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LOCTR OBJECT TEXT      STMT SOURCE STATEMENT      COPYRIGHT IBM CORP 1976
3      COPY LOG7862      ** HAD EC HISTORY **
4      *****
5      **
6      **
7      **          ***          PREREQUISITES          ***          **
8      **
9      **          NONE          **
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     **          ***          SPECIAL INSTRUCTIONS          ***          **
24     **
25     **          NONE          **
26     *****
27     **
28     **          ***          E. C. HISTOPY          ***          **
29     **
30     **          DATE 17DEC76  DATE 18JAN77  DATE 04MAR77  DATE 10JUN77
31     **          E.C. 578486  E.C. 578573  E.C. 578638  E.C. 578625
32     **
33     **          DATE 01MAR78  DATE          DATE          DATE
34     **          E.C. 755285  E.C.          E.C.          E.C.
35     **
36     *****
37     **
38     *****
39     **
40     17862  STAFF  X'2500'          START ADDRESS OF ALL 'I' TYPE PROG
41     @QUES  EQU  X'0100'          EQUATED VALUE FOR MDI STATEMENT
42     @FIXT  EQU  X'0101'          EQUATED VALUE FOR MDI STATEMENT
43     @STOP  EQU  X'0102'          EQUATED VALUE FOR MDI STATEMENT
44     @GOTO  EQU  X'0200'          EQUATED VALUE FOR MDI STATEMENT
45     @CALL  EQU  X'0201'          EQUATED VALUE FOR MDI STATEMENT
46     @INPT  EQU  X'0300'          EQUATED VALUE FOR MDI STATEMENT
47     @QUXX  EQU  X'0400'          EQUATED VALUE FOR MDI STATEMENT
48     @TUXX  EQU  X'0500'          EQUATED VALUE FOR MDI STATEMENT
49     @NVLD  EQU  X'0600'          EQUATED VALUE FOR MDI STATEMENT
50     EC     EQU  X'0000'          EQUATE FOR EQUAL
51     NE     EQU  X'0004'          EQUATE FOR NOT EQUAL
52     HI     EQU  X'0008'          EQUATE FOR HIGH
53     NH     EQU  X'000C'          EQUATE FOR NOT HIGH
54     LO     EQU  X'0010'          EQUATE FOR LOW
55     NI     EQU  X'0014'          EQUATE FOR NOT LOW
56     LT     EQU  X'0018'          EQUATE FOR LESS THAN
57     LE     EQU  X'000C'          EQUATE FOR LESS THAN OR EQUAL TO
58     GT     EQU  X'0008'          EQUATE FOR GREATER THAN
59     GE     EQU  X'0014'          EQUATE FOR GREATER THAN OR EQUAL TO
60     ON     EQU  X'0200'          EQUATE FOR ON
61     OF     EQU  X'0202'          EQUATE FOR OFF
62     MX     EQU  X'0204'          EQUATE FOR MIXED
63     EBC   EQU  X'0000'          EQUATE FOR EBCDIC DATA TRANSFER
64     HEX   EQU  X'0001'          EQUATE FOR HEX DATA TRANSFER
65     XTRNL EQU  X'0001'          EQUATE FOR EXTERNAL REFERENCE
66     INTRNL EQU X'0000'          EQUATE FOR INTERNAL REFERENCE
67     PARM  EQU  X'0000'          EQUATE INDICATING PARAMETER
68     DA    EQU  X'0001'          EQUATE FOR DEVICE ADDRESS
69     UA    EQU  X'0002'          EQUATE FOR UNIT ADDRESS
70     DUMMY EQU X'0000'          DUMMY EQUATE
71     PID   EQU *-X'0D00'          ADDRESS OF MDI HEADER
72     PTYPE EQU *-X'22CE'          ADDRESS OF PPROCESSOR TYPE FIELD
73     STEPNUM EQU PID+X'000C'          ADDRESS OF DECIMAL STEP NUMBER
74     OPWD1  EQU PID+X'000E'          ADDRESS OF OPTION WORD ONE
75     OPWD2  EQU PID+X'0010'          ADDRESS OF OPTION WORD TWO
76     TUSTATUS EQU PID+X'0018'          ADDRESS OF TU STATUS WORD
77     TUPARM1 EQU PID+X'001A'          ADDRESS OF TU WORK AREA
78     TUPARM2 EQU PID+X'009A'          ADDRESS OF PARM 1 POINTER
79     TUPARM3 EQU PID+X'009C'          ADDRESS OF PARM 2 POINTER
80     TUPARM4 EQU PID+X'009E'          ADDRESS OF PARM 3 POINTER
81     TUPARM5 EQU PID+X'00A0'          ADDRESS OF PARM 4 POINTER
82     TUPARM6 EQU PID+X'00A2'          ADDRESS OF PARM 5 POINTER
83     TUPARM7 EQU PID+X'00A4'          ADDRESS OF PARM 6 POINTER
84     TUPARM8 EQU PID+X'00A6'          ADDRESS OF PARM 7 POINTER
85     TUPARM9 EQU PID+X'00A8'          ADDRESS OF PARM 8 POINTER
86     TUPARM10 EQU PID+X'00AA'          ADDRESS OF PARM 9 POINTER
87     TUPARM11 EQU PID+X'00AC'          ADDRESS OF PARM 10 POINTER
88     TUPARM12 EQU PID+X'00AE'          ADDRESS OF PARM 11 POINTER
89     TUPARM13 EQU PID+X'00B0'          ADDRESS OF PARM 12 POINTER
90     TUPARM14 EQU PID+X'00B2'          ADDRESS OF PARM 13 POINTER
91     TUPARM15 EQU PID+X'00B4'          ADDRESS OF PARM 14 POINTER
92     TUPARM16 EQU PID+X'00B6'          ADDRESS OF PARM 15 POINTER
93     TUPARM17 EQU PID+X'00B8'          ADDRESS OF PARM 16 POINTER
94     TMSGWTR EQU PID+X'00BA'          ADDRESS OF -> TO COMMON MSG WRITER
95     TUSA   EQU PID+X'00BE'          ADDRESS OF UNIT ADDRESS IN EBC
96     TUDA   EQU PID+X'00C0'          ADDRESS OF DEVICE ADDRESS IN EBC
97     TUPUFF EQU PID+X'00C2'          ADDRESS OF LAST USED WORD IN MAP
98     TULAST EQU PID+X'00C4'          ADDRESS OF LAST ADDRESSABLE WORD
99     TURESULN EQU PID+X'00C6'          ADDRESS OF LENGTH OF TU RESULTS
100    TURESUL EQU PID+X'00C8'          ADDRESS OF TU RESULTS FIELD
101    MAPNAME EQU PID+X'00FC'          ADDRESS OF MAP NAME FIELD IN HEX
102    TIMEPT EQU PID+X'0148'          ADDRESS OF SINPT DATA
103    PARMIFA EQU PID+X'014E'          ADDRESS OF SINPT INPUT AREA
104    @DCADD1 EQU PID+X'01B8'          MDI POINTER
105    @DCADD2 EQU PID+X'01BA'          MDI POINTER
106    SUPSTAT EQU PID+X'01C4'          ADDRESS OF MDI STATUS
107    DEVADD  EQU PID+X'01D0'          ADDRESS OF DEVICE ADDRESS TABLE 0
108    DEVADD1 EQU PID+X'01DA'          ADDRESS OF DEVICE ADDRESS TABLE 1
109    DEVADD2 EQU PID+X'01DE'          ADDRESS OF DEVICE ADDRESS TABLE 2
110    DEVADD3 EQU PID+X'01E2'          ADDRESS OF DEVICE ADDRESS TABLE 3
111    DEVADD4 EQU PID+X'01F8'          ADDRESS OF DEVICE ADDRESS TABLE 4
112    DEVADD5 EQU PID+X'0202'          ADDRESS OF DEVICE ADDRESS TABLE 5
113    DEVADD6 EQU PID+X'020C'          ADDRESS OF DEVICE ADDRESS TABLE 6
114    DEVADD7 EQU PID+X'0216'          ADDRESS OF DEVICE ADDRESS TABLE 7
115    PRINT  OFF
116

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002500 25C8          DC          A(ENTPT)          POINT TO MAP ENTRY POINT TABLE
201     *****
202     *****
203     *****
204     **
205     **          THE FOLLOWING TABLES ARE USED BY THE MDI SUPERVISOR (D3C00)
206     **          TO LOCATE THE CORRECT RULE TO INVOKE, TO OBTAIN THE PROPER
207     **          PARAMETERS TO PASS TO THE TU'S AND TO PASS TO THE OPERATOR
208     **          THE INDICATED MESSAGE(S). THERE ARE FOUR TABLES USED FOR THIS
209     **          PURPOSE THEY ARE:
210     **
211     **          STEP AND RULE ADDRESS TABLE
212     **          THIS TABLE GIVES THE ADDRESS OF THE RULE TO INVOKE AND
213     **          THE ASSOCIATED STEP DECIMAL STEP NUMBER OF THAT RULE.
214     **          ENTRIES ARE AS FOLLOWS:
215     **          A) AN ADDRESS OF THE RULE DC START AREA
216     **          B) THE STEP NUMBER IN DECIMAL
217     **          C) AN EQUATE FOR THE STEP NUMBER
218     **
219     **          RULE INFORMATION TABLE
220     **          THIS TABLE CONTAINS THE EQUIPED INFORMATION TO EXECUTE
221     **          THE APPROPRIATE RULE UNDER MDI. EACH RULE HAS ITS OWN
222     **          UNIQUELY DEFINED AREA INDICATED BELOW. END OF TABLE IS
223     **          INDICATED WITH A X'0000' FOR THE RULE EQUATE.
224     **
225     **          $QUES
226     **          A) RULE EQUATE X'0100'
227     **          B) ADDRESS OF THE YES LEG RULE
228     **
229     **          $FIXT
230     **          A) RULE EQUATE X'0101'
231     **          B) ADDRESS OF MESSAGE TO PRINT
232     **
233     **          $STOP
234     **          A) RULE EQUATE X'0102'
235     **          B) ADDRESS OF MESSAGE
236     **
237     **          $GOTO
238     **          A) RULE EQUATE X'0200'
239     **          B) ADDRESS OF MESSAGE
240     **          C) NAME OF MAP TO GO TO
241     **          D) ENTRY POINT WITHIN GO TO MAP TO USE
242     **          E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE
243     **
244     **          $CALL
245     **          A) RULE EQUATE X'0201'
246     **          B) ADDRESS OF MESSAGE
247     **          C) NAME OF MAP TO CALL
248     **          D) ENTRY POINT WITHIN CALLED MAP TO USE
249     **          E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE
250     **
251     **          $INPT
252     **          A) RULE EQUATE X'0300'
253     **          B) INPUT TYPE (EBCDIC OR HEX)
254     **          C) ADDRESS OF YES LEG RULE
255     **          D) DESTINATION LOCATION OF INPUT DATA
256     **          E) LENGTH OF INPUT DATA
257     **          F) LOWER LIMIT OF GOOD DATA
258     **          G) HIGHER LIMIT OF GOOD DATA
259     **
260     **          $QUXX
261     **          A) RULE EQUATE X'0400'
262     **          B) ADDRESS OF YES LEG RULE
263     **          C) TU BRANCH TO ADDRESS (INITIAL)
264     **          D) TU BRANCH TO ADDRESS (SECONDARY)
265     **          E) LENGTH OF PARAMETER IN BYTES
266     **          F) PARAMETER TO PASS TO TU
267     **          G) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER
268     **
269     **          $TUXX
270     **          A) RULE EQUATE X'0500'
271     **          B) ADDRESS OF YES LEG RULE
272     **          C) TU BRANCH TO ADDRESS
273     **          D) TYPE OF COMPARE TO MAKE ON RESULTS
274     **          E) LENGTH OF COMPARE RESULTS
275     **          F) MASK FIELD FOR COMPARE
276     **          G) LENGTH OF PARAMETER IN BYTES
277     **          H) PARAMETER TO PASS TO THE TU
278     **          I) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER
279     **
280     **          $NVLD
281     **          A) RULE EQUATE X'0600'
282     **
283     **          ENTRY POINT TABLE
284     **          THIS TABLE CONTAINS THE ENTRY POINTS WITHIN THE MAP THAT
285     **          THE MAP CAN BE ENTERED FROM THESE ENTRY POINTS ARE
286     **          REFERENCED BY NAME AND ADDRESS. ENTRIES ARE AS FOLLOWS:
287     **
288     **          A) NAME OF ENTRY POINT
289     **          B) ADDRESS OF ENTRY POINT RULE TABLE
290     **
291     **          THE ENTRY POINT TABLE END IS INDICATED BY A X'0000'
292     **
293     **          MESSAGE TABLE
294     **          THIS TABLE CONTAINS THE MESSAGE PASSED TO THE OPERATOR
295     **          VIA THE MDI SUPERVISOR. THE TABLE IS AS FOLLOWS:
296     **
297     **          A) EQUATE FOR START OF MESSAGE BLOCK
298     **          B) NUMBER OF LINES OF MESSAGE
299     **          C) LENGTH OF FOLLOWING LINE
300     **          D) FIRST LINE OF MESSAGE
301     **          E) LENGTH OF FOLLOWING LINE
302     **          F) SECOND LINE OF MESSAGE
303     **          G) ETC.
304     **
305     *****
306     *****
307     *****
308     *****

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311 *****
312 *****
313 *****
314 ** STEP AND RULE ADDRESS TABLE **
315 **
316 *****
317 *****
002502 2540 DC AL2(N00001)
002504 0001 DC XL2'0001'

