715+XIOCV	TBT (R4,ER)	WAS ERROR INTR CONTROL BIT ON
00327C	100B	1716+	JOFF XIOCK	* NO, EXIT THIS ROUTINE
		1717**	GET LAST INTR CC CODE	
00327E	C520	1718+	MVB \$I0IN+1,R5	2DE5 IS THIS CC=2
003282	F502	1719+	CBI 2,R5	* NO, BCH TO ERROR HANDLER
003284	68D1	1720+	BNE (R6)*	GET LAST ISB DATA BYTE AND IF CS
003288	C520	1721+XIOCO	BNV \$I0IN,R5	* AVAILABLE, GO AND GET IT
00328C	6A00	1722+	BNV XIOCS-4	ERROR
003290	68D2	1723+	B (R6)*	ERROR
003294	CB25	1724+XIOCK	MVWZ OPTN3,R3	CLEAR OUT OPTON 3 CMTL BITS
003298	5601	1725+	BXS (R6,2)	RETURN TO USER VIA REG 6
		1726**	I/O PARAMETER LIST	
00329A	19D0	1728**	ADRS OF DEVICE ADRS	
00329C	3202	1729+IOBLK	DC A(DEVADD)	ERROR ROUTINE ADRS
00329E	0000	1730+	DC A(XIOER)	DCB ADRS OR LEVEL & INTR
0032A0	0000	1731+IODCB	DC A(*-*)	MODIFIER
0032A2	0000	1732+IOMOD	DC A(*-*)	ADRS OF LAST SVC CALL
0032A4	0000	1733+IORSF	DC A(*-*)	SECOND WORD OF LAST IDCB
		1735**	INTERRUPT CONTROL BLOCK FOR I/O COMMANDS	
0032A6	19D0	1738+INTBL	DC A(DEVADD)	ADRS OF DEVICE ADRS
0032A8	3232	1739+	DC A(INTOK)	INTERRUPT OK RETURN ADRS
0032AA	320E	1740+	DC A(INTER)	INTERRUPT ERROR ADRS
0032AC	0003	1741+INTCC	DC X'0003'	INTERRUPT CODE EXPECTED
		1743+	*****11MAY76**	
		1744**	SUBROUTINE	
		1746**	CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE	
		1748**	PURPOSE	
		1749**	TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE TO INTERRUPT.	
		1750**	CALLING SEQUENCE	
		1751**	THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:	
		1752**	--> BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BLK	
		1753**	--> BAL \$CONP,R6 PREPARE DEVICE ONLY, ALREADY CONNECT	
		1754**	RETURN CONTROL	
		1755**	RETURN TO USER VIA REG 6 IF OKAY	
		1756**	IF THE DEVICE COULD NOT BE CONNECTED	
0032AE	0F06	1764**	BXS (R6,2)	NUMBER OF BYTE TO CLEAR
0032B0	0B00	1765**	OR B (R6)*	* AND THE DATA TO USE
0032B2	4524	1766**	* ALONG WITH THE ADRS TO USE	
0032B6	2BAC	1767**	CLEAR OLD CONTROLS FOR NEW ROUTINE	
0032B8	CB25	1768**	MVWZ OPTN3,R3	SET R7 TO CONTROL BLOCK AND
0032BC	4724	1769**	MVA INTBL,R7	* CONNECT IT TO THIS DEVICE
0032C0	6014	1770**	SVC CIOB	ERROR RETURN TO USER
0032C2	6AD0	1771**	BN (R6)*	PUT IN LEVEL & INTR PARAMETER
0032C6	8828	1772**	\$CONP MVW \$INTL,IODCB	SET R7 TO CONTROL BLOCK TO PREPARE
0032CC	4724	1773**	MVA IOBLK,R7	INITIALIZE CONDITION CODE STORAGE
0032D0	4020	1774**	MVWI X'0708',SIOIN	* AND CLEAR OLD ISB VALUE
0032D6	CB25	1775**	MVWZ \$ISE,R3	SET UP ADDRESS THAT STARTED LAST I/O
0032DA	6E0D	1776**	MVA R6,LISTIO	* AND CALL ON SUPERV
0032DE	600C	1777**	SVC PRFB	RETURN TO USER
0032E0	5601	1778**	BXS (R6,2)	*****06APR76**
		1779**	SUBROUTINE	
		1780**	DISCONNECT THE INTERRUPT CONTROL BLOCK AND LOG ERRORS	
		1781**	PURPOSE	
		1782**	DISCONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND SET THE 'NO GOOD' CONTROL BIT THEN LOG THE DATA THAT HAS BEEN FOUND TO HELP THE OPERATOR DEFINE THE ERROR CONDITION.	
