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LOCTR OBJECT TEXT      STMT SOURCE STATEMENT      COPYRIGHT IBM CORP 1976
3      COPY LOG7A69      ** MAP EC HISTORY **
4      *****
5      **
6      *** PREREQUISITES ***
7      **
8      NONE
9      **
10     *****
11     **
12     *** MODIFICATIONS ***
13     **
14     CHANGES MADE TO CORRECT ERRORS FOUND WHILE IN TEST
15     **
16     *****
17     **
18     *** REA'S INCORPORATED ***
19     **
20     NONE
21     **
22     *****
23     **
24     *** SPECIAL INSTRUCTIONS ***
25     **
26     NONE
27     **
28     *****
29     **
30     *** E. C. HISTORY ***
31     **
32     DATE 17AUG78 DATE 02OCT78 DATE 10JAN79 DATE
33     E.C. 755391 E.C. 375102 E.C. 375222 E.C.
34     *****
35     START X'2500' START ADDRESS OF ALL 'I' TYPE PROG
37 I7A69 EQU X'0100' EQUATED VALUE FOR MDI STATEMENT
38 @QUES EQU X'0101' EQUATED VALUE FOR MDI STATEMENT
39 @FIXT EQU X'0102' EQUATED VALUE FOR MDI STATEMENT
40 @STOP EQU X'0200' EQUATED VALUE FOR MDI STATEMENT
41 @GOTO EQU X'0201' EQUATED VALUE FOR MDI STATEMENT
42 @CALL EQU X'0300' EQUATED VALUE FOR MDI STATEMENT
43 @INPT EQU X'0400' EQUATED VALUE FOR MDI STATEMENT
44 @QUXX EQU X'0500' EQUATED VALUE FOR MDI STATEMENT
45 @TUXX EQU X'0600' EQUATED VALUE FOR MDI STATEMENT
46 @NVLD EQU X'0000' EQUATE FOR EQUAL
47 EQ EQU X'0004' EQUATE FOR NOT EQUAL
48 NE EQU X'0008' EQUATE FOR HIGH
49 HI EQU X'000C' EQUATE FOR NOT HIGH
50 NH EQU X'0010' EQUATE FOR LOW
51 LO EQU X'0014' EQUATE FOR NOT LOW
52 NL EQU X'0018' EQUATE FOR LESS THAN
53 LT EQU X'000C' EQUATE FOR LESS THAN OR EQUAL TO
54 LE EQU X'0008' EQUATE FOR GREATER THAN
55 GT EQU X'0014' EQUATE FOR GREATER THAN OR EQUAL TO
56 GE EQU X'0200' EQUATE FOR ON
57 ON EQU X'0202' EQUATE FOR OFF
58 OF EQU X'0204' EQUATE FOR MIXED
59 MX EQU X'0000' EQUATE FOR EBCDIC DATA TRANSFER
60 EBC EQU X'0001' EQUATE FOR HEX DATA TRANSFER
61 HEX EQU X'0001' EQUATE FOR EXTERNAL REFERENCE
62 XTRNL EQU X'0000' EQUATE FOR INTERNAL REFERENCE
63 INTRNL EQU X'0000' EQUATE INDICATING PARAMETER
64 PARM EQU X'0001' EQUATE FOR DEVICE ADDRESS
65 DA EQU X'0002' EQUATE FOR UNIT ADDRESS
66 UA EQU X'0000' DUMMY EQUATE
67 DUMY EQU *-X'0000' ADDRESS OF MDI HEADER
68 PID EQU *-X'22CE' ADDRESS OF PROCESSOR TYPE FIELD
69 PTYPE EQU PID+X'000C' ADDRESS OF DECIMAL STEP NUMBER
70 STEPNUM EQU PWD1 EQU PWD1+X'000E' ADDRESS OF OPTION WORD ONE
71 OPWD1 EQU OPWD2 EQU OPWD2+X'0010' ADDRESS OF OPTION WORD TWO
72 OPWD2 EQU TUSTATUS EQU TUSTATUS+X'0018' ADDRESS OF TU STATUS WORD
73 TUSTATUS EQU TUPARM1 EQU TUPARM1+X'001A' ADDRESS OF TU WORK AREA
74 TUPARM1 EQU TUPARM2 EQU TUPARM2+X'009A' ADDRESS OF PARM 1 POINTER
75 TUPARM2 EQU TUPARM3 EQU TUPARM3+X'009E' ADDRESS OF PARM 2 POINTER
76 TUPARM3 EQU TUPARM4 EQU TUPARM4+X'00A0' ADDRESS OF PARM 3 POINTER
77 TUPARM4 EQU TUPARM5 EQU TUPARM5+X'00A2' ADDRESS OF PARM 4 POINTER
78 TUPARM5 EQU TUPARM6 EQU TUPARM6+X'00A4' ADDRESS OF PARM 5 POINTER
79 TUPARM6 EQU TUPARM7 EQU TUPARM7+X'00A6' ADDRESS OF PARM 6 POINTER
80 TUPARM7 EQU TUPARM8 EQU TUPARM8+X'00A8' ADDRESS OF PARM 7 POINTER
81 TUPARM8 EQU TUPARM9 EQU TUPARM9+X'00AA' ADDRESS OF PARM 8 POINTER
82 TUPARM9 EQU TUPARM10 EQU TUPARM10+X'00AC' ADDRESS OF PARM 9 POINTER
83 TUPARM10 EQU TUPARM11 EQU TUPARM11+X'00AE' ADDRESS OF PARM 10 POINTER
84 TUPARM11 EQU TUPARM12 EQU TUPARM12+X'00B0' ADDRESS OF PARM 11 POINTER
85 TUPARM12 EQU TUPARM13 EQU TUPARM13+X'00B2' ADDRESS OF PARM 12 POINTER
86 TUPARM13 EQU TUPARM14 EQU TUPARM14+X'00B4' ADDRESS OF PARM 13 POINTER
87 TUPARM14 EQU TUPARM15 EQU TUPARM15+X'00B6' ADDRESS OF PARM 14 POINTER
88 TUPARM15 EQU TUPARM16 EQU TUPARM16+X'00B8' ADDRESS OF PARM 15 POINTER
89 TUPARM16 EQU TUMSGWTR EQU TUMSGWTR+X'00BA' ADDRESS OF PARM 16 POINTER
90 TUMSGWTR EQU TUA EQU TUA+X'00BE' ADDRESS OF -> TO COMMON MSG WRITER
91 TUA EQU TUD EQU TUD+X'00C0' ADDRESS OF UNIT ADDRESS IN EBC
92 TUD EQU TUBUFF EQU TUBUFF+X'00C2' ADDRESS OF DEVICE ADDRESS IN EBC
93 TUBUFF EQU TULAST EQU TULAST+X'00C4' ADDRESS OF LAST USED WORD IN MAP