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002592 C1C1 425+ DC C'AA'
002594 196E 426+ DC ALIGN WORD
002596 0101 427+ DC AL2(PAPMAPA)
002598 276C 428 N00010 \$FIXT FT=(F00066),CT=(C00024)
00259A 0400 429 N00010 DC A(F00066)
00259C 25AC 430+ DC A(T7836)
00259E 2D10 431 N00011 \$QUXX T7836,QT=(Q00071),YES=N00013,CT=(C00073),ST=(S00017)
0025A0 0000 432+ N00011 DC A(@QUXX)
0025A2 0000 433+ DC AL2(N00013)
0025A4 C1C1 434+ DC A(T7836)
0025A6 196E 435+ DC AL2(DUMMY)
0025A8 0101 436+ DC AL2(0)
0025AA 2890 437+ DC C'AA'

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0028A8 0009 539 F00082 EQU *
0028A9 0024 540 DC AL2(0009)
0028AC C6C1C9D3E4D9C540C 542 DC A(0036)
0028AD 0024 543 DC C10036 FAILURE IS PROBABLY IN THE DE UNIT.
0028D2 D9C5D7D3C1C3C540C 544 DC A(0036)
0028E6 0014 545 DC C10036 REPLACE PRU''''S IN THE FOLLOWING ORDER:
0028F8 D9C5D7D3C1C3C540C 546 DC A(0020)
00290C 0020 547 DC C10020 REPLACE CAPD A-A1H2.'
00290E D9C5D7D3C1C3C540C 548 DC A(0032)
00292E 0020 549 DC C10032 REPLACE CARD A-A1G2. (SEE NOTE1)
002930 D9C5D7D3C1C3C540C 550 DC A(0032)
002950 0020 551 DC C10032 REPLACE CAPD A-A1J4. (SEE NOTE1)
002952 D9C5D7D3C1C3C540C 552 DC A(0032)
002972 0020 553 DC C10032 REPLACE CARD A-A1K4. (SEE NOTE1)
002974 D9C5D7D3C1C3C540C 554 DC A(0032)
002994 0024 555 DC C10036 REPLACE CAPD A-A1K2. (SEE NOTE1)
002996 D9C5D7D3C1C3C540E 556 DC A(0028)
0029BA 001C 557 DC C10036 REPLACE THE DE UNIT . SEE 4962 MIN ,
0029BC D7C1D9C1C7D9C1D7C 558 DC A(0028)
0029D8 0008 559 EQU C10028 PAFAGPAPH 3.5 FOP PFOCEDURE.'
0029DA 0020 560 DC AL2(0008)
0029DC D9C5D7D3C1C3C540C 561 DC A(0032)
0029FC 0020 562 DC C10032 REPLACE CAPD A-A1K4. (SEE NOTE1)
002A1E 0014 563 DC A(0032)
002A20 D9C5D7D3C1C3C540C 564 DC C10032 REPLACE CARD A-A1J4. (SEE NOTE1)
002A34 0020 565 DC A(0020)
002A36 D9C5D7D3C1C3C540C 566 DC C10020 REPLACE CAPD A-A1H2.'
002A56 0002 567 DC A(0032)
002A58 4040 568 DC C10032 REPLACE CAPD A-A1G2. (SEE NOTE1)
002A5A 0028 569 DC A(0002)
002A5C D5D6E3C5F1407A40C 570 DC C10002
002A84 002C 571 DC A(0040)
002A86 C5E7C5C3E4E3C540D 572 DC C10040 NOTE1 : AFTER THE NEW FPU IS INSTALLED ,
002AB2 0024 573 DC A(0044)
002AB4 C1D9D440C9E240D4D 574 DC C10044 EXECUTE MAP 7815 TO ENSUPE THAT THE ACTUATOR'
575 DC A(0036)
576 DC C10036 ARM IS MOVING AT THE CORRECT SPEED.
002AD8 0000 577 HDIT 00B2
579+OPTN1 DC X'0000' PROGRAM OPTION CONTROL WORD 1
002ADA 0000 580+** BIT HEX
581+OPTN2 DC X'0000' PROGRAM OPTION CONTROL WORD 2
582+**
000010 583+B48 EQU 16 0 8 PROBLEM PROGRAM CONTROL BITS
000011 584+B49 EQU 17 1 4
000012 585+B50 EQU 18 2 2
000013 586+B51 EQU 19 3 1
000014 587+B52 EQU 20 4 8
000015 588+B53 EQU 21 5 4
000016 589+B54 EQU 22 6 2
000017 590+B55 EQU 23 7 1
000018 591+B56 EQU 24 8 8
000019 592+B57 EQU 25 9 4
00001A 593+B58 EQU 26 10 2
00001B 594+B59 EQU 27 11 1
00001C 595+B60 EQU 28 12 8
00001D 596+B61 EQU 29 13 4
00001E 597+B62 EQU 30 14 2
00001F 598+B63 EQU 31 15 1
000020 599+CH EQU 30 14 2 CHARACTER SUPPLIED
000021 600+CHP EQU 31 15 1 COMPARE OEPATION
002ADC 0000 601+OPTN3 DC X'0000' PROGRAM OPTION CONTROL WORD 3
603+**
604+** 0 MYSTERY INTERRUPT MI 8 CS STATUS IN PPROGRESS CS
605+** 1 ERROR INTERRUPT ER 9 CS AVAILABLE CSA
606+** 2 EXPECTED INTERRUPT XI 10 CS STATUS INTERRUPT ERP CE
607+** 3 INTERRUPT RECEIVED IN 11 ISE BITS ON (1-7) ISBON
608+**
609+** 4 EXPECTED EPR/ATTENT YE 12 TEST UNIT RESULTS VOID NG
610+** 5 HARD ERROR FOUND HE 13 OIO CC ERROR IOCC
611+** 6 WRONG INTR LEVEL \$LE 14 NO INTERRUPT NOIN
612+** 7 NO INTR EXPECTED NI 15 INTEPPURT CC ERPOP INCC
613+** BIT HEX
000020 614+MI EQU 32 0 8 MYSTERY INTERRUPT HAPPENED
000021 615+ER EQU 33 1 4 ERROR RECEIVED ON INTEPPURT
000022 616+XI EQU 34 2 2 EXPECTED INTERRUPT CONTROL BIT
000023 617+IN EQU 35 3 1 INTERRUPT RECEIVED CONTROL BIT
000024 618+XE EQU 36 4 8 EXPECTED ERPOP RESPONSE
000025 619+HE EQU 37 5 4 HARD ERROR, 8 RETRIES
000026 620+\$LE EQU 38 6 2 INTERRUPT ON WPONG LEVEL ERROR
000027 621+NI EQU 39 7 1 NO INTERRUPT EXPECTED E
000028 622+CS EQU 40 8 8 CYCLE STATUS IN PROGRESS
000029 623+CSA EQU 41 9 4 CYCLE STEAL AVAILABLE
00002A 624+CE EQU 42 10 2 CYCLE STEAL STATUS INERRRUP ERPOP
00002B 625+ISBON EQU 43 11 1 ISE BITS ON (1-7)
00002C 626+NG EQU 44 12 8 TEST UNIT RESULTS NO GOOD
00002D 627+IOCC EQU 45 13 4 OIO CC ERROR
00002E 628+NOIN EQU 46 14 2 NO INTERRUPT
00002F 629+INCC EQU 47 15 1 INTERRUPT CC ERROR
630+**
631+** COMMON BUFFER FOR PRINTING DATA
632+**
002ADE 0000 634+\$TUID DC A(*-*) TEST UNIT IDENTIFICATION
002AE0 0000 635+\$I0IN DC A(*-*) I/O AND INTR CONDITION CODES
002AE2 0000 636+\$ISB DC A(*-*) R7 INTR STATUS BYTE & DEV ADPS
002AE6 0000 637+\$LSTO DC A(*-*) ADRS OF LAST I/O + 4 BYTES
002AE8 0000 638+DEV1 DC A(*-*) DEVICE DEPENDENT DATA
002AEA 0000 639+DEV2 DC A(*-*)
002AEC 0000 640+DEV3 DC A(*-*)
002AEE 0000 641+DEV4 DC A(*-*)
002AE6 642+\$CTID EQU DEV1 READ ID BUFFER FOR IBIS & TERN
002AEE 643+DCBUF EQU * DCB BUFFER FOR LAST DCB USED
002AE8 0000 644+DCB1 DC A(*-*) LAST DCB TABLE, CONTROL WORD
002AF0 0000 645+DCB2 DC A(*-*) LAST DCB TABLE, DEV DEP WORD
002AF2 0000 646+DCB3 DC A(*-*) LAST DCB TABLE, DEV DEP WORD
002AF4 0000 647+DCB4 DC A(*-*) LAST DCB TABLE, DEV DEP WORD
002AF6 0000 648+DCB5 DC A(*-*) LAST DCB TABLE, DEV DEP WORD
002AF8 0000 649+DCB6 DC A(*-*) LAST DCB TABLE, CHAIN ADPS
002AFB 0000 650+DCB7 DC A(*-*) LAST DCB TABLE, BYTE COUNT
002AFC 0000 651+DCB8 DC A(*-*) LAST DCB TABLE, BUFFER ADDRESS
652+**
002AFE 653+CSBUF EQU * CYCLE STEAL DATA BUFFER
002AFC 0000 654+CSTL1 DC A(*-*) CYCLE STEAL BUFFER, RESIDUAL ADPS
002B00 0000 655+CSTL2 DC A(*-*) CYCLE STEAL WD 2, DEVICE DEPEND

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002B02 0000 656+CSTL3 DC A(*-*) CYCLE STEAL WD 3, DEVICE DEPEND
002B04 0000 657+CSTL4 DC A(*-*) CYCLE STEAL WD 4, DEVICE DEPEND
002B06 0000 658+CSTL5 DC A(*-*) CYCLE STEAL WD 5, DEVICE DEPEND
002B08 0000 659+CSTL6 DC A(*-*) CYCLE STEAL WD 6, DEVICE DEPEND
002B0A 0000 660+CSTL7 DC A(*-*) CYCLE STEAL WD 7, DEVICE DEPEND
002B0C 0000 661+CSTL8 DC A(*-*) CYCLE STEAL WD 8, DEVICE DEPEND
662+**
002B0E 0000 663+\$SUBN DC A(*-*) LAST SUPROUTINE ADDRESS USED
002B10 00000000 664+\$DATA DC 2A(*-*) OPTIONAL DATA
002B14 0021 665+\$INTL DC X'0021' INTERRUPT LEVEL REQUESTED
002B16 0000 666+\$UPTN DC A(*-*) TEST UNIT RETURN ADRS TO MDI
002B18 00B2 667+\$DVID DC X'00B2' DEVICE ID
002B1A 19D0 668+\$VCAL DC A(DEVADD) ADRS OF DEVICE ADDRESS
002B1C 0000 669+ DC A(*-*) IBIS CYLINDER ADDRESS
670+**
671+** THIS TEST UNIT WILL RETURN TO MDI WITHOUT DOING ANY PPROGRAM
672+** FUNCTION THE RESULTS THAT WERE SET UP IN THE RESULTS AREA ARE
673+** STILL VALID BUT A DIFFERENT TEST IS TO BE PEPFORMED.
674+**
002B1E 4020 2ADE 3C02 675+\$3C02 MVNI X'3C02',STUID SET UP TEST UNIT ID
002B24 5700 676+ BXS (P7) RETURN TO MDI SUPR
677+
678+ COPY COMEQU
679+ *****
680+ *
681+ * EQUATED NAMES FOR SUPPORTED SVC'S
682+ *
683+ *****
684+ OUT EQU 0 OUT SVC
685+ OUTIN EQU 1 OUTIN SVC
686+ IDLE EQU 2 IDLE SVC
687+ ASCII EQU 3 HEX TO ASCII SVC
688+ CHNGE EQU 4 CHANGE LEVEL SVC
689+ PGMCK EQU 5 ALLOW RETURN ON PPROGRAM CHECK SVC
690+ EXIT EQU 6 EXIT SVC
691+ TERM EQU 7 TERMINATE SVC
692+ RESET EQU 8 RESET DEVICE SVC
693+ RID EQU 9 READ ID SVC
694+ START EQU 10 START CYCLE STEAL SVC
695+ STCSS EQU 11 START CYCLE STEAL STATUS SVC
696+ PREP EQU 12 PREPARE DEVICE SVC
697+ READO EQU 13 READ WITH FUNCTION BIT 3 OFF SVC
698+ READ1 EQU 14 READ WITH FUNCTION BIT 3 ON SVC
699+ RSTAT EQU 15 READ STATUS SVC
700+ WRITO EQU 16 WRITE WITH FUNCTION BIT 3 OFF SVC
701+ WRIT1 EQU 17 WRITE WITH FUNCTION BIT 3 ON SVC
702+ CTRL EQU 18 CONTROL SVC
703+ RICB EQU 19 RELEASE INTERRUPT CONTROL BLOCK SVC
704+ CICB EQU 20 CONNECT INTERRUPT CONTROL BLOCK SVC
705+ HIO EQU 21 HALT I/O
706+ RECSD EQU 22 REQUEST USE OF DCP DISK SVC
707+ RELSD EQU 23 RELEASE USE OF DCP DISK SVC
708+ HALT EQU 24 HALT SVC
709+ ETOH EQU 25 EBCDIC TO HEX SVC (STRING)
710+ HTOE EQU 26 HEX TO EBCDIC SVC (STRING)
711+ ATOH EQU 27 ASCII TO HEX SVC (STRING)
712+ HTOA EQU 28 HEX TO ASCII SVC (STRING)
713+ ETOA EQU 29 EBCDIC TO ASCII SVC (STRING)
714+ ATOE EQU 30 ASCII TO EBCDIC SVC (STRING)
715+ READI EQU 31 READ DATA SETS FOR MDI/UTIL
716+ WRIT1 EQU 32 WRITE DATA SETS FOR UTIL
717+ *****
718+ *
719+ * EQUATES USED BY TU'S AS CONSTANTS
720+ *
721+ *
722+ *****
723+ PLUS EQU C'+ ' PLUS CHAR
724+ MINUS EQU C'- ' MINUS CHAR
000000 726+ ZEPO EQU 0
000001 727+ ONE EQU 1
000002 728+ TWO EQU 2
000003 729+ THREE EQU 3
000004 730+ FOUR EQU 4
000005 731+ FIVE EQU 5
000006 732+ SIX EQU 6
000007 733+ SEVEN EQU 7
000008 734+ EIGHT EQU 8
000009 735+ NINE EQU 9
00000A 736+ TEN EQU 10
00000B 737+ ELEVN EQU 11
00000C 738+ TWELV EQU 12
00000D 739+ THRITN EQU 13
00000E 740+ FIVTN EQU 15
000010 741+ SIXTN EQU 16
000020 742+ THRTZ EQU 32
000040 743+ SIXT8 EQU 64
000080 744+ ONE28 EQU 128
000100 745+ TWO56 EQU 256
000400 746+ ONEK EQU 1024
000800 747+ TWOK EQU 2048
000C00 748+ THREEK EQU 3072
001000 749+ FOURK EQU 4096
000000 751+ M1 EQU -1
000000 752+ M2 EQU -2
000000 753+ M3 EQU -3
000000 754+ M4 EQU -4
755+ *****
756+ *
757+ * THE FOLLOWING ARE EQUATES FOR BIT DISPLACEMENTS FROM THE
758+ * BEGINNING OF THE BYTE TO EACH BIT IN THE WORD OF SWITCHES.
759+ *
760+ *
761+ *****
762+ BS0 EQU 0
763+ BS1 EQU 1
764+ BS2 EQU 2
765+ BS3 EQU 3
766+ BS4 EQU 4
767+ BS5 EQU 5
768+ BS6 EQU 6
769+ BS7 EQU 7
770+ BS8 EQU 8
771+ BS9 EQU 9
772+ BS10 EQU 10
773+ BS11 EQU 11
774+ BS12 EQU 12