		1783**	CALLING SEQUENCE	
		1784**	THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:	
		1785**	--> B \$ERRS SET 'NG' BIT AND CONVERT DATA TO LOG	
		1786**	--> B \$CONX RETURN TO MDI SUPERVISOR TO TEST STS	
		1787**	RETURN CONTROL	
		1788**	RETURN TO MDI	
		1789**	IF THE DEVICE COULD NOT BE CONNECTED	
0032E2	4020	1801**	B \$ERRS	SET ON 'NO GOOD' STATUS BIT

LOCTR	OBJECT TEXT	STMT	SOURCE STATEMENT	COPYRIGHT IBM CORP 1976
0032E8	4724	1811+	MVA HEBLK,R7	GET ADRS OF CONTROL BLOCK
0032EC	601A	1812+	SVC HROE	CONVERT HEX TO EBC VIS DCP
0032EE	0D03	1813+\$PRNT	MVBI 3,R5	
0032F0	4324	1814+	MVA TWORK,R3	SET UP BUFFER STORAGE
0032F4	6B0D	1815+	MVA R3,BUFP	
0032F8	4124	1816+	MVA LINE1,R1	
0032FC	0F04	1817+	MVBI 4,R7	
0032FE	0E08	1818+	MVBI 8,R6	
003300	2B24	1819+MVBUF	MVFN (R3),(R1)	
003302	0F04	1820+	MVBI 4,R7	
003304	0A40	1821+	MVBI X'40',R2	
003306	C258	1822+	MVB R2,(R1)+	
003308	BEFB	1823+	JCT MVBUF,R6	
00330A	0E08	1824+	MVBI 8,R6	
00330C	7921	1825+	AWI 4,R1	
00330E	BD77	1826+	JCT MVBUF,R5	
003310	4020	1827+	MVWI PIDMSG10,PID+2	
003312	4020	1828+	MVA FAKETU,DCADD1	
003314	4020	1829+	MVA DC2PT,DCADD2	
003316	402C	1830+	OWI BIT080,SUPSTAT	
00332A	4324	1831+	MVA \$TUID,R3	SET UP BUFFER STORAGE
00332E	6F13	1832+	BAL TMSGWTR*,R7	GO TO MESSAGE WRITER
		1833**	*****	
003332	C720	1834+\$CONX	EQU *	
003336	6013	1835+	MVB DEVADD,R7	GET DEVICE ADDRESS FROM MDI
003338	6812	1836+	SVC RICB	RELEASE INTERRUPT CONTROL BLOCK
		1837**	RETURN TO MDI SUPERVISOR	
00333C	0007	1838**	NUMBER OF LINES TO PRINT	
00333E	0008	1839+BEGIN	DC A(0007)	LINE LENGTH = 8 CHAR
003340	5C5C40C1C2D6D9E3	1840+	DC A(0008)	LINE LENGTH = 40 CHAR
003342	0028	1841+	DC C'***ABORT'	LINE LENGTH = 40 CHAR
003344	E3E4C9C440C9D6C9D	1842+	DC A(0040)	LINE LENGTH = 40 CHAR
003346	0028	1843+	DC C'TUID IOIN ISB INST	LINE LENGTH = 40 CHAR
003348	4040404040404040	1844+	DC A(0040)	LINE LENGTH = 40 CHAR
00334A	0028	1845+LINE1	DC C'	LINE LENGTH = 40 CHAR
00334C	0028	1846+	DC A(0040)	LINE LENGTH = 40 CHAR
00334E	C3D5E3D340C4C3C2F	1847+	DC C'CNTRL DCB2 DCB3 DCB4	LINE LENGTH = 40 CHAR
003350	0028	1848+	DC A(0040)	LINE LENGTH = 40 CHAR
003352	4040404040404040	1849+LINE2	DC C'	LINE LENGTH = 40 CHAR
003354	0028	1850+	DC A(0040)	LINE LENGTH = 40 CHAR
003356	D9E2C9C440C3E260F	1851+	DC C'RSID CS-2 CS-3 CS-4	LINE LENGTH = 40 CHAR
003358	0028	1852+	DC A(0040)	LINE LENGTH = 40 CHAR
00335A	4040404040404040	1853+LINE3	DC C'	LINE LENGTH = 40 CHAR
		1854**	*****	
003444	0000	1855+BUFP	DC A(*-*)	