94 TULAST EQU TURESULN EQU TURESULN+X'00C6' ADDRESS OF LAST ADDRESSABLE WORD
95 TURESULN EQU TURESUL EQU TURESUL+X'00C8' ADDRESS OF LENGTH OF TU RESULTS
96 TURESUL EQU MAPNAME EQU MAPNAME+X'00FC' ADDRESS OF TU RESULTS FIELD
97 MAPNAME EQU TUINPT EQU TUINPT+X'0148' ADDRESS OF MAP NAME FIELD IN HEX
98 TUINPT EQU PARMARA EQU PARMARA+X'016E' ADDRESS OF $INPT DATA
99 PARMARA EQU @DCADD1 EQU @DCADD1+X'01B8' ADDRESS OF $INPT INPUT AREA
100 @DCADD1 EQU @DCADD2 EQU @DCADD2+X'01BA' MDI POINTER
101 @DCADD2 EQU SUPSTAT EQU SUPSTAT+X'01C4' MDI POINTER
102 SUPSTAT EQU DEVADD1 EQU DEVADD1+X'01D0' ADDRESS OF MDI STATUS
103 DEVADD1 EQU DEVADD2 EQU DEVADD2+X'01E4' ADDRESS OF DEVICE ADDRESS TABLE 0
104 DEVADD2 EQU DEVADD3 EQU DEVADD3+X'01EE' ADDRESS OF DEVICE ADDRESS TABLE 1
105 DEVADD3 EQU DEVADD4 EQU DEVADD4+X'01F8' ADDRESS OF DEVICE ADDRESS TABLE 2
106 DEVADD4 EQU DEVADD5 EQU DEVADD5+X'0202' ADDRESS OF DEVICE ADDRESS TABLE 3
107 DEVADD5 EQU DEVADD6 EQU DEVADD6+X'020C' ADDRESS OF DEVICE ADDRESS TABLE 4
108 DEVADD6 EQU DEVADD7 EQU DEVADD7+X'0216' ADDRESS OF DEVICE ADDRESS TABLE 5
109 DEVADD7 EQU PRINT OFF
110 PRINT OFF
111
112
113

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

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LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
308 *****
309 *****
310 **
311 ** STEP AND RULE ADDRESS TABLE **
312 **
313 *****
314 *****
315 DC AL2(N00001)
316 DC XL2'0001'

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
424**
425** 4 EXPECTED ERR/ATTENT XE 12 TEST UNIT RESULTS VOID NG
426** 5 HARD ERROR FOUND HE 13 OIO CC ERROR IOCC
427** 6 WRONG INTR LEVEL \$LE 14 NO INTERRUPT NOIN
428** 7 NO INTR EXPECTED NI 15 INTERRUPT CC ERROR INCC
429** BIT HEX
430+MI EQU 32 0 MYSTERY INTERRUPT HAPPENED
431+ER EQU 33 1 ERROR RECEIVED ON INTERRUPT
432+XI EQU 34 2 EXPECTED INTERRUPT CONTROL BIT
433+IN EQU 35 3 INTERRUPT RECEIVED CONTROL BIT
434+XE EQU 36 4 EXPECTED ERROR RESPONSE
435+HE EQU 37 5 HARD ERROR 8 RETRIES
436+\$LE EQU 38 6 INTERRUPT ON WRONG LEVEL ERROR
437+NI EQU 39 7 NO INTERRUPT EXPECTED
438+CS EQU 40 8 CYCLE STATUS IN PROGRESS
439+CSA EQU 41 9 CYCLE STEAL AVAILABLE
440+CE EQU 42 10 CYCLE STEAL STATUS INERRRUPT ERROR
441+ISBON EQU 43 11 ISB BITS ON (1-7)
442+NG EQU 44 12 TEST UNIT RESULTS NO GOOD
443+IOCC EQU 45 13 OIO CC ERROR
444+NOIN EQU 46 14 NO INTERRUPT
445+INCC EQU 47 15 INTERRUPT CC ERROR
446**
447** COMMON BUFFER FOR PRINTING DATA
448**
450+\$TUID DC A(***-*) TEST UNIT IDENTIFICATION
451+\$IOIN DC A(***-*) I/O AND INTR CONDITION CODES
452+\$ISB DC A(***-*) R7, INTP STATUS BYTE & DEV ADRS
453+\$LSTIO DC A(***-*) ADRS OF LAST I/O + 4 BYTES
454+\$DEV1 DC A(***-*) DEVICE DEPENDENT DATA
455+\$DEV2 DC A(***-*) *
456+\$DEV3 DC A(***-*) *
457+\$DEV4 DC A(***-*) *
458+\$CTID EQU DEV1 CS STATUS ERROR ISB & INTR CC
459+\$DCBUF EQU * READ ID BUFFER FOR IBIS & TERN
460+\$DCB1 DC A(***-*) DCB BUFFER FOR LAST DCB USED
461+\$DCB2 DC A(***-*) LAST DCB TABLE, CONTROL WORD
462+\$DCB3 DC A(***-*) LAST DCB TABLE, DEV DEP WORD
463+\$DCB4 DC A(***-*) LAST DCB TABLE, DEV DEP WORD
464+\$DCB5 DC A(***-*) LAST DCB TABLE, DEV DEP WORD
465+\$DCB6 DC A(***-*) LAST DCB TABLE, CHAIN ADRS
466+\$DCB7 DC A(***-*) LAST DCB TABLE, BYTE COUNT
467+\$DCB8 DC A(***-*) LAST DCB TABLE, BUFFER ADDRESS
468**
469+\$CSBUF EQU * CYCLE STEAL DATA BUFFER
470+\$CSTL1 DC A(***-*) CS STATUS WD 0, RESIDUAL ADDRESS
471+\$CSTL2 DC A(***-*) CS STATUS WD 1, RESIDUAL COUNT
472+\$CSTL3 DC A(***-*) CS STATUS WD 2, REPRY CNT WD 1
473+\$CSTL4 DC A(***-*) CS STATUS WD 3, REPRY CNT WD 2
474+\$CSTL5 DC A(***-*) CS STATUS WD 4, ERROR STATUS WD 1
475+\$CSTL6 DC A(***-*) CS STATUS WD 5, ERROR STATUS WD 2
476+\$CSTL7 DC A(***-*) CS STATUS WD 6, LAST DCB ADDRESS
477+\$CSTL8 DC A(***-*) CS STATUS WD 7, PREVIOUS HD/CYL
478+\$CSTL9 DC A(***-*) CS STATUS WD 8, CURRENT HD/CYL
479+\$CST10 DC A(***-*) CS STATUS WD 9, FLAG/SECTOR
480+\$CST11 DC A(***-*) CS STATUS WD 10, HEAD/CYLINDER
481+\$CST12 DC A(***-*) CS STATUS WD 11, DIAG BYTES 1, 2