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
775 BS13 EQU 13
776 BS14 EQU 14
777 BS15 EQU 15
779 COPY T7841 01DEC76
780 T7841 TUIT \$ERRS
781+*****06FEB76**
782+*
783+* TEST UNIT
784+*
785+* (TU41) LOCALIZE SEEK ERROR 12/01/76
786+*
787+* PURPOSE
788+*
789+* FUNCTION: THIS TEST DETERMINES WHETHER SEEK ERRORS ARE OCCURRING
790+* -RANDOMLY ALL OVER THE DISK SURFACE OR ARE ONLY IN CERTAIN AREAS.
791+*
792+* PROGRAM INITIALIZES ATTACHMENT.
793+* RECALIBRATE AND SEFK OUT TO TRACK 302 IN 1 STEP INCREMENTS
794+* SEEK BACK TO TRACK 0 IN 1 TRACK INCREMENTS
795+*
796+* CALLING SEQUENCE
797+*
798+* PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
799+* . TURESUL BIT 0----- TIME OUT EPROP
800+* . TURESUL BIT 1----- NOT READY
801+* . TURESUL BIT 2----- FLO OUT OF SYNC
802+* . TURESUL BIT 3----- UNSAFE
803+*
804+* . TURESUL BIT 4----- SEEK CHECK
805+* . TURESUL BIT 5----- BRAKE FAILURE
806+* . TURESUL BIT 6----- NOT USED
807+* . TURESUL BIT 7----- NOT USED
808+*
809+* . TURESUL BIT 8----- INTERRUPT ERROR
810+* . TURESUL BIT 9----- RECALIBRATE FAILURE
811+* . TURESUL BIT 10-----SEEK FAILURE
812+* . TURESUL BIT 11-----NOT USED
813+*
814+* . TURESUL BIT 12-----NOT USED
815+* . TURESUL BIT 13-- SEEK ERRORS BETWEEN CYL 200 & CYL 302
816+* . TURESUL BIT 14--SEEK ERPOPS BETWEEN CYL 100 & CYL 199
817+* . TURESUL BIT 15--SEEK ERPOPS BETWEEN HOME & CYL 99
818+* .
819+* . TURESUL BITS 16-31 ---CS STATS FOR FAILING OP
820+*
821+* EXITS NORMAL
822+* . RETUPNS TO MDI SUPERVISOR WHEN DONE.
823+*
824+* EXITS ERROR
825+* . RETUPNS TO MDI SUPERVISOR.
826+*
827+* RETURN CONTROL
828+* B TURTN* RETURN TO MDI SUPERVISOR
829+*
830+*****
831+T7841 MVB R7,TURTN SAVE RETURN ADDRESS
832+ MVTI X'7841',STUID SAVE TU ID FOP DISPLAY
833+ MVA OPTN1,R4 SET UP POINTEP ADRS IN R4
834+ BAL SCNC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
835+ DC A(\$ERR\$) ERROR ADPS FOP INVALID PPEP
836+*
837 MVB DEVADD,IDCB1+1 LOAD DEVICE ADDRESS IN IDCB
838 MVB CPUID,R0 DETERMINE PROCESSOR TYPE
839 CBI 37,R0 *
840 JNE TT41 JUMP IF NOT CLINGSTONE
841 X'009F',TT41A+2 LOAD TIME CONSTANT FOR 4-5 MSEC
842 X'0140',T411+2 LOAD TIME CONSTANT FOR 8-10 MSEC
843 X'254C',T41TC+2 LOAD TIME CONSTANT FOR 2 SEC
844 J T411
845 TT41 MVTI X'0038',TT41A+2 LOAD TIME CONS FOR 4-5 MSEC
846 MVTI X'0070',T411+2 LOAD TIME CONS FOR 9 MSEC
847 MVTI X'00C0',T41TC+2 LOAD TIME CONSTANT FOR 2 SEC
848 MVA IOBIK,R7 SETUP IOBIK
849 SVC RESET ISSUE IO RESET
850 T41TC MVTI X'0000',R0 TIME OUT 2 SEC
851 T741 SVC *
852 JCT T741,R0
853 MVTI TURESUL,R2 CLEAR RESULTS WORD
854 MVTI TURESUL+2,R2 CLEAR RESULTS WORD 2
855 MVA TURESUL,R2 ADDRESS OF RESULTS
856 BAL \$RECI,R6 PECALIBPATE
857 DC A(T41F) ERROR
858 TBTR T41F INTERRUPT EPROP
859 JOFF T41F NO
860 TBTR (R4,CSA) TST FOP CYCLE STEAL STATS
861 BOFF \$ERR\$ EPROP
862 MVA CSBUF+2,STATS ADDRESS OF CYCLE STEAL STATS
863 MVA STATS,R5 *
864 TBTR (R5,7) UNSAFE?
865 JOFF T41SS NO
866 TBTS (R2,3) SET- UNSAFE
867 T41SS TBTR (R5,10) BRAKE FAILURE?
868 JOFF T41TT NO
869 TBTS (R5,6) SET- BRAKE FAILURE
870 T41TT TBTR (R5,6) FLO OUT OF SYNC CHECK?
871 JOFF T41UU NO
872 T41UU TBTS (R2,2) SET- PLO OUT OF SYNC
873 TBTR (R5,9) SEEK CHECK?
874 JOFF T41T NO
875 TBTS (R2,4) SET SEEK CHECK
876 T41T TBTR (R5,11) PESET UNSAFE BITS
877 TBTR (R5,12) *
878 TBTR (R5,13) *
879 CWI 0,STATS OTHER CS BITS ON?
880 JNE T41K YES
881 T41FF TBTS (R2,9) RECAL FAILURE
882 T41G TBTR (R2,8) INTERRUPT EPROP
883 MVTI CSBUF+2,TURESUL+2 CS STATS
884 J T41K EXIT
885 T41F CWI X'0003',R3 CHECK FOR COMMAND REJECT
886 BNE \$ERR\$ ERROR-TU NG
887 BAL XIODCS,R6 STAPT CYCLE STEAL STATS
888 DC A(\$ERR\$) ERROR
889 TBTR (R4,FR) INTERRUPT ERROR?

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
002BE4 6A00 31DE 890 BON \$ERR\$ YES
002BEB 8828 2B00 2ECA 891 MVTI CSBUF+2,STATS ADDRESS OF CS STATS
002BEE 402F 2B00 0001 892 JCT X'0001',CSBUF+2 NOT READY?
002BF0 102B 893 JOFF T41FF NO-ERROP
002BF6 4A41 894 TBTS (R2,1) SET NOT READY
002BF8 50E7 895 J T41FF EXIT
002BFA 4020 2EAA 0000 896 T41W MVTI 0,T41LP SET UP LOOP COUNTER
002C00 4020 2DCC 0005 897 T41S MVTI X'0005',SKDCB SEEK
002C06 4020 2DCE 0001 898 MVTI 1,SKDCB+2 FORWARD DIRECTION ONE TRACK
002C0C 6E03 2C52 899 T41Z BAL SK1TK,R6 SEEK LOOP
002C10 6E03 2CE2 900 BAL CK41,R6 CHECK FOR ERRORS
002C14 4029 2EAC 0001 901 AWI 1,WRLCT INCREMENT CYL LOC COUNTER
002C1A 402F 2EAC 012E 902 CWI 302,WFLCT CYLINDER # EQUAL 302?
002C20 18F5 903 JNE T41Z
002C22 4020 2DCE 0801 904 MVTI X'0801',SKDCB+2 REV SEEK - 1 TRACK
002C28 6E03 2C52 905 T41Y BAL SK1TK,R6 SEEK LOOP
002C2C 6E03 2CE2 906 BAL CK41,R6 CHECK FOR ERRORS
002C30 402E 2EAC 0001 907 SWI 1,WRLCT DECREMENT CYL LOC COUNTER
002C36 402F 2EAC 0000 908 CWI 0,WRLCT CYLINDER NUMBER EQUAL ZERO?
002C3C 18F5 909 JNE T41Y
002C3E 4029 2EAA 0001 910 AWI 1,T41LP INCREMENT LOOPCOUNTER
002C44 402F 2EAA 0004 911 CWI 4,T41LP COUNT = 4?
002C4A 18DA 912 JNE T41S NO - LOOP
913 T41K TXIT
914+T41K B \$CONX RETURN TO MDI CONTROLLER
915+*****
916 *
917 J T41K EXIT
918 *
919 *** SEEK LOOP
920 *
921 SK1TK MVTI R6,T410+2 SET UP RETURN ADDRESS
922 TBTS (R4,NI) TURN ON NO INTERRUPT EXPECTED
923 BAL \$SEK,R6 SEEK
924 DC A(\$ERR\$) EPROP
925 MVTI X'0000',R5 SET COUNT FOR NO INTERRUPT TIME OUT
926 TT41A MVTI X'0000',R0 LOAD COUNT FOR 4-5 MSEC TIME OUT(4)
927 T418 BAL SENS1,R6 READ SENSE WORD ONE
928 DC A(\$ERR\$) EPROP
929 MVA PDATA,R1 ADDRESS OF SENSE WOFD ONE
930 TBTR (R1,10) ON TRACK?
931 JOFF T411 NO
932 JCT T418,R0 DECREMENT 4-5 MSEC COUNT
933 J T41Z TIME EXPIRED
934 T411 MVTI X'0000',R0 LOAD COUNT FOR 8-10 MSEC TIME OUT(9)
935 T414 BAL SENS1,R6 READ SENSE WORD ONE
936 DC A(\$ERR\$) ERROR
937 MVA PDATA,R1 ADDRESS OF SENSE WORD ONE
938 TBTR (R1,10) ON TRACK?
939 JON T413 YES
940 JCT T414,R0 DECREMENT 8-10 MSEC TIME OUT COUNT
941 TBTS (R2,0) SET-ON/OFF/ON TRACK TIME OUT ERROR
942 T413 TBTR (R4,IN) INTERRUPT BEEN RECEIVED?
943 JON T411 YES
944 AWI R1,R5 INCREMENT NO INTERRUPT TIME OUT
945 JNZ T413
946 TBTS (R2,10) SEEK FAILURE
947 B T416 NO INTERRUPT
948 T417 BAL XIODCS,R6 CHECK INTERRUPT STATS
949 DC A(\$ERR\$) ERROR
950 TBTR (R4,CSA) CS STATS AVAILABLE?
951 JOFF T410 OK-NO EPROP
952 MVTI CSBUF+2,STATS ADDRESS OF CS STATS
953 MVA STATS,R5 *
954 TBTR (R5,7) UNSAFE?
955 JOFF T41AA NO
956 TBTS (R2,3) SET- UNSAFE
957 T41AA TBTR (R5,10) BRAKE FAILURE?
958 JOFF T415E NO
959 TBTS (R2,5) SET- BRAKE FAILURE
960 T41BB TBTR (R5,6) PLO OUT OF SYNC CHECK?
961 JOFF T41CC NO
962 TBTS (R2,2) SET- PLO OUT OF SYNC
963 T41CC TBTR (R5,9) SEEK CHECK?
964 JOFF T41DD NO
965 TBTR (R2,4) SET SEEK CHECK
966 T41DD TBTR (R5,15) NOT READY?
967 JOFF T41C NO
968 TBTS (R2,1) SET NOT READY
969 T41C TBTR (R5,11) PESET UNSAFE BITS
970 TBTR (R5,12) *
971 TBTR (R5,13) *
972 CWI 0,STATS OTHER CS BITS ON?
973 JNE T41H YES-TU ERROR
974 T410 B *-* RETURN TO CALLER
975 *
976 CK41 CB T41D,TURESUL ANY ERRORS? -CK TURESULTS BYTE 1
977 JB T41H NO-RETURN
978 CWI 100,WRLCT EPROP BETWEEN TRACK 0 AND 99?
979 JGT CK411 NO
980 TBTS (R2,15) SET SEEK ERRORS BETWEEN 0 & 99
981 CK411 CWI 200,WRLCT ERRORS BETWEEN 100 & 199?
982 JGT CK412 NO
983 TBTS (R2,14) SET SEEK ERRORS BETWEEN 100 & 199
984 J T41E NO
985 CK412 TBTS (R2,13) SET SEEK ERRORS BETWEEN 199 & 302
986 T41E MVB T41D,TURESUL ZERO BYTE ONE FLAGS
987 T41A BXS (R6) RETURN TO CALLEP
988 *
989 T41H TBTS (R2,10) SEEK ERROR
990 B T416
991 *
992 *
993 COPY T7836 01DEC76
994 TUIT S13E
995+*****06FEB76**
996+*
997+*
998+* TEST UNIT
999+*
1000+* (QU13) SEEK SCOPE LOOP 12/01/76
1001+*
1002+* PURPOSE
1003+*
1004+* FUNCTION: LOOP ON SEEKS