003446	333C	1856+DC2PT	DC A(BEGIN)	
003448	0101	1857+FIXTU	DC X'0101'	
00344A	0101	1858+FAKETU	DC X'0101'	
000080	00F1F0	1859+PIDMSG10	EQU X'F1F0'	
000080	000080	1860+BIT080	EQU X'0080'	
		1861**	DATA CONTROL BLOCK FOR CONVERTING HEX TO EBCDIC	
00344C	0030	1862**	*****	
00344E	2DE2	1863**	*****	
003450	181A	1864+HEBLK	DC A(48)	NUMBER OF BYTES TO CONVERT
000000		1865+	DC A(\$TUID)	FROM ADRS
		1866+	DC A(TWORK)	AND THE TO ADRS
		1867	END	

CROSS-REFERENCE LISTING

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
0	.R0.	ABSOLUTE. HEX VALUE(00000000) 1324 1325 1326 1327 1331 1332 1333 1334
0	.R1.	ABSOLUTE. HEX VALUE(00000001) 1816 1819 1822 1825
0	.R2.	ABSOLUTE. HEX VALUE(00000002) 1821 1822
0	.R3.	ABSOLUTE. HEX VALUE(00000003) 1230 1231 1272 1276 1278 1357 1359 1415 1418 1422 1425 1436 1439 1452 1455 1525 1535 1538 1539 1542 1544 1600 1601 1636 1642 1646 1676 1689 1694 1724 1769 1771 1772 1780 1814 1816
0	.R4.	ABSOLUTE. HEX VALUE(00000004) 812 813 1528 1529 1532 1546 1547 1549 1550 1553 1559 1565 1637 1638 1640 1644 1648 1677 1678 1679 1689 1690 1691 1693 1696 1706 1708 1710 1713 1715
0	.R5.	ABSOLUTE. HEX VALUE(00000005) 1273 1277 1278 1358 1359 1416 1418 1423 1425 1437 1439 1453 1455 1536 1538 1540 1542 1558 1563 1685 1686 1687 1718 1719 1721 1770 1771 1813 1826
0	.R6.	ABSOLUTE. HEX VALUE(00000006) 918 919 922 923 927 942 1204 1208 1210 1214 1217 1221 1223 1227 1232 1280 1289 1319 1360 1534 1554 1566 1602 1707 1712 1714 1720 1723 1725 1775 1781 1783 1818 1823 1824
0	.R7.	ABSOLUTE. HEX VALUE(00000007) 774 910 937 939 942 1271 1275 1356 1417 1424 1438 1454 1537 1541 1548 1641 1682 1768 1773 1778 1811 1817 1820 1832 1835
1768	\$CONC	ADDRESS. HEX LOCATION(000032AE) IN CSECT(I7843)) LENGTH(2)
1834	\$CONX	ADDRESS. HEX LOCATION(00003332) IN CSECT(I7843)) LENGTH(1)
763	\$INTL	ADDRESS. HEX LOCATION(00002E18) IN CSECT(I7843)) LENGTH(2)
733	\$IOIN	ADDRESS. HEX LOCATION(00002DE4) IN CSECT(I7843)) LENGTH(2)
734	\$ISB	ADDRESS. HEX LOCATION(00002DE6) IN CSECT(I7843)) LENGTH(2)
718	\$LE	ABSOLUTE. HEX VALUE(00000026) 1549 1689
1414	\$RDID	ADDRESS. HEX LOCATION(000030DC) IN CSECT(I7843)) LENGTH(6)
1408	\$SEK	ADDRESS. HEX LOCATION(000030CC) IN CSECT(I7843)) LENGTH(6)
732	\$TUID	ADDRESS. HEX LOCATION(00002DE2) IN CSECT(I7843)) LENGTH(2)
102	@DCADD1	ADDRESS. HEX LOCATION(000019B8) IN CSECT(I7843)) LENGTH(1)
103	@DCADD2	ADDRESS. HEX LOCATION(000019BA) IN CSECT(I7843)) LENGTH(1)
39	@FIIX	ABSOLUTE. HEX VALUE(00000101) 405 411 414 435 441 444 465 471 474