482+\$CST13 DC A(***-*) CS STATUS WD 12, AND 3 + WRAP BYTE
483**
484+\$SUBN DC A(***-*) LAST SUBROUTINE ADDRESS USED
485+\$DATA DC 2A(***-*) OPTIONAL DATA
486+\$INTL DC X'0021' INTERRUPT INTR LEVEL REQUESTED
487+\$TURTN DC A(***-*) TEST UNIT RETURN ADRS TO MDI
488+\$DVID DC X'00' DEVICE ID
489+\$SVCAL DC A(DEVADD) ADRS OF DEVICE ADDRESS
490+ DC A(***-*) IBIS CYLINDER ADDRESS
491**
492** THIS TEST UNIT WILL RETURN TO MDI WITHOUT DOING ANY PROGRAM
493** FUNCTION. THE RESULTS THAT WERE SET UP IN THE RESULTS AREA ARE
494** STILL VALID BUT A DIFFERENT TEST IS TO BE PERFORMED.
495**
497+ T7A02 MVHI X'7A02', \$TUID SET UP TEST UNIT ID
498+ BXS (R7) RETURN TO MDI SUPVR
499+ COPY COMEQU
500 *****
501 *
502 * EQUATED NAMES FOR SUPPORTED SVC'S
503 *
504 *****
505 OUT EQU 0 OUT SVC
506 OUTIN EQU 1 OUTIN SVC
507 IDLE EQU 2 IDLE SVC
508 IDLES EQU 3 IDLE SVC - INDEPENDENT OF CPU TYPE
509 CHNGE EQU 4 CHANGE LEVEL SVC
510 PGMCKR EQU 5 ALLOW RETURN ON PROGRAM CHECK SVC
511 EXIT EQU 6 EXIT SVC
512 TERM EQU 7 TERMINATE SVC
513 RESET EQU 8 RESET DEVICE SVC
514 RID EQU 9 READ ID SVC
515 START EQU 10 START CYCLE STEAL SVC
516 STCSS EQU 11 START CYCLE STEAL STATUS SVC
517 PREP EQU 12 PREPARE DEVICE SVC
518 READ0 EQU 13 READ WITH FUNCTION BIT 3 OFF SVC
519 READ1 EQU 14 READ WITH FUNCTION BIT 3 ON SVC
520 RSTAT EQU 15 READ STATUS SVC
521 WRID EQU 16 WRITE WITH FUNCTION BIT 3 ON SVC
522 WRIT1 EQU 17 WRITE WITH FUNCTION BIT 3 ON SVC
523 CTRL EQU 18 CONTROL SVC
524 RICB EQU 19 RELEASE INTERRUPT CONTROL BLOCK SVC
525 CICB EQU 20 CONNECT INTERRUPT CONTROL BLOCK SVC
526 HIO EQU 21 HALT ALL I/O
527 REOSD EQU 22 REQUEST USE OF DCP DISK SVC
528 RELSD EQU 23 RELEASE USE OF DCP DISK SVC
529 HALT EQU 24 HALT SVC
530 ETOH EQU 25 EBCDIC TO HEX SVC (STRING)
531 HTOH EQU 26 HEX TO EBCDIC SVC (STRING)
532 ATOH EQU 27 ASCII TO HEX SVC (STRING)
533 HTOA EQU 28 HEX TO ASCII SVC (STRING)
534 ETOA EQU 29 EBCDIC TO ASCII SVC (STRING)
535 ATOE EQU 30 ASCII TO EBCDIC SVC (STRING)
536 READI EQU 31 READ DATA SETS FOR MDI/UTIL
537 WRITI EQU 32 WRITE DATA SETS FOR UTIL
539 *****
540 *

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LOCTR OBJECT TEXT      STMT SOURCE STATEMENT      COPYRIGHT IBM CORP 1976
541 *                   EQUATES USED BY TU'S AS CONSTANTS      *
542 *                   *
543 *****
00004E 544 PLUS EQU C'+      PLUS CHAR
000060 545 MINUS EQU C'-      MINUS CHAR
000000 547 ZERO EQU 0
000001 548 ONE EQU 1
000002 549 TWO EQU 2
000003 550 THREE EQU 3
000004 551 FOUR EQU 4
000005 552 FIVE EQU 5
000006 553 SIX EQU 6
000007 554 SEVEN EQU 7
000008 555 EIGHT EQU 8
000009 556 NINE EQU 9
00000A 557 TEN EQU 10
00000B 558 ELEVEN EQU 11
00000C 559 TWELVE EQU 12
00000D 560 THRTN EQU 13
00000E 561 FIVTN EQU 15
000010 562 SIXTN EQU 16
000020 563 THRY2 EQU 32
000040 564 SIXT4 EQU 64
000080 565 ONE28 EQU 128
000100 566 TWO56 EQU 256
000400 567 ONEK EQU 1024
000800 568 TWOK EQU 2048
000C00 569 THREEK EQU 3072
001000 570 FOURK EQU 4096
FFFFF0 571 M1 EQU -1
FFFFF1 572 M2 EQU -2
FFFFF2 573 M3 EQU -3
FFFFF3 574 M4 EQU -4
575 M4 EQU -4
577 *****
578 *                   THE FOLLOWING ARE EQUATES FOR BIT DISPLACEMENTS FROM THE *
579 *                   BEGINNING OF THE BYTE TO EACH BIT IN THE WORD OF SWITCHES. *
580 *                   *
581 *****
000000 582 BS0 EQU 0
000001 583 BS1 EQU 1
000002 584 BS2 EQU 2
000003 585 BS3 EQU 3
000004 586 BS4 EQU 4
000005 587 BS5 EQU 5
000006 588 BS6 EQU 6
000007 589 BS7 EQU 7
000008 590 BS8 EQU 8
000009 591 BS9 EQU 9
00000A 592 BS10 EQU 10
00000B 593 BS11 EQU 11
00000C 594 BS12 EQU 12
00000D 595 BS13 EQU 13
00000E 596 BS14 EQU 14
00000F 597 BS15 EQU 15
600 COPY T7A69DCB      15NOV77
601 **
602 *
603 *****9/11/78*****
604 *
605 *                   DCB TABLES AND DC'S
606 *
607 *****
608 *****
609 *****
610 *****
0025E0 611 DGDCB DC X'2016'      DIAGNOSTIC DCB
0025E2 612 DC X'0000'      FG/SEC
0025E4 613 DC A(*-*)      HD/CYL
0025E6 614 DC X'0000'      NOT USED
0025E8 615 DC A(RSBA)      RSB ADDR.