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LOCTR OBJECT TEXT      STMT SOURCE STATEMENT
1005** *
1006** * PROGRAM INITIALIZES ATTACHMENT.
1007** * RECALIBRATE
1008** * SEEKS (FWD) 1-TRACK TO ODD TRACK
1009** * SEEKS (FWD) 1-TRACK TO EVEN TRACK
1010** * SEEKS (REV) 1-TRACK TO ODD TRACK
1011** * SEEKS (REV) 1-TRACK TO EVEN TRACK
1012** * LOOP UNTIL CE INPUTS ANSWER TO MAP QUESTION.
1013** *
1014** * CALLING SEQUENCE
1015** *
1016** * PROGRAM PASSES STATUS OF ALL LINES IN FOLLOWING FORMAT:
1017** * NO STATUS PASSED BACK TO MDI
1018** *
1019** * EXITS NORMAL
1020** * MDI TERMINATES LOOP.
1021** *
1022** * EXITS ERROR
1023** * NONE
1024** *
1025** * RETURN CONTROL
1026** *
1027** * B TURTN* RETURN TO MDI SUPERVISOR
1028** *
1029** *****
1030** T7836 MVW R7,TURTN SAVE RETURN ADDRESS
1031** MVWI X'7836',STUID SAVE TU ID FOR DISPLAY
1032** MVA OPTN1,R4 SET UP POINTER ADRS IN R4
1033** BAL SCONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
1034** DC A(S13E) ERROR ADRS FOR INVALID PREP
1035** *
1036** * DETERMINE TYPE OF PROCESSOR
1037** *
1038** * JUMP IF NOT 4955
1039** * LOAD TIME CONSTANT FOR 2 SEC
1040** *
1041** T36T MVWI X'0C0E',T36T1+2 (4953) LOAD TIME CONS FOR 2 SEC
1042** T36T2 MVA IOBLK,R7 SETUP IOBLK
1043** SVC RESET ISSUE IO RESET
1044** T36T1 MVWI X'0000',R0 TIME OUT 2 SEC
1045** T736 SVC IDLE *
1046** JCT T736,R0 *
1047** BAL SRECI,R6 RECALIBRATE
1048** DC A(S13E) ERROR-EXIT
1049** MVWI X'0005',SKDCB SEEK
1050** TS13 MVWI X'0005',SKDCB FORWARD DIRECTION ONE TRACK
1051** BAL SSEEK,R6 SEEK
1052** DC A(S13E) ERROR-EXIT
1053** BAL SSEEK,R6 SEEK
1054** DC A(S13E) ERROR-EXIT
1055** MVWI X'0801',SKDCB+2 SET SEEK REVERSE ONE TRACK
1056** BAL SSEEK,R6 SEEK
1057** DC A(S13E) ERROR-EXIT
1058** BAL SSEEK,R6 SEEK
1059** DC A(S13E) ERROR-EXIT
1060** S13E TXIT EXIT
1061** B SCONY RETURN TO MDI CONTROLLER
1062** *****
1063** *
1064** *
1065** * COPY T78DCB 01DEC76
1066** * (T78DCB)
1067** *****12/1/76*****
1068** *
1069** * DCB TABLES AND DC'S
1070** *
1071** *
1072** *****
1073** *
1074** ***** DIAGNOSTIC DCB *****
1075** *
1076** DGDCB DC X'2008' DIAGNOSTIC DCB
1077** DC X'0000' NOT USED
1078** DC A(*) 0-7 = PHYSICAL SECTOR # MINUS ONE
1079** DC X'0000' NOT USED
1080** DC X'0000' NOT USED
1081** DC A(*) CHAINING ADDRESS
1082** DC X'0100' BYTE COUNT
1083** DC A(*) DATA ADDRESS
1084** *
1085** *
1086** ***** RECALIBRATE DCB *****
1087** *
1088** CLDCB DC X'0007' RECALIBRATE DCB
1089** DC 7A(*)
1090** *
1091** ***** WRITE SECTOR ID **
1092** *
1093** WSDCB DC X'0002' WRITE SECTOR ID CONTROL WORD
1094** DC X'0000' NOT USED
1095** DC A(*) 0-7 = PHYSICAL SECTOR # MINUS ONE
1096** DC A(*) NOT USED
1097** DC A(*) NOT USED
1098** DC A(*) CHAIN ADDRESS
1099** DC X'0006' BYTE COUNT
1100** DC A(WRSID) ADDR OF SECTOR ID DATA
1101** ***** READ SECTOR ID DCB *****
1102** *
1103** RSDCB DC X'200A' READ SECTOR ID
1104** DC X'0000' NOT USED
1105** DC X'0000' 0-7 = PHYSICAL SECTOR # MINUS ONE
1106** DC X'0000' NOT USED
1107** DC X'0000' NOT USED
1108** DC X'0000' CHAIN ADDRESS
1109** DC X'0006' BYTE COUNT FOR READ SECTOR ID
1110** DC A(SCIID) SECTOR ID DATA ADDRESS
1111** *
1112** *
1113** ***** READ SECTOR ID IMMEDIATE DCB *****
1114** *
1115** RIDCB DC X'200E' READ SECTOR ID
1116** DC X'0000' NOT USED
1117** DC X'0000' NOT USED
1118** DC X'0000' NOT USED
1119** DC X'0000' NOT USED

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LOCTR OBJECT TEXT      STMT SOURCE STATEMENT
002DC6 0000 1120 DC A(*) CHAIN ADDRESS
002DC8 0006 1121 DC X'0006' BYTE COUNT FOR READ SECTOR ID
002DCA 2AE6 1122 DC A(SCIID) SECTOR ID DATA ADDRESS
1123** *
1124** *
1125** ***** SEEK DCB *****
1126** *
1127** SKDCB DC X'0005' SEEK DCB
1128** DC X'0000' BIT 0-3=0;BIT4=DIRECTION;5-15=DIFPER
1129** DC F'0'
1130** DC F'0'
1131** DC X'0000' 0-7 = HEAD;8-15 NOT USED
1132** DC A(*) CHAIN ADDRESS
1133** DC F'0' NOT USED
1134** DC F'0' NOT USED
1135** *
1136** ***** CYCLE STEAL STATUS DCB *****
1137** *
1138** CSDCB DC X'2000' CONTROL WORD
1139** DC F'0' NOT USED
1140** DC F'0' NOT USED
1141** DC F'0' NOT USED
1142** DC F'0' NOT USED
1143** DC F'0' NOT USED
1144** DC X'0008' 4 WORDS OF STATS
1145** DC A(CSBUF) ADDRESS OF CYCLE STEAL STATUS DATA
1146** *
1147** ***** WRITE DCB *****
1148** *
1149** WRDCB DC X'0001' WRITE CONTROL WORD
1150** DC F'0' NOT USED
1151** DC X'0000' 0-7=0;8-15 = FLAG BYTE
1152** DC X'0000' SEARCH ARGUMENT CYLINDER
1153** DC X'0000' SEARCH ARGUMENT HEAD-SECTOR
1154** DC A(*) CHAIN ADDRESS
1155** DC F'0' BYTE COUNT
1156** DC A(*) WRITE DATA ADDRESS
1157** *
1158** ***** VERIFY DCB *****
1159** *
1160** VRDCB DC X'200C' CONTROL WORD
1161** DC F'0' NOT USED
1162** DC X'0000' 0-7=0;8-15 = FLAG BYTE
1163** DC X'0000' CYLINDER
1164** DC X'0000' HEAD - SECTOR
1165** DC A(*) CHAIN ADDRESS
1166** DC F'0' BYTE COUNT
1167** DC A(*) VERIFY DATA ADDRESS
1168** *
1169** ***** READ DCB *****
1170** *
1171** RDDCB DC X'2009' READ DCB CONTROL WOPD
1172** DC F'0' NOT USED
1173** DC X'0000' 0-7=0;8-15 = FLAG BYTE
1174** DC X'0000' SEARCH ARGUMENT CYLINDER
1175** DC X'0101' SEARCH ARGUMENT H-P
1176** DC A(*) CHAIN ADDRESS
1177** DC F'0' BYTE COUNT
1178** DC A(*) READ DATA ADDRESS
1179** *
1180** ***** WRITE SECTOR ID SKEWED *****
1181** *
1182** WKDCB DC X'0003' CONTROL WORD
1183** DC X'0000' NOT USED
1184** DC A(*) 0-7 = PHYSICAL SECTOR # MINUS ONE
1185** DC A(*) NOT USED
1186** DC A(*) NOT USED
1187** DC A(*) CHAIN ADDRESS
1188** DC X'0006' BYTE COUNT
1189** DC A(WRSID) ADDR OF SECTOR ID DATA
1190** *
1191** ***** READ SECTOR ID SKEWED *****
1192** *
1193** RKDCB DC X'200B' CONTROL WORD
1194** DC X'0000' NOT USED
1195** DC X'0000' 0-7 = PHYSICAL SECTOR # MINUS ONE
1196** DC X'0000' NOT USED
1197** DC X'0000' NOT USED
1198** DC X'0000' CHAIN ADDRESS
1199** DC A(*) BYTE COUNT FOR READ SECTOR ID
1200** DC A(SCIID) SECTOR ID DATA ADDRESS
1201** *
1202** * CONSTANTS AND DEFINED STOPAGE LOCATIONS
1203** ZERO DC X'0000' CONSTANT ZERO
1204** ONE DC X'0001' CONSTANT ONE
1205** TIMEOUT DC 2A(*) TIMEOUT COUNTER
1206** TONE DC X'0000' CONSTANT FOR ADD DOUBLE
1207** *
1208** COUNT DC X'0001' BYTE COUNT (1280)
1209** DIFF DC A(*) SEEK DIFFERENCE
1210** DC A(*) WORK WORD INT TO ZERO
1211** BCNT DC X'0000' BYTE COUNT
1212** JOE DC A(*) WRITE PARAMETER POINTER
1213** JOE1 DC A(*) SAVE LOC FOR PARM LIST ADDRESS
1214** WDATA DC X'DE6E' WRITE DATA
1215** DC X'6FED' *
1216** TABLE DC A(*) ADDR OF WRT PAR LIST FOR FOPMAT PTNS
1217** IGSEC DC X'0000' LOGICAL SECTOR #
1218** PHYSIC DC X'0000' CONVERTED PHYSICAL SEC #
1219** CB29 DC X'1D00' CONSTANT BYTE 29
1220** FIVE9 DC X'3B00' CONSTANT BYTE 59
1221** WRSID DC X'0000' FLAG,CYLINDER (WRT SECTOR ID DATA)
1222** DC X'0000' CYLINDER HEAD
1223** DC X'0000' LG SECTOR, NOT USED
1224** CDAT DC X'00FF' INVALID DATA CONSTANT
1225** WSIDT DC X'FF34' WRITE SECTOR ID TEST DATA
1226** DC X'5678' *
1227** DC X'9A00' *
1228** SCST DC X'0000' READ SECTOR ID TEST DATA BUFFER
1229** DC X'0000' *
1230** DC X'0000' *
1231** CTR01 DC X'0000' COUNTER
1232** CTR02 DC X'0000' COUNTER
1233** CTR03 DC X'0000' COUNTER