46	@NVLD	ABSOLUTE. HEX VALUE(00000600)
38	@QUES	ABSOLUTE. HEX VALUE(00000100)
44	@QUXX	ABSOLUTE. HEX VALUE(00000400) 387 396 417 426 447 456 477
1839	BEGIN	ADDRESS. HEX LOCATION(0000333C) IN CSECT(I7843)) LENGTH(2)
1860	BIT0080	ABSOLUTE. HEX VALUE(00000080)
1855	BUFPPT	ADDRESS. HEX LOCATION(00003444) IN CSECT(I7843)) LENGTH(2)
1099	CB29	ADDRESS. HEX LOCATION(00002F62) IN CSECT(I7843)) LENGTH(2)
1229	CCERR	ADDRESS. HEX LOCATION(00003034) IN CSECT(I7843)) LENGTH(2)
722	CE	ABSOLUTE. HEX VALUE(0000002A) 1201 1207 1213 1220 1226
802	CICB	ABSOLUTE. HEX VALUE(00000014) 1528 1640 1710
968	CLDCB	ADDRESS. HEX LOCATION(00002E90) IN CSECT(I7843)) LENGTH(2)
720	CS	ABSOLUTE. HEX VALUE(00000028) 1411 1529 1532 1638 1679 1708
721	CSA	ABSOLUTE. HEX VALUE(00000029) 1713
751	CSBUF	ADDRESS. HEX LOCATION(00002E02) IN CSECT(I7843)) LENGTH(1)
1018	CSDCB	ADDRESS. HEX LOCATION(00002EE0) IN CSECT(I7843)) LENGTH(2)
759	CSTL8	ADDRESS. HEX LOCATION(00002E10) IN CSECT(I7843)) LENGTH(2)
741	DCBUF	ADDRESS. HEX LOCATION(00002DF2) IN CSECT(I7843)) LENGTH(1)
1856	DC2PT	ADDRESS. HEX LOCATION(00003446) IN CSECT(I7843)) LENGTH(2)
105	DEVADD	ADDRESS. HEX LOCATION(000019D0) IN CSECT(I7843)) LENGTH(1)
736	DEV1	ADDRESS. HEX LOCATION(00002DEA) IN CSECT(I7843)) LENGTH(2)
956	DGDCB	ADDRESS. HEX LOCATION(00002E80) IN CSECT(I7843)) LENGTH(2)
67	DUMHY	ABSOLUTE. HEX VALUE(00000000) 1470
491	ENTPT	ADDRESS. HEX LOCATION(000025F2) IN CSECT(I7843)) LENGTH(1)
713	ER	ABSOLUTE. HEX VALUE(00000021) 198 1546 1565 1648 1690 1715
788	EXIT	ABSOLUTE. HEX VALUE(00000006) 1899
1858	FAKETU	ADDRESS. HEX LOCATION(0000344A) IN CSECT(I7843)) LENGTH(2)
1100	FIVE9	ADDRESS. HEX LOCATION(00002F64) IN CSECT(I7843)) LENGTH(2)
513	F00063	ADDRESS. HEX LOCATION(000025FC) IN CSECT(I7843)) LENGTH(1)

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
535	F00077	ADDRESS. HEX LOCATION(0000272E) IN CSECT(I7843)) LENGTH(1)
541	F00079	ADDRESS. HEX LOCATION(00002762) IN CSECT(I7843)) LENGTH(1)
559	F00110	ADDRESS. HEX LOCATION(00002844) IN CSECT(I7843)) LENGTH(1)
581	F00124	ADDRESS. HEX LOCATION(00002976) IN CSECT(I7843)) LENGTH(1)
587	F00126	ADDRESS. HEX LOCATION(000029AA) IN CSECT(I7843)) LENGTH(1)
605	F00157	ADDRESS. HEX LOCATION(00002A8C) IN CSECT(I7843)) LENGTH(1)
627	F00171	ADDRESS. HEX LOCATION(00002BBE) IN CSECT(I7843)) LENGTH(1)
633	F00173	ADDRESS. HEX LOCATION(00002BF2) IN CSECT(I7843)) LENGTH(1)
655	F00192	ADDRESS. HEX LOCATION(00002D04) IN CSECT(I7843)) LENGTH(1)
1864	HEBLK	ADDRESS. HEX LOCATION(0000344C) IN CSECT(I7843)) LENGTH(2)