0025EA 616 DC A(*-*)      CHAINING ADDRESS
0025EC 617 DC X'0100'      BYTE COUNT
0025EE 618 DC A(*-*)      DATA ADDRESS
619 *
620 *****
621 *
622 *****
0025F0 622 CLDCB DC X'0001'      RECALIBRATE DCB
0025F2 623 DC 7A(*-*)
624 *
625 *****
626 *
002600 627 WSDCB DC X'082D'      WRITE SECTOR ID CNTL WORD-SE ON
002602 628 DC X'0000'      FG/SEC
002604 629 DC A(*-*)      HD/CYL
002606 630 DC A(*-*)      NOT USED
002608 631 DC A(RSBA)      RSB ADDRESS
00260A 632 DC A(*-*)      CHAIN ADDRESS
00260C 633 DC X'0004'      BYTE COUNT
00260E 634 DC A(WRSID)      ADDR OF SECTOR ID DATA
635 *
636 *****
637 *
002610 638 RSDCB DC X'2014'      READ SECTOR ID - AUTO SEEK-SE ON
002612 639 DC X'0000'      FG/SEC
002614 640 DC X'0000'      HD/CYL
002616 641 DC X'0000'      NOT USED
002618 642 DC A(RSBA)      RSB ADDRESS
00261A 643 DC X'0000'      CHAIN ADDRESS
00261C 644 DC X'0004'      BYTE COUNT FOR READ SECTOR ID
00261E 645 DC A(SCTID)      SECTOR ID DATA ADDRESS
646 *
647 *****
648 *
002620 649 SKDCB DC X'0000'      SEEK DCB
002622 650 DC X'0000'      FG/SEC
002624 651 DC F'0'      HD/CYL
002626 652 DC F'0'      NOT USED
002628 653 DC A(RSBA)      RSB ADDRESS
00262A 654 DC A(*-*)      CHAIN ADDRESS
00262C 655 DC F'0'      NOT USED
00262E 656 DC F'0'      NOT USED
657 *
658 *****

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LOCTR OBJECT TEXT      STMT SOURCE STATEMENT      COPYRIGHT IBM CORP 1976
659 *
660 CSDCB DC X'2000'      CONTROL WORD
661 DC F'0'      NOT USED
662 DC F'0'      NOT USED
663 DC F'0'      NOT USED
664 DC F'0'      NOT USED
665 DC F'0'      NOT USED
666 DC X'001A'      13 WORDS OF STATUS
667 DC A(CSBUF)      ADDRESS OF CYCLE STEAL STATUS DATA
668 *
669 *****
670 *
002640 671 WRDCB DC X'0021'      WRITE/VERIFY CNTL WORD- AUTO SEEK
002642 672 DC F'0'      FG/SEC
002644 673 DC X'0000'      HD/CYL
002646 674 DC X'0000'
002648 675 DC A(RSBA)      RSB ADDRESS
00264A 676 DC A(*-*)      CHAIN ADDRESS
00264C 677 DC X'0100'      BYTE COUNT
00264E 678 DC A(*-*)      WRITE DATA ADDRESS
679 *
680 *****
681 *
002650 682 VRDCB DC X'0011'      CONTROL WORD
002652 683 DC F'0'      FG/SEC
002654 684 DC X'0000'      HD/CYL
002656 685 DC X'0000'
002658 686 DC A(RSBA)      RSB ADDRESS
00265A 687 DC A(*-*)      CHAIN ADDRESS
00265C 688 DC F'0'      BYTE COUNT
00265E 689 DC A(*-*)      VERIFY DATA ADDRESS
690 *
691 *****
692 *
002660 693 RDDCB DC X'2010'      READ DCB CONTROL WORD - AUTO SEEK
002662 694 DC F'0'      FG/SEC
002664 695 DC X'0000'      HD/CYL
002666 696 DC X'0000'
002668 697 DC A(RSBA)      RSB ADDRESS
00266A 698 DC A(*-*)      CHAIN ADDRESS
00266C 699 DC X'0100'      BYTE COUNT
00266E 700 DC A(*-*)      READ DATA ADDRESS
701 *
702 *****
703 *
002670 704 WKDCB DC X'082F'      CONTROL WORD - SE ON
002672 705 DC X'0000'      FG/SEC
002674 706 DC A(*-*)      HD/CYL
002676 707 DC A(*-*)      NOT USED
002678 708 DC A(RSBA)      RSB ADDRESS
00267A 709 DC A(*-*)      CHAIN ADDRESS
00267C 710 DC X'0004'      BYTE COUNT
00267E 711 DC A(WRSID)      ADDR OF SECTOR ID DATA
712 *
713 *****
714 *
002680 715 RKDCB DC X'2015'      CONTROL WORD- AUTO SEEK - SE ON
002682 716 DC X'0000'      FG/SEC
002684 717 DC X'0000'      HD/CYL
002686 718 DC X'0000'      NOT USED
002688 719 DC A(RSBA)      RSB ADDRESS
00268A 720 DC A(*-*)      CHAIN ADDRESS
00268C 721 DC X'0004'      BYTE COUNT FOR READ SECTOR ID
00268E 722 DC A(SCTID)      SECTOR ID DATA ADDRESS
723 *
724 *****
725 *
002690 726 RMDCB DC X'2014'      CONTROL WORD- AUTO SEEK - SE ON