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LOCTR OBJECT TEXT STMT SOURCE STATEMENT
002E7C 0000 1234 CTR04 DC X'0000'
002E7E 0000 1235 CTR05 DC X'0000'
002E80 0000 1236 CTR06 DC X'0000'
002E82 0000 1237 SAVR3 DC X'0000'
002E84 0000 1238 SAVR5 DC X'0000'
002E86 0000 1239 WR2 DC X'0000'
002E88 0000 1240 SVSEK DC X'0000'
002E8A 0000 1241 LCT DC X'0000'
002E8C 0000 1242 T56AA DC X'0000'
002E8E 0000 1243 T56BB DC X'0000'
002E90 0000 1244 T56CC DC X'0000'
002E92 0000 1245 T56DD DC X'0000'
002E94 0000 1246 T56EE DC X'0000'
002E96 0000 1247 T56FF DC X'0000'
002E98 0000 1248 T56GG DC X'0000'
002E9A 0000 1249 T86AA DC X'0000'
002E9C 0000 1250 T86BB DC X'0000'
002E9E 0000 1251 T86CC DC X'0000'
002EA0 0000 1252 T86DD DC X'0000'
002EA2 0000 1253 T86EE DC X'0000'
002EA4 0000 1254 T86FF DC X'0000'
002EA6 0000 1255 T86GG DC X'0000'
002EA8 0000 1256 T41D DC X'0000'
002EAA 0000 1257 T41P DC X'0000'
002EAC 0000 1258 WRTCT DC X'0000'
002EAE 0000 1259 CVLOC DC X'0000'
002EB0 0000 1260 PASS1 DC A(*-*)
002EB2 0000 1261 HEAD0 DC A(*-*)
002EB4 0000 1262 HEAD1 DC A(*-*)
002EB6 0000 1263 GDSE0 DC A(*-*)
002EB8 0000 1264 GDSE1 DC A(*-*)
002EBA 0000 1265 ER00 DC A(*-*)
002EBC 0000 1266 ER01 DC A(*-*)
002EBE 0000 1267 HD0SV DC A(*-*)
002EC0 0000 1268 ER0SV DC A(*-*)
002EC2 0000 1269 ER0SV DC A(*-*)
002EC4 0000 1270 ER0SV DC A(*-*)
002EC6 0000 1271 PATTR DC A(*-*)
002EC8 0000 1272 CECYL DC A(*-*)
002ECA 0000 1273 STATS DC A(*-*)
1274 *
1276 COPY T78DPCIO 01DEC76
1277 ** (T78DPCIO)
1278 *
1279 * EXECUTE DPC INPUT/OUTPUT COMMANDS 2/07/77
1280 * THIS ROUTINE HAS THE FOLLOWING ENTRIES:
1281 *
1282 * 1 BAL CEOP1,R6 CE DIAGNOSTIC OP1 (TURN ON DIAG MODE)
1283 *
1284 * 2 BAL CEOP2,R6 WRITE DIAG CLOCK STEP DATA
1285 *
1286 * 3 BAL SENS0,R6 CE READ SENSE WORD ZERO
1287 *
1288 * 4 BAL SENS1,R6 CE READ SENSE WORD ONE
1289 *
1290 * 5 BAL WRAP,R6 READ DIAGNOSTIC WPAP
1291 *
1292 * BXS (R6,2) RETURN
1293 *
1294 *
1295 *
1296 * CE DIAGNOSTIC OP2 DATA WORD (CLOCK STEP)
1297 *
1298 * BIT 00 - SET READY
1299 * BIT 01 - RESET READY
1300 * BIT 02 - SET WRITE CLOCK
1301 * BIT 03 - SET READ CLOCK
1302 * BIT 04 - INDEX PULSE
1303 * BIT 05 - SECTOR PULSE
1304 * BIT 06 - STANDARD READ DATA
1305 * BIT 07 - SPEED PULSE
1306 * BIT 08 - BEHIND HOME
1307 * BIT 09 - SEEK COMPLETE
1308 * BIT 10 - RESET SEEK COMPLETE
1309 * BIT 11 - PLO OUT OF SYNC
1310 * BIT 12 - RST RD/WRT CLOCK
1311 * BIT 13 -
1312 * BIT 14 -
1313 * BIT 15 - RESET DIAGNOSTIC MODE
1314 *
1315 *
1316 *
1317 *
1318 WRAP MVW R6,LSTIO SAVE ADDRESS OF LAST IO
1319 MVB DEVADD,IDCBRAP+1 LOAD DEVICE ADDRESS IN IDCB
1320 IO IDCBRAP READ SENSE WORD 1
1321 BNCC 7,CCERR CHECK COND CODE
1322 BXS (R6,2) RETURN TO CALLER
1323 *
1324 CEOP1 MVW R6,LSTIO SAVE ADDRESS OF LAST IO
1325 MVB DEVADD,IDCBCE1+1 LOAD DEVICE ADDRESS IN IDCB
1326 IO IDCBCE1 SET DIAGNOSTIC MODE
1327 BNCC 7,CCERR CHECK COND CODE
1328 BXS (R6,2) RETURN TO CALLER
1329 *
1330 CEOP2 MVW R6,LSTIO SAVE ADDRESS OF LAST IO
1331 MVB DEVADD,IDCBCE2+1 LOAD DEVICE ADDRESS IN IDCB
1332 IO IDCBCE2 WRITE DIAG CLOCK STEP
1333 BNCC 7,CCERR CHECK COND CODE
1334 BXS (R6,2) RETURN TO CALLER
1335 *
1336 *
1337 SENS1 MVW R6,LSTIO SAVE ADDRESS OF LAST IO
1338 MVB DEVADD,IDCB1+1 LOAD DEVICE ADDRESS IN IDCB
1339 IO IDCB1 READ SENSE WORD 2
1340 BNCC 7,CCERR CHECK COND CODE
1341 BXS (R6,2) RETURN TO CALLER
1342 *
1343 SENS0 MVW R6,LSTIO SAVE ADDRESS OF LAST IO
1344 MVB DEVADD,IDCB0+1 LOAD DEVICE ADDRESS IN IDCB
1345 IO IDCB0 READ SENSE WORD 1
1346 BNCC 7,CCERR CHECK COND CODE
1347 BXS (R6,2) RETURN TO CALLER
1348 *

```

```

LOCTR OBJECT TEXT STMT SOURCE STATEMENT
002F30 706E 1349 CCERR DC X'706E' COPY STATUS ANY LEVEL INTO R3
002F32 336A 1350 SFL 13,R3 POSITION CC CODE TO BITS 13-15
002F34 C328 2AE0 1351 MVB R3,$IOIN * PUT IN LOG AREA
002F38 68D2 0000 1352 B (R6)* RETURN TO USER
1353 *
002F3C 6F05 1354 IORST DC X'6F05' PESET IO
002F3E 2205 1355 IDCB0 DC X'2205' SENSE WORD ZERO
002F40 0000 1356 RDATA0 DC A(*-*) DATA WORD
002F42 2105 1357 IDCB1 DC X'2105' SENSE WORD ONE
002F44 0000 1358 RDATA DC A(*-*)
002F46 4005 1359 IDCBCE1 DC X'4005' CE DIAG OP1
002F48 4105 1360 CEDT DC A(*-*) SENSE DATA
002F4C 0000 1361 IDCBCE2 DC X'4105' CE DIAG OP2
002F4E 2F05 1362 CEDAT2 DC A(*-*) SENSE DATA
002F50 0000 1363 IDCBRAP DC X'2F05' READ DIAG WRAP
002F52 0000 1364 RAPDAT DC A(*-*) SENSE DATA
000232 0000 1365 CPUID EQU X'0232' CPU ID
1366 *
1368 * COPY T78IO 01DEC76
1369 ** (T78IO)
1370 *****12/01/76*****
1371 *
1372 * SUBROUTINE
1373 *
1374 * PURPOSE
1375 *
1376 * COMPARE READ SECTOR ID DATA TO WRITE SECTOR ID DATA
1377 * NORMAL AND TEST DATA.
1378 *
1379 * CALLING SEQUENCE
1380 *
1381 * BAL CMPRW,R6 (NORMAL)
1382 * BAL CMPRT,R6 (TEST)
1383 *
1384 * RETURN
1385 *
1386 * BXS (R6,2) - NORMAL
1387 *
1388 *
1389 *
1390 *
1391 CMPRT MVWI 5,R7 BYTE COUNT
1392 MVA SCTST+1,R3 ADDR OF RD SECT ID DATA (TEST)
1393 MVA WSIDT,R5 ADDR OF WP SECT ID DATA (TEST)
1394 J TT4Y
1395 CMPRW MVWI 5,R7 COMPARE BYTE COUNT
1396 MVA SCTID+1,R3 ADDR OF RD SECT ID DATA
1397 MVA WSID,R5 ADDR OF WP SECT ID DATA
1398 TT4Y CTWEN (R3,R5) COMPARE ID DATA
1399 BE (R6,2) BCH IF WRITE ID DATA OK
1400 B (R6)* COMPARE ERROR
1401 *
1402 *
1403 *
1404 * SUBROUTINE
1405 *
1406 * PURPOSE
1407 * CONVERT LOGICAL SECTOR NUMBER TO A PHYSICAL SECTOR MINUS
1408 * ONE
1409 * SETUP LOGICAL SECTOR # IN LOCATION 'LGSEC'
1410 * PHYSICAL SECTOR # WILL BE LOADED IN LOCATION 'PHYS'
1411 *
1412 * LOGICAL SECTOR# TO PHYSICAL SECTOR# CONVERSION
1413 * LOGICAL- X 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B, 0C, 0D,
1414 * PHYSICAL X 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B, 0C, 0D,
1415 *
1416 * LOGICAL- 07, 25, 08, 26, 09, 27, 0A, 28, 0B, 29, 0C, 2A, 0D, 2B,
1417 * PHYSICAL 0E, 0F, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 1A, 1B,
1418 *
1419 * LOGICAL- 0E, 2C, 0F, 2D, 10, 2E, 11, 2F, 12, 30, 13, 31, 14, 32,
1420 * PHYSICAL 1C, 1D, 1E, 1F, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29,
1421 *
1422 * LOGICAL- 15, 33, 16, 34, 17, 35, 18, 36, 19, 37, 1A, 38, 1B, 39,
1423 * PHYSICAL 2A, 2B, 2C, 2D, 2E, 2F, 30, 31, 32, 33, 34, 35, 36, 37,
1424 *
1425 * LOGICAL- 1C, 3A, 1D, 3B, X
1426 * PHYSICAL 38, 39, 3A, 3B, X
1427 *
1428 *
1429 * CALLING SEQUENCE
1430 *
1431 * BAL CONVTR,R6
1432 *
1433 * RETURN
1434 *
1435 * B (TT304+2)
1436 *
1437 *
1438 *
1439 CONVTR MVW R6,TT304+2 SETUP RETURN ADDR
1440 CB ZERO,LGSEC+1 CK FOR LOG # ZERO
1441 JE TT303 RCH IF LOG # IS ZERO
1442 CB LGSEC+1,CB29 COMP LOG TO 29
1443 JGE TT01 BCH IF LGSEC EQ OR LESS THAN CB29
1444 MVWI 2,R0 SETUP MULTIPLIER
1445 MB LGSEC+1,R0 LOG SECTOR # TIMES 2
1446 SWI 60,R0 LOG SEC TIMES 2 MINUS 60
1447 MVB R0,PHYS+1 PHYSICAL SECTOR NUMBER
1448 J TT304 RETURN TO CALLER
1449 TT303 MVB FIVE9,PHYS+1 PHYSICAL SECTOR # 59
1450 J TT304 RETURN TO CALLER
1451 RTT01 MVWI 2,R0 LOAD MULTIPLIER
1452 MB LGSEC+1,R0 LOG SECTOR # TIMES 2
1453 SWI 1,R0 SUBTRACT ONE
1454 MVB R0,PHYS+1 LOAD PHYSICAL SECTOR #
1455 B *-* RETURN TO CALLER
1456 *
1457 *
1458 *
1459 * SUBROUTINE
1460 *
1461 * PURPOSE
1462 *
1463 * LOAD WRITE SECTOR ID DATA BUFFER FROM RD SEC ID BUFFER