808	H0E	ABSOLUTE. HEX VALUE(0000001A) 1811
1239	IDCBCE1	ADDRESS. HEX LOCATION(0000304A) IN CSECT(I7843)) LENGTH(2)
1241	IDCBCE2	ADDRESS. HEX LOCATION(0000304E) IN CSECT(I7843)) LENGTH(2)
1243	IDCBRAP	ADDRESS. HEX LOCATION(00003052) IN CSECT(I7843)) LENGTH(2)
1235	IDCB0	ADDRESS. HEX LOCATION(00003042) IN CSECT(I7843)) LENGTH(2)
1237	IDCB1	ADDRESS. HEX LOCATION(00003046) IN CSECT(I7843)) LENGTH(2)
784	IDLE	ABSOLUTE. HEX VALUE(00000002) 1561
715	IN	ABSOLUTE. HEX VALUE(00000023) 1547 1559 1678
1738	INTEL	ADDRESS. HEX LOCATION(000032A6) IN CSECT(I7843)) LENGTH(2)
1635	INTER	ADDRESS. HEX LOCATION(0000320E) IN CSECT(I7843)) LENGTH(2)
1644	INTES	ADDRESS. HEX LOCATION(00003226) IN CSECT(I7843)) LENGTH(2)
1648	INTET	ADDRESS. HEX LOCATION(0000322E) IN CSECT(I7843)) LENGTH(2)
1675	INTOK	ADDRESS. HEX LOCATION(00003232) IN CSECT(I7843)) LENGTH(2)
1697	INTRX	ADDRESS. HEX LOCATION(00003262) IN CSECT(I7843)) LENGTH(2)
1678	INTR1	ADDRESS. HEX LOCATION(0000323A) IN CSECT(I7843)) LENGTH(2)
1683	INTR2	ADDRESS. HEX LOCATION(00003248) IN CSECT(I7843)) LENGTH(1)
1691	INTR3	ADDRESS. HEX LOCATION(00003256) IN CSECT(I7843)) LENGTH(2)
1729	IOBLK	ADDRESS. HEX LOCATION(0000329A) IN CSECT(I7843)) LENGTH(2)
1731	IODCB	ADDRESS. HEX LOCATION(0000329E) IN CSECT(I7843)) LENGTH(2)
1732	IOMOD	ADDRESS. HEX LOCATION(000032A0) IN CSECT(I7843)) LENGTH(2)
37	I7843	CSECT. START(00002500) LENGTH(3922) ESDID(0)
1097	LGSEC	ADDRESS. HEX LOCATION(00002F5E) IN CSECT(I7843)) LENGTH(2)
1845	LINE1	ADDRESS. HEX LOCATION(00003374) IN CSECT(I7843)) LENGTH(40)
735	LSTIO	ADDRESS. HEX LOCATION(00002DE8) IN CSECT(I7843)) LENGTH(2)
712	MV	ABSOLUTE. HEX VALUE(00000020) 1498 1204 1210 1217 1223 1534 1781
1819	MVBUF	ADDRESS. HEX LOCATION(00003300) IN CSECT(I7843)) LENGTH(2)
724	NG	ABSOLUTE. HEX VALUE(0000002C) 1823 1826
719	NI	ABSOLUTE. HEX VALUE(00000027) 1696
387	N00001	ADDRESS. HEX LOCATION(00002558) IN CSECT(I7843)) LENGTH(2)
396	N00002	ADDRESS. HEX LOCATION(00002566) IN CSECT(I7843)) LENGTH(2)
405	N00003	ADDRESS. HEX LOCATION(00002574) IN CSECT(I7843)) LENGTH(2)
408	N00004	ADDRESS. HEX LOCATION(00002578) IN CSECT(I7843)) LENGTH(2)
411	N00005	ADDRESS. HEX LOCATION(0000257C) IN CSECT(I7843)) LENGTH(2)
414	N00006	ADDRESS. HEX LOCATION(00002580) IN CSECT(I7843)) LENGTH(2)
417	N00007	ADDRESS. HEX LOCATION(00002584) IN CSECT(I7843)) LENGTH(2)
426	N00008	ADDRESS. HEX LOCATION(00002592) IN CSECT(I7843)) LENGTH(2)
435	N00009	ADDRESS. HEX LOCATION(000025A0) IN CSECT(I7843)) LENGTH(2)