002692 727 DC F'0'      FLAG/SECTOR
002694 728 DC X'0000'      HEAD/CYLINDER
002696 729 DC X'0000'      SCAN COUNT
002698 730 DC A(RSBA)      RSB ADDRESS
00269A 731 DC A(*-*)      CHAIN ADDRESS
00269C 732 DC X'0084'      BYTE COUNT
00269E 733 DC A(ID00)      DATA AREA ADDRESS
734 *
735 *
0026A0 736 ZEREO DC X'0000'      CONSTANTS AND DEFINED STORAGE LOCATIONS
0026A2 737 ONE1 DC X'0001'      CONSTANT ONE
0026A4 738 RAY DC A(*-*)      WRITE PARAMETER POINTER
0026A6 739 WDATA DC X'EB6D'      WRITE DATA
0026A8 740 DC X'6BDB'
0026AA 741 LGSEC DC X'0000'      LOGICAL SECTOR #
0026AC 742 PHYSC DC X'0000'      CONVERTED PHYSICAL SEC #
0026AE 743 WRSID DC X'0000'      FLAG,SECTOR (WRT SECTOR ID DATA)
0026B0 744 DC X'0000'      HEAD,CYLINDER
0026B2 745 RSBA DC 6A(*-*)      RESIDUAL STATUS BLOCK
746 *
747 *****
748 *
749 *
750 *
751 *
752 *
753 *
754 *
755 *
756 *
757 *****
758 *
0026BE 759 CONV T MVW R7,CNV T8+2      SETUP RETURN ADDR
0026C2 760 MVW R1,SAVE1      SAVE CONTAINS OF R1
0026C6 761 MVB LGSEC+1,R1      GET THE SECTOR NUMBER
0026CA 762 SRL 1,R1      ALIGN IT
0026CC 763 MVB R1,PHYS+1      PLACE IT INTO PHYSICAL #
0026D0 764 TWI X'4000',HDCYL      CHECK FIXED HEADS
0026D6 765 JON CNVT6      HEAD NUMBER SAME AS PHYSICAL
0026DA 766 MVW HDCYL,R1      GET THE HEAD
0026DE 767 SLL 4,R1      SHIFT OUT EXCESS
0026E2 768 SRL 14,R1      ALIGN THE HEAD
0026E6 769 JZ CNVT6      LOGICAL =S PHYSICAL
0026EA 770 SWI 1,R1      CHECK HEADS 1,5,9
0026EE 771 JZ CNVT4      GO SET THE SECTOR
0026F0 772 SWI 1,R1      CHECK HEADS 2,6,10

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LOCTR OBJECT TEXT STMT SOURCE STATEMENT
0026EC 1010 773 JZ CNVT2 GO SET SECTOR
0026EE 802B 26AD 2768 774 CB PHYS+1,CB40 CHECK SECTOR 32
0026F4 1032 775 JE CNVT9 YES THE SAME LOCATION
0026F6 802B 26AD 2762 776 CB PHYS+1,CB07 SECTOR LESS THAN 7
0026FC 1F04 777 JLGE CNVT1 LESS THAN OR EQUAL
0026FE 402E 26AC 0008 778 SWI 8,PHYS OFFSET OF 8
002704 5023 779 J CNVT6 GO SAVE
002706 4029 26AC 0018 780 CNVT1 AWI 24,PHYS OFFSET OF 24
00270C 501F 781 J CNVT6
00270E 802B 26AD 2768 782 CNVT2 CB PHYS+1,CB40 CHECK SECTOR 32
002714 1022 783 JE CNVT9 YES THE SAME LOCATION
002716 802B 26AD 2764 784 CB PHYS+1,CB15 SECTOR LESS THAN 15
00271C 1F04 785 JLGE CNVT3
00271E 402E 26AC 0010 786 SWI 16,PHYS OFFSET OF 16
002724 5013 787 J CNVT6
002726 4029 26AC 0010 788 CNVT3 AWI 16,PHYS OFFSET OF 16
00272C 500F 789 J CNVT6
00272E 802B 26AD 2768 790 CNVT4 CB PHYS+1,CB40 CHECK SECTOR 32
002734 1012 791 JE CNVT9 YES THE SAME LOCATION
002736 802B 26AD 2766 792 CB PHYS+1,CB23 SECTOR LESS THAN 23
00273C 1F04 793 JLGE CNVT5
00273E 402E 26AC 0018 794 SWI 24,PHYS OFFSET OF 24
002744 5003 795 J CNVT6 SAVE IT
002746 4029 26AC 0008 796 CNVT5 AWI 8,PHYS OFFSET OF 8
00274C 402B 26AA 0800 797 CNVT6 THX X'000',LGSEC CHECK DISPLACED FLAG
002752 1003 798 J JOFF NO EXIT
002754 4029 26AC 0001 799 AWI 1,PHYS ADD ONE FOR DISPLACED
00275A 6908 276A 800 CNVT9 MVW SAVE1,R1 RESTORE R1
00275E 6802 0000 801 CNVT8 B RETURN
802 *
803 CB07 DC X'0700' SECTOR 7 MASK
804 CB15 DC X'0F00' SECTOR 15 MASK
805 CB23 DC X'1700' SECTOR 23 MASK
806 CB40 DC X'2000' SECTOR 32 MASK
807 SAVE1 DC X'0000' SAVE CONTAINS OF R1
808 *
810 *
811 * EXECUTE INPUT & OUTPUT COMMANDS
812 * TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
813 * EACH OF THESE ENTRIES SET R7 WITH THE ADRES OF ITS PARAMETER
814 * LIST AND ANY SPECIAL SWITCHES BEFORE BRANCHING TO THE
815 * SUPVR CALL.