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1464 *
1465 * CALLING SEQUENCE
1466 *
1467 * BAL LWSID,R6
1468 *
1469 * RETURN
1470 *
1471 * BXS (R6)
1472 *
1473 *
1474 *
1475 *
1476 LWSID MVWI 5,R7 BYTE COUNT
1477 MVA SCTLID+1,R3 ADDR OF RD SECT ID DATA BUFFER
1478 MVA WRSID,R5 ADDR OF WR SECT ID DATA BUFFER
1479 MVFN (R3),(R5) MOV DATA FROM RD TO WR BUFFER
1480 BXS (R6) RETURN TO CALLER
1481 *
1482 *
1483 * EXECUTE INPUT & OUTPUT COMMANDS
1484 * TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
1485 * EACH OF THESE ENTRIES SET R7 WITH THE ADDR OF ITS PARAMETER
1486 * LIST AND ANY SPECIAL SWITCHES BEFORE BRANCHING TO THE
1487 * SUPVR CALL.
1488 *
1489 * THIS SUBROUTINE WILL CHECK FOR THE FOLLOWING:
1490 *
1491 * 1. LOST INTERRUPTS BY TIMING OUT A COUNTING LOOP
1492 * 2. ERROR INTERRUPTS RECEIVED FROM SUPVR
1493 *
1494 * THIS ROUTINE HAS THE FOLLOWING ENTRIES:
1495 *
1496 * 1 BAL SRKEW,R6 READ SECTOR ID SKEWED
1497 * 2 BAL $WKST,R6 WRITE SECTOR ID SKEWED (TEST)
1498 * 3 BAL SRWST,R6 READ SECTOR ID SKEWED (TEST)
1499 * 4 BAL SRIDS,R6 PFAD SECTOR ID (TEST)
1500 * 5 BAL $WKEW,R6 WRITE SECTOR ID SKEWED
1501 * 6 BAL $WSEC,R6 WRITE SECTOR ID
1502 * 7 BAL $WSTS,R6 WRITE SECTOR ID (TEST)
1503 * 8 BAL $DIAG,R6 DIAGNOSTIC
1504 * 9 BAL XIOCS,R6 CYCLE STEAL STATUS
1505 * 10 BAL $SEEK,R6 SEEK
1506 * 11 BAL $RECL,R6 RECALIBRATE
1507 * 12 BAL $RDID,R6 READ SECTOR ID
1508 * 13 BAL $RD,R6 READ
1509 * 14 BAL $RDVY,R6 READ VERIFY
1510 * 15 BAL $WRT,R6 WRITE
1511 *
1512 *
1513 *
1514 *
1515 *
1516 *
1517 *
1518 *
1519 *
1520 *
1521 *
1522 *
1523 *
1524 *
1525 *
1526 *
1527 *
1528 $SEEK MVA SKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1529 J XIO
1530 *
1531 $RECL MVA CLDCB,IODCB SET UP BLOCK FOR SVC CALL
1532 J XIO
1533 *
1534 $RDID MVA RSDCB,IODCB SET UP BLOCK FOR SVC CALL
1535 MVBI X'FF',R3 SET BUFFER TO F'S
1536 MVA SCTLID,R5 SETUP READ SECTOR ID BUFFER ADRS
1537 MVWI 6,R7 SETUP BUFFER LENGTH
1538 FFN R3,(R5) INIT READ SECTOR ID BUFFER
1539 MVA SCTLID,RSDCB+14 DATA ADDR
1540 J XIO
1541 *
1542 $RD MVBI X'FF',R3 SETRD BUFFER TO ALL F'S
1543 MVW RDDCB+14,R5 SET UP READ BUFFER ADRS
1544 MVWI X'0100',R7 SET UP BUFFER LENGTH
1545 FFN R3,(R5) CLEAR READ BUFFER
1546 MVA RSDCB,IODCB SET UP BLOCK FOR SVC CALL
1547 J XIO
1548 *
1549 $RDVY MVA VRDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1550 J XIO
1551 *
1552 $WRT MVA WRDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1553 J XIO
1554 *
1555 $RKEW MVA RKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1556 MVBI X'FF',R3 SET BUFFER TO F'S
1557 MVA SCTLID,R5 SETUP READ SECTOR ID BUFFER ADRS
1558 MVWI 6,R7 SETUP BUFFER LENGTH
1559 FFN R3,(R5) INIT READ SECTOR ID BUFFER
1560 MVA SCTLID,RKDCB+14 DATA ADDR
1561 J XIO
1562 *
1563 $WKST MVA WKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1564 MVA WSIDT,WKDCB+14 DATA ADDR
1565 J XIO
1566 *
1567 $RWST MVA RKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1568 MVA SCTLID,RKDCB+14 DATA ADDR
1569 J XIO
1570 *
1571 $RIDS MVA RSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1572 MVBI X'FF',R3 SET BUFFER TO F'S
1573 MVA SCTLID,R5 SETUP READ SECTOR ID BUFFER ADRS
1574 MVWI 6,R7 SETUP BUFFER LENGTH
1575 FFN R3,(R5) INIT READ SECTOR ID BUFFER
1576 MVA SCTLID,RSDCB+14 DATA ADDR
1577 J XIO
1578 *

```

002FB8 4724 0005
002FBC 4324 2AE7
002FC0 4524 2E62
002FC4 2BA4
002FC6 5600

002FC8 4020 319A 2DCC
002FCE 5064
002FD0 4020 319A 2D8C
002FD6 5060
002FD8 4020 319A 2DAC
002FDE 0BFF
002FEO 4524 2AE6
002FE4 4724 0006
002FEB 2BAC
002FEA 4020 2DBA 2AE6
002FF0 5053
002FF2 0BFF
002FF4 6D08 2E1A
002FF8 4724 0100
002FFC 2BAC
002FFE 4020 319A 2E0C
003004 5049
003006 4020 319A 2DFC
00300C 5045
00300E 4020 319A 2DEC
003014 5041
003016 4020 319A 2E2C
00301C 0BFF
00301E 4524 2AE6
003022 4724 0006
003026 2BAC
003028 4020 2E3A 2AE6
00302E 5034
003030 4020 319A 2E1C
003036 4020 2E2A 2E6A
00303C 502D
00303E 4020 319A 2E2C
003044 4020 2E3A 2E70
00304A 5026
00304C 4020 319A 2DAC
003052 0BFF
003054 4524 2E70
003058 4724 0006
00305C 2BAC
00305E 4020 2DBA 2E70
003064 5019

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1579 $WKEW MVA WKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1580 MVA WRSID,WKDCB+14 DATA ADDR
1581 J XIO
1582 *
1583 $WSEC MVA WSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1584 MVA WRSID,WSDCB+14 DATA ADDR
1585 J XIO
1586 $WSTS MVA WSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1587 MVA WSIDT,WSDCB+14 DATA ADDR
1588 J XIO
1589 *
1590 $DIAG MVA DGDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1591 J XIO
1592 XEQTT
1593 *****29JUL76**
1594 *
1595 * SUB-ROUTINE
1596 *
1597 * EXECUTE INPUT AND OUTPUT COMMANDS
1598 *
1599 * PURPOSE
1600 *
1601 * TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
1602 * THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:
1603 *
1604 * 1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED
1605 * THE I/O COMMAND.
1606 * 2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS
1607 * ISSUED BY THIS SUBROUTINE.
1608 * 3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE
1609 * START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.
1610 * 4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT
1611 * SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,
1612 * HOWEVER THE ADDRESS OF THE I/O CONTROL BIT IS SET.
1613 * 5. MOVE THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE
1614 * EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC START'.
1615 * 6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING
1616 * STARTS TO DETERMINE A LOST INTERRUPT.
1617 * 7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF IT
1618 * WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.
1619 * 8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.
1620 * 9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.
1621 * 10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.
1622 * 11. CHECK TO SEE IF THE EXERCISER IS TO BE TERMINATED.
1623 * 12. CHECK IF A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS
1624 * ISSUED BY THIS SUBROUTINE.
1625 * 13. CHECK THE I/O BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A
1626 * CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON,
1627 * COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.
1628 *
1629 * CALLING SEQUENCE
1630 *
1631 * THIS ROUTINE HAS THE FOLLOWING ENTRIES:
1632 *
1633 * --> BAL XIO OR XEO ANY CYCLE STEAL COMMAND, MOD=0
1634 * --> BAL XIO1 MOD PARM PRELOADED IN 'IOMOD'
1635 * --> BAL XIOCS,R6 OR XEO START CYCLE STEAL STATUS, MOD=P
1636 * --> BAL XIOCS-4,R6 AUTO CS STATUS (FOLLOWING OTHER XIO
1637 * AND DOES NOT POST INTERRUPT STATUS)
1638 *
1639 * RETURN CONTROL
1640 *
1641 * BXS (R6,2) RETURN TO USER NO ERROR
1642 * OR B (R6) * RETURN AND RETRY ON ERROR
1643 * *****
1644 * XIO MVWZ IOMOD,R3 SET MOF OF 0 FOR CYCLE STEAL OP
1645 * J XIO1 CS I/O'S ARE NOT RETRIED
1646 *
1647 *
1648 * TBTR (R4,CE) RESET CS STATUS INTER ERROR INDICAT.
1649 * TBTS (R4,CS) SET CYCLE STEAL STATUS IN PROGRESS
1650 * XIOCS MVA SCTLID,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1651 * MVWI X'0000',IOMOD SET CYCLE STEAL MODIFIER
1652 * TBTR (R4,CS) IS CS IN PROGRESS ERROR CONDITION
1653 * JON XIO2 * YES, BYPASS SAVING I/O ADRS
1654 * MVW R6,LSTIO SAVE IAR FOR RETRY IF REQUESTED
1655 * MVA DCBUP,R3 SET UP TO ADRS TO MOVE DCB TABLE
1656 * MVW IODCB,R5 * AND THE FROM ADRS, ALONG WITH
1657 * MVBI 16,R7 * THE NUMBER OF MOVES
1658 * MVFN (R5),(R3) MOVE 1 STATUS WORD AND ADJUST
1659 * TBTS 255,R3 CLEAR CYCLE STATUS BUFFER
1660 * MVA CSBUF,R5 * TO ALL ONES *
1661 * MVBI 16,R7 *
1662 * FFN R3,(R5) *
1663 * MVW X'0708',XIOIN OVERLAY OLD CONDITION CODES
1664 * MVWZ $ISB,R3 ZERO OUT OLD ISR VALUE
1665 *
1666 * TBTR (R4,ER) RESET ANY ERROR BEFORE I/O COMMAND
1667 * XIO2 TBTR (R4,IN) CLEAR INTERRUPT RECEIVED CNTL BIT
1668 * MVA IOBLK,R7 SET UP CONTROL BLOCK FOR SUPVR
1669 * TBTR (R4,ILE) RESET LEVEL ERROR INDICATOR
1670 * TBTS (R4,XI) SET EXPECTED INTR CONTROL BIT
1671 * SVC START CALL SUPVR FOR I/O COMMAND
1672 *
1673 * TBTR (R4,NI) IS AN INTR EXPECTED
1674 * BN (R6,2) * NO, RETURN TO USER
1675 *
1676 * THE INTR SHOULD OCCUR WHILE SPINNING IN THE NEXT SECTION
1677 *
1678 * MVBI X'00',R5 SET UP WORK REG FOR 'LOST INTR'
1679 * XIO8 TBTR (R4,IN) HAS INTERRUPT BEEN RECEIVED
1680 * JON XIOCK * YES, CHECK IF ALL WAS SATISFACTORY
1681 * SVC IDLE ALLOW ANOTHER PROGRAM A CHANCE TO RUN
1682 * SUPVR WILL RETURN HERE
1683 * ANI 1,R5 ADVANCE TIME OUT COUNT
1684 * JNZ XIO8 BCH IF TIME OUT NOT REACHED
1685 * TBTS (R4,ER) SET ON ERROR CONTROL BIT
1686 * B (R6) ERR 'NO INTERRUPT'
1687 * *****03FEB76**
1688 *
1689 *
1690 * SUBROUTINE
1691 *
1692 * I/O EXECUTE ERROR HANDLING ROUTINE
1693 *
1694 * PURPOSE

```

003098 CB25 319C
00309C 500A
00309E 4CAA
0030A0 4C68
0030A2 4020 319A 2DDC
0030A4 4020 319C 000F
0030A6 4C28
0030B0 1213
0030B2 6E0D 2AE4
0030B6 4324 2AE6
0030BA 6D08 319A
0030BE 0F10
0030C0 2D64
0030C2 0BFF
0030C4 4524 2AFE
0030C6 0F10
0030CA 2BAC
0030CC 4020 2AE0 0708
0030D2 CB25 2AE2
0030D6 4CA1
0030D8 4CA3
0030DA 4724 3196
0030DE 4CA6
0030E0 4C62
0030E2 600A
0030E4 4CA7
0030E6 6AC0 0002
0030EA 0D00
0030EC 4CA3
0030EE 1238
0030F0 6002
0030F2 7DA1 0001
0030F6 18FA
0030F8 4C61
0030FA 68D2 0000

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1695** THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE
1696** PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE
1697** SUPERVISOR AND IT WAS NOT ACCEPTED.
1698**
1700** CALLING SEQUENCE
1701**
1702** SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND
1703**
1704** RETURN CONTROL
1705**
1706** B (R6)* RETURN TO USERS ERROR HANDLER
1707**
1708** *****
1709**
1710** CC 0= DEVICE NOT ATTACHED
1711** FOR 1= DEVICE BUSY
1712** I/O 2= DEVICE BUSY AFTER RESET
1713** 3= COMMAND REJECT
1714** 4= INTERVENTION REQUIRED
1715** 5= INTERFACE DATA CHECK
1716** 6= CONTROLLER BUSY
1717** 7= I/O COMMAND EXCEPTED
1718**
1719**XIOER DC X'706E' COPY STATUS ANY LEVEL INTO R3
1720** SRL 13,R3 POSITION CC CODE TO BITS 13-15
1721** MVB R3,$IOIN * PUT IN LOG OUT AREA
1722** B (R6)* RETURN TO USER ERROR HANDLER
1723** *****
1724** *****14APR76**
1725**
1726** SUB-ROUTINE
1727**
1728** ERROR INTERRUPT RUNS ON INTERRUPT LEVEL 'SINTL'
1729**
1730** PURPOSE
1731**
1732** THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR
1733** OR THE INTERRUPTING CONDITION DOES NOT AGREE WITH THE
1734** EXPECTED CODE.
1735**
1736** CALLING SEQUENCE
1737**
1738** SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O INTERRUPT
1739**
1740** RETURN CONTROL
1741**
1742** SVC EXIT RETURN TO USER VIA SUPVR
1743**
1744** *****
1745**
1746** CC 0= CONTROLLER END ISB 0= ADD STATUS
1747** FOR 1= PROGRAM CONTROL INTERRUPT BITS 1= COMD REJECT
1748** INTR 2= EXCEPTION INTERRUPT FOR 2= INCOR LENGTH
1749** 3= DEVICE END INTERRUPT INTR 3= DCB SPEC CK
1750** 4= ATTENTION INTERRUPT 4= STG DATA CK
1751** 5= ATTENTION / PROGRAM CNTL INTR 5= INV STG ADPS
1752** 6= ATTENTION / EXCEPTION INTR 6= PROTRCT CK
1753** 7= ATTENTION / DEVICE END INTR 7= I-FACE DATA
1754**
1755**INTER DC X'706E' COPY STATUS ANY LEVEL INTO R3
1756** SRL 13,R3 POSITION INDICATORS IN R3
1757** MVA OPIN1,R4 SET UP BASE ADPS
1758** TBT (R4,CS) IS 'CS IN PROGRESS'
1759** JOFF INTES * NO
1760** TBTS (R4,CE) TURN ON CYCLE STEAL INTER ERROR
1761** MVB R7,CS1L8 SAVE CS ERR ISB VALUE, BITS 0-7
1762** MVB R3,CS1L8+1 * AND THE COND CODE
1763** J INTR1
1764**INTES TBT (R4,XE) TEST EXPECTED ATTEN / ERROR IND
1765** JOFF INTET BCH IF NOT EXPECTED
1766** CBI 4,R3 IS THIS AN 'ATTENTION' INTR
1767** JE INTR1 * YES, BCH TO END INTR SEQUENCE
1768**INTET TBTS (R4,ER) SET ERROR ON I/O COMMAND CNTL BIT
1769** J INTR1
1770** THE ERROR INTERRUPT USES THE SAME
1771** ENDING SEQUENCE AS THE NORMAL INTR
1772** *****14APP76**
1773** *****
1774**
1775** SOUBROUTINE
1776**
1777** OKAY INTERRUPT RUNS ON INTERRUPT LEVEL 'SINTL'
1778**
1779** PURPOSE
1780**
1781** TO CHECK THE INTERRUPT AND CONTINUE THE TEST
1782**
1783** CALLING SEQUENCE
1784**
1785** SUPERVISOR WILL ENTER HERE IF INTR CC IS AS REQUESTED
1786** THE ERROR INTERRUPT HANDLER WILL BRANCH TO THIS ROUTINE
1787** AFTER THE SPECIAL PART HAS BEEN COMPLETED AND THE
1788** COMMON SECTION IS HANDLED HERE.
1789**
1790** RETURN CONTROL
1791**
1792** SVC EXIT RETURN TO USER VIA SUPVR
1793**
1794** *****
1795**INTOK DC X'706E' COPY STATUS ANY LEVEL INTO R3
1796** SRL 13,R3 POSITION INDICATORS IN R3
1797** MVA OPIN1,R4 SET UP BASE ADPS
1798**INTR1 TBTS (R4,IN) SET INTERRUPT RECEIVED
1799** TBT (R4,CS) IS 'CS IN PROGRESS' ON
1800** JON INTR2 * YES, BCH AROUND UPDATE
1801** MVB R3,$IOIN+1 SAVE INTERRUPTING CC CODE
1802** MVB R7,$ISB SAVE INTR STATUS AND DEV ADRS
1803**INTR2 EQU *
1804** CPCI R5 CURRENT LEVEL COPIED BY DCP
1805** SLI 4,R5 POSITION INTR LEVEL AND PUT
1806** ABI 1,R5 * IN 'I' BIT
1807** CW $INTL,R5 IS THIS THE CORRECT INTR LEVEL
1808** JE INTR3 * YES, GO EXIT THIS LEVEL
1809** TBTS (R4,$LE) SET INTR LEVEL ERROR CONTROL BIT
1810** TBTS (R4,ER) SET ERROR ON I/O COMMAND CNTL BIT