438	N00010	ADDRESS. HEX LOCATION(000025A4) IN CSECT(I7843)) LENGTH(2)
441	N00011	ADDRESS. HEX LOCATION(000025A8) IN CSECT(I7843)) LENGTH(2)
444	N00012	ADDRESS. HEX LOCATION(000025AC) IN CSECT(I7843)) LENGTH(2)
447	N00013	ADDRESS. HEX LOCATION(000025B0) IN CSECT(I7843)) LENGTH(2)
456	N00014	ADDRESS. HEX LOCATION(000025BE) IN CSECT(I7843)) LENGTH(2)
465	N00015	ADDRESS. HEX LOCATION(000025CC) IN CSECT(I7843)) LENGTH(2)
468	N00016	ADDRESS. HEX LOCATION(000025D0) IN CSECT(I7843)) LENGTH(2)
471	N00017	ADDRESS. HEX LOCATION(000025D4) IN CSECT(I7843)) LENGTH(2)

DECLARED	NAME	ATTRIBUTES AND REFERENCES
474	N00018	363 ADDRESS. HEX LOCATION(000025D8) IN CSECT(I7843) LENGTH(2)
477	N00019	366 469 ADDRESS. HEX LOCATION(000025DC) IN CSECT(I7843) LENGTH(2)
486	N00020	369 448 ADDRESS. HEX LOCATION(000025EA) IN CSECT(I7843) LENGTH(2)
488	N00021	372 ADDRESS. HEX LOCATION(000025EC) IN CSECT(I7843) LENGTH(2)
677	OPTN1	375 478 ADDRESS. HEX LOCATION(00002DDC) IN CSECT(I7843) LENGTH(2)
700	OPTN3	912 1637 1677 ADDRESS. HEX LOCATION(00002DE0) IN CSECT(I7843) LENGTH(2)
101	PARMARA	1724 1772 ADDRESS. HEX LOCATION(0000196E) IN CSECT(I7843) LENGTH(1)
1098	PHYSC	394 403 424 433 454 463 484 ADDRESS. HEX LOCATION(00002F60) IN CSECT(I7843) LENGTH(2)
69	PID	1327 1329 1334 ADDRESS. HEX LOCATION(00001800) IN CSECT(I7843) LENGTH(1)
1859	PIDMSG10	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 99 100 101 102 103 104 105 106 107 108 109 110 111 112 1827 ABSOLUTE. HEX VALUE(0000F1F0)
794	PREP	1827 ABSOLUTE. HEX VALUE(0000000C)
1051	RDDCB	940 1782 ADDRESS. HEX LOCATION(00002F10) IN CSECT(I7843) LENGTH(2)
801	RICB	1423 1426 ABSOLUTE. HEX VALUE(00000013)
1073	RKDCB	1836 ADDRESS. HEX LOCATION(00002F30) IN CSECT(I7843) LENGTH(2)
983	RSDCB	1435 1440 1447 1448 ADDRESS. HEX LOCATION(00002EB0) IN CSECT(I7843) LENGTH(2)
1331	RTT01	920 921 1414 1419 1451 1456 ADDRESS. HEX LOCATION(000030A8) IN CSECT(I7843) LENGTH(4)
740	SCTID	1323 ADDRESS. HEX LOCATION(00002DEA) IN CSECT(I7843) LENGTH(2)
1108	SCTST	990 1002 1080 1276 1357 1416 1419 1437 1440 ADDRESS. HEX LOCATION(00002F74) IN CSECT(I7843) LENGTH(2)
1007	SKDCB	1272 1448 1453 1456 ADDRESS. HEX LOCATION(00002ED0) IN CSECT(I7843) LENGTH(2)
792	START	916 917 1408 ABSOLUTE. HEX VALUE(0000000A)
104	SUPSTAT	1551 ADDRESS. HEX LOCATION(000019C4) IN CSECT(I7843) LENGTH(1)
925	S16E	1830 ADDRESS. HEX LOCATION(00002E62) IN CSECT(I7843) LENGTH(4)
920	TS16L	914 919 923 ADDRESS. HEX LOCATION(00002E50) IN CSECT(I7843) LENGTH(6)