816 *
817 * THIS SUBROUTINE WILL CHECK FOR THE FOLLOWING:
818 *
819 * 1. LOST INTERRUPTS BY TIMING OUT A COUNTING LOOP
820 * 2. ERROR INTERRUPTS RECEIVED FROM SUPVR
821 *
822 * THIS ROUTINE HAS THE FOLLOWING ENTRIES:
823 *
824 * 1 BAL \$RKEW,R6 READ SECTOR ID SKEWED
825 *
826 * 2 BAL \$WKEW,R6 WRITE SECTOR ID SKEWED
827 *
828 * 3 BAL \$WSEC,R6 WRITE SECTOR ID
829 *
830 * 4 BAL \$DIAG,R6 DIAGNOSTIC
831 *
832 * 5 BAL XIOCS,R6 CYCLE STEAL STATUS
833 *
834 * 6 BAL \$SEEK,R6 SEEK
835 *
836 * 7 BAL \$RECL,R6 RECALIBRATE
837 *
838 * 8 BAL \$RDID,R6 READ SECTOR ID
839 *
840 * 9 BAL \$RD,R6 READ
841 *
842 * 10 BAL \$RDVY,R6 READ VERIFY
843 *
844 * 11 BAL \$WRT,R6 WRITE
845 *
846 * 12 BAL \$RDIM,R6 READ MULTI SECTOR IDS
847 *
848 * 13 BAL \$WRT0,R6 WRITE DPC COMMANDS
849 *
850 \$SEEK MVA SKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
851 J XIO
852 *
853 \$RECL MVA CLDCB,IODCB SET UP BLOCK FOR SVC CALL
854 J XIO
855 *
856 \$RDID MVA RSDCB,IODCB SET UP BLOCK FOR SVC CALL
857 MVB X'FF',R3 SET BUFFER TO F'S
858 MVA SCDID,R5 SETUP READ SECTOR ID BUFFER ADRS
859 MVWI 4,R7 SETUP BUFFER LENGTH
860 FPN R3,(R5) INIT READ SECTOR ID BUFFER
861 J XIO
862 *
863 \$RDIM MVA RMDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
864 MVWI 132,R7 SET BUFFER LENGTH
865 ID00,R5 SET BUFFER ADDRESS
866 MVB X'FF',R3 SET CLEAR CHARACTERS
867 FPN R3,(R5) CLEAR THE BUFFER
868 J XIO
869 *
870 \$RD MVB X'FF',R3 SETRD BUFFER TO ALL F'S
871 MVW RDDCB+14,R5 SET UP READ BUFFER ADRS
872 MVWI X'0100',R7 SET UP BUFFER LENGTH
873 FPN R3,(R5) CLEAR READ BUFFER
874 \$RDS MVA RDDCB,IODCB SET UP BLOCK FOR SVC CALL
875 J XIO
876 *
877 \$RDVY MVA VRDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
878 J XIO
879 *
880 \$WRT MVA WRDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
881 J XIO
882 *
883 \$RKEW MVA RKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
884 J XIO
885 *
886 \$WKEW MVA WKDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
887 J XIO

LOCTR OBJECT TEXT STMT SOURCE STATEMENT
888 *
889 \$WSEC MVA WSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
890 J XIO
891 *
892 \$DIAG MVA DGDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
893 MVB X'FF',R3 SETRD BUFFER TO ALL F'S
894 MVW DGDCB+14,R5 SET UP READ BUFFER ADRS
895 MVWI X'0100',R7 SET UP BUFFER LENGTH
896 FPN R3,(R5) CLEAR READ BUFFER
897 J XIO
898 *
899 COPY T7AXEQ 09MAR78
900 PRINT OFF
901 T7AXEQ
1465 *****29JUL76**
1466 *
1467 *
1468 * SUB-ROUTINE
1469 *
1470 * EXECUTE INPUT AND OUTPUT COMMANDS
1471 *
1472 * PURPOSE
1473 *
1474 * TO EXECUTE ALL I/O COMMANDS FROM A COMMON PLACE.
1475 * THIS SUBROUTINE WILL DO THE FOLLOWING FUNCTIONS:
1476 *
1477 * 1. SAVE THE ADDRESS THAT POINTS TO THE INSTRUCTION THAT STARTED
1478 * THE I/O COMMAND.
1479 * 2. SAVES THE DCB BLOCK USED UNLESS IT IS A START CYCLE STATUS
1480 * ISSUED BY THIS SUBROUTINE.
1481 * 3. CLEAR OUT THE CYCLE STEAL STATUS STORAGE UNLESS THE
1482 * START CYCLE STATUS WAS ISSUED BY THIS SUBROUTINE.
1483 * 4. RESETS THE INTERRUPT INDICATOR AND CHECKS FOR ANY INTERRUPT
1484 * SINCE THE LAST EXPECTED INTERRUPT. IF AN INTERRUPT IS FOUND,
1485 * MYSTERY INTERRUPT (MI) CONTROL BIT IS SET.
1486 * 5. MOVES THE ADDRESS OF THE I/O CONTROL BLOCK IN R7, SET THE
1487 * EXPECTED INTERRUPT CONTROL BIT AND ISSUE THE 'SVC START'.
1488 * 6. WHEN THE SUPVR RETURNS AFTER ISSUING THE I/O COMMAND, TIMING
1489 * STARTS TO DETERMINE A LOST INTERRUPT.
1490 * 7. EXCEPT THE INTERRUPT AND GATHER INFORMATION TO DETERMINE IF IT
1491 * WAS AN ERROR OR OKAY AND EXIT OFF THE INTERRUPT LEVEL.
1492 * 8. CHECK IF THERE WAS A WRONG INTERRUPT LEVEL.
1493 * 9. CHECK IF AN ERROR WAS EXPECTED AND IF THERE WAS RETURN.
1494 * 10. CHECK IF THERE WAS AN ERROR CONDITION, IF NOT RETURN.
1495 * 11. CHECK TO SEE IF THE EXERCISER IS TO BE TERMINATED.
1496 * 12. CHECK IF A CYCLE STEAL OPERATION WAS IN PROGRESS THAT WAS
1497 * ISSUED BY THIS SUBROUTINE.
1498 * 13. CHECK THE ISB BITS THAT ARE ON. IF BIT 0 IS ON, ISSUE A
1499 * CYCLE STEAL STATUS COMMAND. CHECK FOR ANY OTHER BIT BEING ON,
1500 * COUNT IT AND SET UP THE PROPER ERROR MESSAGE TO BE PRINTED.