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0030FE 706E
003100 336A
003102 C328 2AE0
003106 68D2 0000

00310A 706E
00310C 336A
00310E 4424 2ADB
003112 4C28
003114 4066
003116 4C6A
003118 6F0D 2B0C
00311C C328 2B0D
003120 500A
003122 4C24
003124 1002
003126 F304
003128 1006
00312A 4C61
00312C 5004

00312E 706E
003130 336A
003132 4424 2ADB
003136 4C63
003138 4C28
00313A 1204
00313C C328 2AE1
003140 6F0D 2AE2
003144
003144 3521
003146 0501
003148 CD24 2B14
00314C 1002
00314E 4C66
003150 4C61

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976

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003152 4CA2 1811*INTR3 TBTF (R4,XI) WAS INTERRUPT EXPECTED IL
003154 1204 1812+ JON INTRX * YES, EXIT OFF THIS INTR LEVEL IL
003156 4C60 1813+ TBTS (R4,MI) * NO, SET MYSTERY INTR CONTROL BIT IL
003158 F304 1814+ CBI 4,R3 ATTENTION INTERRUPT? IL
00315A 1001 1815+ JE INTRX YES IL
00315C 4C6C 1816+ TBTS (R4,NG) ERROR, UNEXPECTED INTERRUPT IL
00315E 6006 1817*INTRX SVC EXIT THIS LEVEL VIA SUPVR TO PGM IL
1819** *****03FEB76**
1820**
1821** THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
1822** HAS BEEN SERVICED. THE EXECISER FINDS AN INTERRUPT HAS BEEN
1823** RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
1824**
1825**
1826**XIOCK TBTF (R4,XE) WAS AN ERROR EXPECTED IL
1827+ EN (R6,2) * YES, EXIT THIS ROUTINE IL
1828+ TBTR (R4,CS) WAS AUTO CS IN PROGRESS IL
1829+ JOFF XIOCV * NO, CONTINUE CHECKING IL
1830+ TBT (R4,CE) IS CS IN AN ERR CONDITION IL
1831+ JOFF XIOCO * NO, BCH IL
1832+ B (R6)* CS ERROR IL
1833**XIOCO TBTS (R4,CSA) TURN ON CS STATS AVAIL FLAG IL
003172 4C69 1834+ BXS (R6,2) GO TO USER IL
003174 5601 1835**XIOCV TBT (R4,ER) WAS ERROR IL
003176 4C21 1836+ JOFF XIOCX * NO, EXIT THIS ROUTINE IL
1837**
1838+ MVB $IOIN+1,R5 GET LAST INTR CC CODE IL
00317A C520 2AE1 1839+ CBI 2,R5 IS THIS CC=2 IL
00317E F502 1840+ BNE (R6)* * NO, BCH TO ERROR HANDLER IL
003180 68D1 0000 1841**XIOCO MVB $ISB,R5 GET LAST ISB DATA BYTE AND IF CS IL
003184 C520 2AE2 1842+ EN XIOCS-4 * AVAILABLE, GO AND GET IT IL
003188 6A00 309E 1843+ B (R6)* ERROR IL
00318C 68D2 0000 1844**XIOCX MVWZ OPTN3,R3 CLEAR OUT OPTION 3 CNTL BITS IL
003190 CB25 2ADC 1845+ BXS (R6,2) RETURN TO USER VIA REG 6 IL
1846**
1847** I/O PARAMETER LIST
1848**
1849**IOBLK DC A(DEVADD) ADRS OF DEVICE ADRS IL
003196 19D0 1850+ DC A(XIOER) ERROR ROUTINE ADRS IL
003198 30FE 1851**IODCB DC A(*-*) DCB ADRS OF LEVEL & INTR IL
00319A 0000 1852**IOMOD DC A(*-*) MODIFIER IL
00319C 0000 1853+ DC A(*-*) ADRS OF LAST SVC CALL IL
00319E 0000 1854**IORSP DC A(*-*) SECOND WORD OF LAST IDCB IL
1855**
1856** INTEPRUPT CONTROL BLOCK FOR I/O COMMANDS
1857**
1858**INTBL DC A(DEVADD) ADRS OF DEVICE ADRS IL
0031A2 19D0 1859+ DC A(INTOK) INTERRUPT OK RETURN ADRS IL
0031A4 312E 1860+ DC A(INTRER) INTERRUPT ERROR ADRS IL
0031A6 310A 1861**INTCC DC X'0003' INTERRUPT CODE EXPECTED IL
0031A8 0003 1863** *****11MAY76**
1864**
1865** SUBROUTINE
1866**
1867** CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE
1868**
1869** PURPOSE
1870**
1871** TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
1872** PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE
1873** TO INTERRUPT.
1874**
1875** CALLING SEQUENCE
1876**
1877** THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
1878**
1879** --> BAL $CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BLK
1880** --> BAL $CONCP,R6 PREPARE DEVICE ONLY, ALREADY CONNECT
1881**
1882** RETURN CONTROL
1883**
1884** BXS (R6,2) RETURN TO USER VIA REG 6 IF OKAY
1885** OR B (R6)* IF THE DEVICE COULD NOT BE CONNECTED
1886**
1887** *****
1888**$CONC MVB 6,R7 NUMBER OF BYTE TO CLEAR IL
0031AC 0B00 1889+ MVB 0,R3 * AND THE DATA TO USE IL
0031AE 4524 2AE6 1890+ MVA DEV1,R5 * ALONG WITH THE ADRS TO USE IL
0031B2 2BAC 1891+ FFN R3,(R5) * IL
0031B4 CB25 2ADC 1892+ MVWZ OPTN3,R3 CLEAR OLD CONTROLS FOR NEW ROUTINE IL
0031B8 4724 31A2 1893+ MVA INTBL,R7 SET R7 TO CONTROL BLOCK AND IL
0031BC 6014 1894+ SVC C1CB * CONNECT IT TO THIS DEVICE IL
0031BE 6A00 0000 1895+ EN (R6)* ERROR RETURN TO USER IL
1896**
0031C2 8828 2B14 319A 1897**$CONCP MVB $INTL,IODCB PUT IN LEVEL & INTR PARAMETER IL
0031C8 4724 3196 1898+ MVA IOBLK,R7 SET R7 TO CONTROL BLOCK TO PREPARE IL
0031CC 4020 2AE0 0708 1899+ MVB X'0708',$IOIN INITIALIZE CONDITION CODE STORAGE IL
0031D2 CB25 2AE2 1900+ MVWZ $ISB,R3 * AND CLEAR OLD ISB VALUE IL
0031D6 6E0D 2AE4 1901+ MVB R6,$STIO SET UP ADDRESS THAT STARTED LAST I/O IL
0031DA 600C 1902+ SVC PREP * AND CALL ON SUPVR IL
0031DC 5601 1903+ BXS (R6,2) RETURN TO USER IL
1905** *****06APP76**
1906**
1907** SUBROUTINE
1908**
1909** DISCONNECT THE INTERRUPT CONTROL BLOCK AND LOG ERRORS
1910**
1911** PURPOSE
1912**
1913** DISCONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
1914** SET THE 'NO GOOD' CONTROL BIT, THEN LOG THE DATA THAT HAS
1915** BEEN FOUND TO HELP THE OPERATOR DEFINE THE ERROR CONDITION.
1916**
1917** CALLING SEQUENCE
1918**
1919** THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
1920**
1921** --> B $ERRS SET 'NG' BIT AND CONVERT DATA TO LOG IL
1922** --> B $CONX RETURN TO MDI SUPERVISOR TO TEST SIS IL
1923**
1924** RETURN CONTROL
1925**
1926** B TURTN* RETURN TO MDI IL
1927** OR B (R6)* IF THE DEVICE COULD NOT BE CONNECTED

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LOCTR	OBJECT TEXT	STMT SOURCE STATEMENT	COPYRIGHT IBM CORP 1976
1928**			
1929**			
1930**			
0031DE	4020 1818 8000	MVHI X'8000',TUSTATUS	SET ON 'NO GOOD' STATUS BIT
0031E4	4724 3348	MVA HEBLK,R7	GET ADRS OF CONTROL BLOCK
0031E8	601A	SVC HTOE	CONVEPT HEX TO EBC VIS DCP
0031EA	0D03	1933**	
0031EC	4324 181A	MVA TWORK,R3	SET UP BUFFER STORAGE
0031F0	6B0D 3340	MVW R3,BUFPT	
0031F4	4124 3270	MVA LINE1,R1	
0031F8	0F04	MVBI 4,R7	
0031FA	0E08	MVBI 8,R6	
0031FC	2B24	MVFN (R3),(R1)	
0031FE	0F04	MVEI 4,R7	
003200	0A40	MVEI X'40',R2	
003202	C258	MVB F2,(R1)+	
003204	BEFB	JCT MVBUF,R6	
003206	0E08	MVBI 8,R6	
003208	7921 002C	AWI 44,R1	
00320C	BDF7	JCT MVBUF,R5	
00320E	4020 1802 F1F0	MVNI PIDMSG10,PID+2	
003214	4020 19B8 3346	MVA FAKETU,@DCADD1	
00321A	4020 19BA 3342	MVA DC2PT,@DCADD2	
003220	402C 19C4 0080	OWI BIT0080,SUPSTAT	
003226	4324 2ADE	MVA STUID,R3	SET UP BUFFER STORAGE
00322A	6F13 18BA	BAL TMSGWTR*,R7	GO TO MESSAGE WRITER
1952**			
00322E			
003232	C720 19D0	EQU *\$CONX	
003232	6013	MVB DEVADD,R7	GET DEVICE ADDRESS FROM MDI
003234	6812 2B16	SVC RIBC	RELEASE INTERRUPT CONTROL BLOCK
		B TURTN*	RETURN TO MDI SUPERVISOR
1957**			
003238	0007	1958**	
00323A	0008	1959**	
00323C	5C5C40C1C2D6D9E3	DC A(0007)	NUMBER OF LINES TO PRINT
003244	0028	DC A(0008)	LINE LENGTH = 8 CHAP
003246	E3E4C9C440C9D6C9D	DC C'***ABORT'	
00324E	0028	DC A(0040)	LINE LENGTH = 40 CHAR
003270	40404040404040404	DC C'TUID IOIN ISB INST	DEV1 DEV2 DEV3 DEV4
003298	0028	DC A(0040)	LINE LENGTH = 40 CHAR
00329A	C3D5E3D340C4C3C2F	DC C'CNTRL DCB2 DCB3 DCB4	DCB5 CHAD BYCT ADRS
0032C2	0028	DC A(0040)	LINE LENGTH = 40 CHAR
0032C4	40404040404040404	DC C'	
0032EC	0028	DC A(0040)	LINE LENGTH = 40 CHAR
0032EE	D9E2C9C440C3E260F	DC C'PSID CS-2 CS-3 CS-4	CS-5 CS-6 CS-7 CS-8
003316	0028	DC A(0040)	LINE LENGTH = 40 CHAR
003318	40404040404040404	DC C'	
1974**			
003340	0000	1975**	
003342	3238	DC A(*-*)	
003344	0101	DC A(BEGIN)	
003346		DC X'0101'	
00F1F0		1978**	
000080		DC FAKETU	
		1979**	
		EQU X'F1F0'	
		1980**	
		EQU X'0080'	
1981**			
1982**			
1983**			
003348	0030	DATA CONTROL BLOCK FOR CONVERTING HEX TO EBCDIC	
00334A	2ADE	1984**	
00334C	181A	DC A(48)	NUMBER OF BYTES TO CONVERT
000000		DC A(STUID)	FROM ADRS
		DC A(TWORK)	AND THE TO ADRS
		1987**	
		END	