1329	TT303	390 399 420 429 450 459 ADDRESS. HEX LOCATION(000030A0) IN CSECT(I7843) LENGTH(6)
1335	TT304	1321 ADDRESS. HEX LOCATION(000030B8) IN CSECT(I7843) LENGTH(4)
1278	TT4Y	1319 1328 1330 ADDRESS. HEX LOCATION(00003070) IN CSECT(I7843) LENGTH(2)
92	TUMSGWTR	1274 ADDRESS. HEX LOCATION(000018BA) IN CSECT(I7843) LENGTH(1)
76	TUPARM1	1832 ADDRESS. HEX LOCATION(0000189A) IN CSECT(I7843) LENGTH(1)
764	TURTN	917 ADDRESS. HEX LOCATION(00002E1A) IN CSECT(I7843) LENGTH(2)
74	TUSTATUS	910 937 942 1837 ADDRESS. HEX LOCATION(00001818) IN CSECT(I7843) LENGTH(1)
75	TUWORK	1810 ADDRESS. HEX LOCATION(0000181A) IN CSECT(I7843) LENGTH(1)
942	T72A	1814 1866 ADDRESS. HEX LOCATION(00002E78) IN CSECT(I7843) LENGTH(4)
943	T72B	480 ADDRESS. HEX LOCATION(00002E7C) IN CSECT(I7843) LENGTH(4)
910	T7838	941 ADDRESS. HEX LOCATION(00002E2A) IN CSECT(I7843) LENGTH(4)
937	T7872	389 398 419 428 449 458 ADDRESS. HEX LOCATION(00002E66) IN CSECT(I7843) LENGTH(4)
1040	VRDCB	479 ADDRESS. HEX LOCATION(00002F00) IN CSECT(I7843) LENGTH(2)
1062	WKDCB	1429 ADDRESS. HEX LOCATION(00002F20) IN CSECT(I7843) LENGTH(2)
1029	WRDCB	1443 1444 1459 1460 ADDRESS. HEX LOCATION(00002EF0) IN CSECT(I7843) LENGTH(2)
1101	WRSID	1432 ADDRESS. HEX LOCATION(00002F66) IN CSECT(I7843) LENGTH(2)
973	WSDCB	980 1069 1277 1358 1460 1464 ADDRESS. HEX LOCATION(00002EA0) IN CSECT(I7843) LENGTH(2)
1105	WSIDT	1463 1464 1466 1467 ADDRESS. HEX LOCATION(00002F6E) IN CSECT(I7843) LENGTH(2)
716	XE	1273 1444 1467 ABSOLUTE. HEX VALUE(00000024)
714	XI	1644 1706 ABSOLUTE. HEX VALUE(00000022)
1525	XIO	1550 1691 ADDRESS. HEX LOCATION(0000319C) IN CSECT(I7843) LENGTH(4)
1706	XIOCK	1409 1412 1420 1427 1430 1433 1441 1445 1449 ADDRESS. HEX LOCATION(00003264) IN CSECT(I7843) LENGTH(2)
1713	XIOCO	1560 ADDRESS. HEX LOCATION(00003276) IN CSECT(I7843) LENGTH(2)
1530	XIOCS	1711 ADDRESS. HEX LOCATION(000031A6) IN CSECT(I7843) LENGTH(6)
1715	XIOCV	1722 ADDRESS. HEX LOCATION(0000327A) IN CSECT(I7843) LENGTH(2)
1724	XIOCX	1709 ADDRESS. HEX LOCATION(00003294) IN CSECT(I7843) LENGTH(4)
1599	XIOER	1716 ADDRESS. HEX LOCATION(00003202) IN CSECT(I7843) LENGTH(2)
1534	XIO1	1730 ADDRESS. HEX LOCATION(000031B6) IN CSECT(I7843) LENGTH(4)
1547	XIO2	1526 ADDRESS. HEX LOCATION(000031DC) IN CSECT(I7843) LENGTH(2)
1559	XIO8	1533 ADDRESS. HEX LOCATION(000031F0) IN CSECT(I7843) LENGTH(2)

DECLARED	NAME	ATTRIBUTES AND REFERENCES
1083	ZERO0	1564 ADDRESS. HEX LOCATION(00002F40) IN CSECT(I7843) LENGTH(2) 1320

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