1501 *
1502 * CALLING SEQUENCE
1503 *
1504 * THIS ROUTINE HAS THE FOLLOWING ENTRIES:
1505 *
1506 * --> BAL XIO OR XEQ ANY CYCLE STEAL COMMAND, MOD=0
1507 * --> BAL XIO1 MOD PARM PRELOADED IN 'IOMOD'
1508 * --> BAL XIOCS,R6 OR XEQ START CYCLE STEAL STATUS, MOD=F
1509 * --> BAL XIOCS-4,R6 AUTO CS STATUS (FOLLOWING OTHER XIO
1510 * AND DOES NOT POST INTERRUPT STATUS)
1511 *
1512 * RETURN CONTROL
1513 *
1514 * BXS (R6,2) RETURN TO USER NO ERROR
1515 * OR B (R6)* RETURN AND RETRY ON ERROR
1516 * *****
1517 *
1518 * XIO MVWZ IOMOD,R3 SET MOF OF 0 FOR CYCLE STEAL OP
1519 * J XIO1 CS I/O'S ARE NOT RETRIED
1520 *
1521 * XIODG MVWI X'000D',IOMOD SET MODIFIER FOR DIAGNOSTIC OPS
1522 * J XIO1 GO TO CS OPS
1523 *
1524 * TBTR (R4,CE) RESET CS STATUS INTER ERROR INDICAT.
1525 * TBTS (R4,CS) SET 'CYCLE STEAL STATUS' IN PROGRESS
1526 * XIOCS MVA CSDCB,IODCB SET UP CONTROL BLOCK FOR SVC CALL
1527 * MVWI X'000F',IOMOD SET CYCLE STEAL MODIFIER
1528 * TBTR (R4,CS) IS CS IN PROGRESS, ERROR CONDITION
1529 * JON XIO2 * YES, BYPASS SAVING I/O ADRS
1530 * XIO1 MVW R6,LS10 SAVE IAR FOR RETRY IF REQUESTED
1531 * MVA DCBUF,R3 SET UP TO ADRS TO MOVE DCB TABLE
1532 * MVW IODCB,R5 * AND THE FROM ADRS, ALONG WITH
1533 * MVB 26,R7 * THE NUMBER OF MOVES
1534 * MVFN (R5),(R3) MOVE 1 STATUS WORD AND ADJUST
1535 * MVB 255,R3 CLEAR CYCLE STATUS BUFFER
1536 * MVA CSBUF,R5 * TO ALL ONES *
1537 * MVB 26,R7 *
1538 * FPN R3,(R5) *
1539 * MVWI X'070B',SIOIN OVERLAY OLD CONDITION CODES
1540 * MVWZ \$ISB,R3 ZERO OUT OLD ISB VALUE
1541 *
1542 * TBTR (R4,ER) RESET ANY ERROR BEFORE I/O COMMAND
1543 * XIO2 TBTR (R4,IN) CLEAR INTERRUPT RECEIVED CNTL BIT
1544 * MVA IOBLK,R7 SET UP CONTROL BLOCK FOR SUPVR
1545 * TBTR (R4,\$LE) RESET LEVEL ERROR INDICATOR
1546 * TBTS (R4,XI) SET EXPECTED INTR CONTROL BIT
1547 * SVC START CALL SUPVR FOR I/O COMMAND
1548 *
1549 * TBTR (R4,NI) IS AN INTR EXPECTED
1550 * BN (R6,2) * NO, RETURN TO USER
1551 *
1552 * THE INTR SHOULD OCCUR WHILE SPINNING IN THE NEXT SECTION
1553 *
1554 * MVWI 0,R5 SET UP WORK REG FOR 'LOST INTR'
1555 * XIO8 TBTR (R4,IN) HAS INTERRUPT BEEN RECEIVED
1556 * JON XIOCK * YES, CHECK IF ALL WAS SATISFACTORY
1557 * SVC IDLE ALLOW ANOTHER PROGRAM A CHANCE TO RUN
1558 * SUPVR WILL RETURN HERE
1559 * SVC IDLE ALLOW ANOTHER PROGRAM A CHANCE TO RUN
1560 * SUPVR WILL RETURN HERE
1561 * MVWI 1,R5 ADVANCE TIME OUT COUNT
1562 * JNZ XIO8 BCH IF TIME OUT NOT REACHED
1563 * TBTS (R4,ER) SET ON ERROR CONTROL BIT
1564 * B (R6)* ERR 'NO INTERRUPT'
1565 * *****
1566 * *****03FEB76**
1567 *

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
1568** SUBROUTINE
1569**
1570** I/O EXECUTE ERROR HANDLING ROUTINE
1571**
1572** PURPOSE
1573**
1574** THIS ROUTINE WILL COLLECT INFORMATION TO HELP DETERMINE THE
1575** PROBLEM THAT WAS FOUND WHEN THE I/O COMMAND WAS ISSUED BY THE
1576** SUPERVISOR AND IT WAS NOT ACCEPTED.
1577**
1578** CALLING SEQUENCE
1579**
1580** SUPVR WILL ENTER WHEN AN ERROR OCCURS ON AN I/O COMMAND
1581**
1582** RETURN CONTROL
1583**
1584** B (R6)* RETURN TO USERS ERROR HANDLER
1585**
1586** *****
1587**
1588** CC 0= DEVICE NOT ATTACHED
1589** FOR 1= DEVICE BUSY
1590** I/O 2= DEVICE BUSY AFTER RESET
1591** 3= COMMAND REJECT
1592** 4= INTERVENTION REQUIRED
1593** 5= INTERFACE DATA CHECK
1594** 6= CONTROLLER BUSY
1595** 7= I/O COMMAND EXCEPTED
1596**
1597**XIOER CPLSR R3 COPY STATUS ANY LEVEL INTO R3
1598** SRL 13,R3 POSITION CC CODE TO BITS 13-15
1599** MVB R3,STOIN * PUT IN LOG OUT AREA
1600** B (R6)* RETURN TO USER ERROR HANDLER
1601** *****14APR76**
1602**
1603**
1604** SUB-ROUTINE
1605**
1606** ERROR INTERRUPT RUNS ON INTERRUPT LEVEL 'SINTL'
1607**
1608** PURPOSE
1609** THIS ROUTINE WILL BE ENTERED WHEN THE SUPVR DETECTS AN ERROR
1610** OR THE INTERRUPTING CONDITION CODE DOES NOT AGREE WITH THE
1611** EXPECTED CODE.