DECLARED	NAME	ATTRIBUTES AND REFERENCES	CROSS-REFERENCE LISTING	COPYRIGHT IBM CORP 1976
0	.R0.	ABSOLUTE. HEX VALUE(00000000)		
		838 839 850 852 926	932 934 940 1036	
		1037 1044 1046 1444 1445 1446	1447 1451 1452	
		1453 1454		
0	.R1.	ABSOLUTE. HEX VALUE(00000001)		
		929 930 937 938 1936	1939 1942 1945	
0	.R2.	ABSOLUTE. HEX VALUE(00000002)		
		853 854 855 866 869	872 875 881 882	
		894 941 946 956 959	962 965 968 980	
		983 985 989 1941 1942		
0	.R3.	ABSOLUTE. HEX VALUE(00000003)		
		885 1350 1351 1392 1396	1398 1477 1479 1535	
		1538 1542 1545 1556 1559	1572 1575 1645 1655	
		1658 1659 1662 1664 1720	1721 1756 1762 1766	
		1796 1801 1814 1844 1889	1891 1892 1900 1934	
		1935 1939 1951		
0	.R4.	ABSOLUTE. HEX VALUE(00000004)		
		833 858 860 889 922	942 950 1032 1648	
		1649 1652 1666 1667 1669	1670 1673 1679 1685	
		1749 1750 1764 1768 1797	1798 1799 1809	
		1810 1811 1813 1816 1826	1828 1830 1833 1835	
0	.P5.	ABSOLUTE. HEX VALUE(00000005)		
		863 864 867 870 873	876 877 878 925	
		944 953 954 957 960	963 966 969 970	
		971 1393 1397 1398 1478	1479 1536 1538 1543	
		1545 1557 1559 1573 1575	1656 1658 1660 1662	
		1678 1683 1805 1806 1807	1838 1839 1841 1890	
		1891 1933 1946		
0	.P6.	ABSOLUTE. HEX VALUE(00000006)		
		834 856 887 899 900	905 906 921 923	
		927 938 948 987 1033	1047 1051 1053 1056	
		1058 1318 1322 1324 1328	1330 1334 1337 1341	
		1343 1347 1352 1399 1400	1439 1480 1654 1674	
		1686 1722 1827 1832 1834	1840 1843 1845 1895	
		1901 1903 1938 1943 1944		
0	.R7.	ABSOLUTE. HEX VALUE(00000007)		
		676 831 848 1030 1042	1391 1395 1476 1537	
		1544 1558 1574 1657 1661	1668 1761 1802 1888	
		1893 1898 1931 1937 1940	1952 1955	
1888	\$CONC	ADDRESS. HEX LOCATION(000031AA)	IN CSECT(I7862)	LENGTH(2)
1954	\$CONX	ADDRESS. HEX LOCATION(0000322E)	IN CSECT(I7862)	LENGTH(1)
1930	\$ERR\$	ADDRESS. HEX LOCATION(000031DE)	IN CSECT(I7862)	LENGTH(6)
665	\$INTL	ADDRESS. HEX LOCATION(00002B14)	IN CSECT(I7862)	LENGTH(2)
635	\$IOIN	ADDRESS. HEX LOCATION(00002AE0)	IN CSECT(I7862)	LENGTH(2)
636	\$ISB	ADDRESS. HEX LOCATION(00002AE2)	IN CSECT(I7862)	LENGTH(2)
620	\$LE	ABSOLUTE. HEX VALUE(00000026)		
1531	\$RECL	ADDRESS. HEX LOCATION(00002FD0)	IN CSECT(I7862)	LENGTH(6)
1528	\$SEEK	ADDRESS. HEX LOCATION(00002FC8)	IN CSECT(I7862)	LENGTH(6)
634	\$TUID	ADDRESS. HEX LOCATION(00002ADE)	IN CSECT(I7862)	LENGTH(2)
105	@DCADD1	ADDRESS. HEX LOCATION(000019B8)	IN CSECT(I7862)	LENGTH(1)
106	@DCADD2	ADDRESS. HEX LOCATION(000019BA)	IN CSECT(I7862)	LENGTH(1)
42	@FIXT	ABSOLUTE. HEX VALUE(00000101)		
47	@QUXX	ABSOLUTE. HEX VALUE(00000400)		
48	@TUXX	ABSOLUTE. HEX VALUE(00000500)		
1959	BEGIN	ADDRESS. HEX LOCATION(00003238)	IN CSECT(I7862)	LENGTH(2)
1980	BIT0080	ABSOLUTE. HEX VALUE(00000080)		
1975	BUFPT	ADDRESS. HEX LOCATION(00003340)	IN CSECT(I7862)	LENGTH(2)
1219	CB29	ADDRESS. HEX LOCATION(00002E5E)	IN CSECT(I7862)	LENGTH(2)
1349	CCERR	ADDRESS. HEX LOCATION(00002F30)	IN CSECT(I7862)	LENGTH(2)
624	CE	ABSOLUTE. HEX VALUE(0000002A)		
704	CICB	ABSOLUTE. HEX VALUE(00000014)		
976	CK41	ADDRESS. HEX LOCATION(00002CE2)	IN CSECT(I7862)	LENGTH(6)
981	CK411	ADDRESS. HEX LOCATION(00002CF4)	IN CSECT(I7862)	LENGTH(6)
985	CK412	ADDRESS. HEX LOCATION(00002D00)	IN CSECT(I7862)	LENGTH(2)
1088	CLDCB	ADDRESS. HEX LOCATION(00002D8C)	IN CSECT(I7862)	LENGTH(2)
1365	CPUID	ABSOLUTE. HEX VALUE(00000232)		
622	CS	ABSOLUTE. HEX VALUE(00000028)		
623	CSA	ABSOLUTE. HEX VALUE(00000029)		
653	CSBUF	ADDRESS. HEX LOCATION(00002AFE)	IN CSECT(I7862)	LENGTH(1)
1138	CSDCB	ADDRESS. HEX LOCATION(00002DDC)	IN CSECT(I7862)	LENGTH(2)
661	CSTL8	ADDRESS. HEX LOCATION(00002B0C)	IN CSECT(I7862)	LENGTH(2)
643	DCBUF	ADDRESS. HEX LOCATION(00002AEE)	IN CSECT(I7862)	LENGTH(1)
1976	DC2PT	ADDRESS. HEX LOCATION(00003342)	IN CSECT(I7862)	LENGTH(2)
108	DEVADD	ADDRESS. HEX LOCATION(000019D0)	IN CSECT(I7862)	LENGTH(1)
638	DEV1	ADDRESS. HEX LOCATION(00002AE6)	IN CSECT(I7862)	LENGTH(2)

Table with columns: DECLARED, NAME, ATTRIBUTES AND REFERENCES. Contains entries for DGDCEB, DUMMY, ENTPT, EQ, ER, EXIT, FAKETU, FIVE9, F00007, F00033, F00053, F00057, F00066, F00082, F00089, F00092, HEBLK, HTOE, IDCBC1, IDCBC2, IDCBRAP, IDCBO, IDCBC1, IDLE, IN, INTBL, INTER, INTBS, INTET, INTOK, INTRX, INTR1, INTR2, INTR3, IOBLK, IODCB, IOMOD, I7862, LGSEC, LINE1, LSTIO, MI, MVBUP, NG, NI, N00001, N00002, N00003, N00004, N00005, N00006, N00007, N00008, N00009, N00010.

Table with columns: DECLARED, NAME, ATTRIBUTES AND REFERENCES. Contains entries for N00011, N00012, N00013, N00014, N00015, OPTN1, OPTN3, PAFMARA, PHYSC, PID, PIDMSG10, PREP, RDATA, PDCEB, RESET, RIBC, RKDCB, RSDCB, RTT01, SCTID, SCTST, SENS1, SKDCB, SKTK, START, STATS, SUPSTAT, S13E, TT303, TT304, TT4Y, TT41, TT41A, TT411, TUMSGWTR, TURESUL, TURTN, TUSTATUS, TUWORK, T36T, T36T1, T36T2, T41A, T41AA, T41BB, T41C, T41CC, T41D, T41DD, T41E, T41F, T41FF, T41G.

CFOSS-REFEPENCE LISTING

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
989	T41H	ADDRESS. HEX LOCATION(00002D0A) IN CSECT(I7862) LENGTH(2)
914	T41K	ADDRESS. HEX LOCATION(00002C4C) IN CSECT(I7862) LENGTH(4)
1257	T41LP	ADDRESS. HEX LOCATION(00002EAA) IN CSECT(I7862) LENGTH(2)
897	T41S	ADDRESS. HEX LOCATION(00002C00) IN CSECT(I7862) LFNGTH(6)
867	T41SS	ADDRESS. HEX LOCATION(00002BA8) IN CSECT(I7862) LENGTH(2)
876	T41T	ADDRESS. HEX LOCATION(00002BBA) IN CSECT(I7862) LENGTH(2)
850	T41TC	ADDRESS. HEX LOCATION(00002B74) IN CSECT(I7862) LENGTH(4)
870	T41TT	ADDRESS. HEX LOCATION(00002BAE) IN CSECT(I7862) LENGTH(2)
873	T41UU	ADDRESS. HEX LOCATION(00002BB4) IN CSECT(I7862) LENGTH(2)
896	T41W	ADDRESS. HEX LOCATION(00002BFA) IN CSECT(I7862) LENGTH(6)
905	T41Y	ADDRESS. HEX LOCATION(00002C28) IN CSECT(I7862) LENGTH(4)
899	T41Z	ADDRESS. HEX LOCATION(00002C0C) IN CSECT(I7862) LENGTH(4)
974	T410	ADDRESS. HEX LOCATION(00002CDE) IN CSECT(I7862) LENGTH(4)
934	T411	ADDRESS. HEX LOCATION(00002C78) IN CSECT(I7862) LENGTH(4)
941	T412	ADDRESS. HEX LOCATION(00002C8C) IN CSECT(I7862) LENGTH(2)
942	T413	ADDRESS. HEX LOCATION(00002C8E) IN CSECT(I7862) LENGTH(2)
935	T414	ADDRESS. HEX LOCATION(00002C7C) IN CSECT(I7862) LENGTH(4)
948	T417	ADDRESS. HEX LOCATION(00002C9E) IN CSECT(I7862) LENGTH(4)
927	T418	ADDRESS. HEX LOCATION(00002C66) IN CSECT(I7862) LENGTH(4)
1045	T736	ADDRESS. HEX LOCATION(00002D44) IN CSECT(I7862) LENGTH(2)
851	T741	ADDRESS. HEX LOCATION(00002B78) IN CSECT(I7862) LENGTH(2)
1030	T7836	ADDRESS. HEX LOCATION(00002D10) IN CSECT(I7862) LENGTH(4)
831	T7841	ADDRESS. HEX LOCATION(00002E26) IN CSECT(I7862) LFNGTH(4)
1160	VPDCB	ADDRESS. HEX LOCATION(00002DFC) IN CSECT(I7862) LENGTH(2)
1182	WKDCB	ADDRESS. HEX LOCATION(00002E1C) IN CSECT(I7862) LENGTH(2)
1149	WRDCB	ADDRESS. HEX LOCATION(00002DEC) IN CSECT(I7862) LENGTH(2)
1258	WPLCT	ADDRESS. HEX LOCATION(00002EAC) IN CSECT(I7862) LENGTH(2)
1221	WRSID	ADDRESS. HEX LOCATION(00002E62) IN CSECT(I7862) LENGTH(2)
1093	WSDCB	ADDRESS. HEX LOCATION(00002D9C) IN CSECT(I7862) LENGTH(2)
1225	WSIDT	ADDRESS. HEX LOCATION(00002E6A) IN CSECT(I7862) LENGTH(2)
618	XF	ABSOLUTE. HEX VALUE(00000024)
616	XI	ABSOLUTE. HEX VALUE(00000022)
1645	XIO	ADDRESS. HEX LOCATION(00003098) IN CSECT(I7862) LENGTH(4)
1826	XIOCK	ADDRESS. HEX LOCATION(00003160) IN CSECT(I7862) LENGTH(2)
1833	XIOCO	ADDRESS. HEX LOCATION(00003172) IN CSECT(I7862) LENGTH(2)
1650	XIOCS	ADDRESS. HEX LOCATION(000030A2) IN CSECT(I7862) LENGTH(6)
1835	XIOCV	ADDRESS. HEX LOCATION(00003176) IN CSECT(I7862) LENGTH(2)
1844	XIOCX	ADDRESS. HEX LOCATION(00003190) IN CSECT(I7862) LENGTH(4)
1719	XIOER	ADDRESS. HEX LOCATION(000030FE) IN CSECT(I7862) LENGTH(2)
1654	XIO1	ADDRESS. HEX LOCATION(000030B2) IN CSECT(I7862) LENGTH(4)
1667	XIO2	ADDRESS. HEX LOCATION(000030D8) IN CSECT(I7862) LENGTH(2)
1679	XIO8	ADDRESS. HEX LOCATION(000030EC) IN CSECT(I7862) LFNGTH(2)
1203	ZERO0	ADDRESS. HEX LOCATION(00002E3C) IN CSECT(I7862) LENGTH(2)