1612**
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** CC 0= CONTROLLER END ISB 0= ADD STATUS
1625** FOR 1= PROGRAM CONTROL INTERRUPT BITS 1= COMD REJECT
1626** INTR 2= EXCEPTION INTERRUPT FOR 2= INCOR LENGTH
1627** 3= DEVICE END INTERRUPT INTR 3= DCB SPEC CK
1628** 4= ATTENTION INTFFRUPT 4= STG DATA CK
1629** 5= ATTENTION / PROGRAM CNTL INTR 5= INV STG ADRS
1630** 6= ATTENTION / EXCEPTION INTR 6= PROTRCT CK
1631** 7= ATTENTION / DEVICE END INTR 7= I-FACE DATA
1632**
1633**INTER CPLSR R3 COPY STATUS ANY LEVEL INTO R3
1634** SRL 13,R3 POSITION INDICATORS IN R3
1635** MVA OPTN1,R4 SET UP BASE ADRS
1636** TBT (R4,CS) IS CS IN PROGRESS
1637** JOFF INTES * NO
1638** TBTS (R4,CE) TURN ON CYCLE STEAL INTER ERROR
1639** MVB R7,DEV4 SAVE CS ERR ISB VALUE, BITS 0-7
1640** MVB R3,DEV4+1 * AND THE COND CODE
1641** J INTR1
1642**INTES TBT (R4,XE) TEST EXPECTED ATTEN / ERROR IND
1643** JOFF INTET BCH IF NOT EXPECTED
1644** CBI 4,R3 IS THIS AN 'ATTENTION' INTR
1645** JE INTR1 * YES, BCH TO END INTR SEQUENCE
1646**INTET TBTS (R4,ER) SET ERROR ON I/O COMMAND CNTL BIT
1647** J INTR1
1648**
1649** THE ERROR INTERRUPT USES THE SAME
1650** ENDING SEQUENCE AS THE NORMAL INTR
1651** *****14APR76**
1652**
1653** SOUBROUTINE
1654**
1655** OKAY INTERRUPT RUNS ON INTERRUPT LEVEL 'SINTL'
1656**
1657** PURPOSE
1658** TO CHECK THE INTERRUPT AND CONTINUE THE TEST
1659**
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**INTOK CPLSR R3 COPY STATUS ANY LEVEL INTO R3
1675** SRL 13,R3 POSITION INDICATORS IN R3
1676** MVA OPTN1,R4 SET UP BASE ADRS
1677**INT1 TBTS (R4,IN) SET INTERRUPT RECEIVED
1678** TBT (R4,CS) IS 'CS IN PROGRESS' ON
1679** JON INTR2 * YES, BCH AROUND UPDATE
1680** MVB R3,\$IOIN+1 SAVE INTERRUPTING CC CODE
1681** MVB R7,\$ISB SAVE INTR STATUS AND DEV ADRS
1682** EQU *
1683** CACL R5 CURRENT LEVEL COPIED BY DCP
1684** SLL 4,R5 POSITION INTR LEVEL AND PUT

002866 706E
002868 336A
00286A C328 2590
00286E 68D2 0000

002872 706E
002874 336A
002876 4424 2588
00287A 4C28
00287C 1006
00287E 4C6A
002880 6F0D 259C
002884 C328 259D
002888 500A
00288A 4C24
00288C 1002
00288E F304
002890 1006
002892 4C61
002894 5004

002896 706E
002898 336A
00289A 4424 2588
00289E 4C63
0028A0 4C28
0028A2 1204
0028A4 C328 2591
0028A8 6F0D 2592
0028AC 3521

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
0028AE 0501 1684** ABI 1,R5 * IN 'I' BIT IL
0028B0 CD24 25CE 1685** CW \$INTL,R5 IS THIS THE CORRECT INTR LEVEL IL
0028B4 1002 1686** JE INTR3 * YES, GO EXIT THIS LEVEL IL
0028B6 4C66 1687** TBTS (R4,\$LE) SET INTR LEVEL ERROR CONTROL BIT IL
0028B8 4C61 1688** TBTS (R4,EE) SET ERROR ON I/O COMMAND CNTL BIT IL
0028BA 4CA2 1689**INTR3 TBTR (R4,XI) WAS INTERRUPT EXPECTED IL
0028BC 1204 1690** JON INTRX * YES, EXIT OFF THIS INTR LEVEL IL
0028BE 4C60 1691** TBTS (R4,MI) * NO, SET MYSTERY INTR CONTROL BIT IL
0028C0 F304 1692** CBI 4,R3 ATTENTION INTERRUPT? IL
0028C2 1001 1693** JE INTRX YES IL
0028C4 4C6C 1694** TBTS (R4,NG) ERROR, UNEXPECTED INTERRUPT IL
0028C6 6006 1695**INTRX SVC EXIT EXIT THIS LEVEL VIA SUPVR IL
1697** *****03FEB76**
1698**
1699** THIS IS THE CONTINUATION OF EXECUTE I/O AFTER THE INTERRUPT
1700** HAS BEEN SERVICED. THE EXERCISER FINDS AN INTERRUPT HAS BEEN
1701** RECEIVED AND BRANCHES HERE TO CHECK FOR ANY ERROR CONDITIONS.
1702**
1703**
1704**XIOCK TBTR (F4,XE) WAS AN ERROR EXPECTED
1705** BN (R6,2) * YES, EXIT THIS ROUTINE
1706** TBTR (R4,CS) WAS AUTO CS IN PROGRESS
1707** JOFF XIOCV * NO, CONTINUE CHECKING
1708** TBT (R4,CE) IS CS IN AN ERR CONDITION
1709** JOFF XIOCO * NO, BCH
1710** B (R6)* CS ERROR
1711**XIOCO TBTS (R4,CSA) TURN ON CS STATS AVAIL FLAG
1712** BXS (R6,2) GO TO USER
1713**XIOCV TBT (R4,ER) WAS ERROR INTR CONTROL BIT ON
1714** JOFF XIOCK * NO, EXIT THIS ROUTINE
1715**
1716** MVB \$IOIN+1,R5 GET LAST INTR CC CODE
1717** CBI 2,R5 IS THIS CC=2
1718** JE XIOCO YES
1719** CBI 6,R5 IS THIS CC=6
1720** BNE (R6)* * NO, BCH TO ERROR HANDLER
1721**XIOCV MVB \$ISB,R5 GET LAST ISB DATA BYTE AND IP CS
1722** BN XIOCS-4 * AVAILABLE, GO AND GET IT
1723** B (R6)* ERROR
1724**XIOCV MVWZ OPTM3,R3 CLEAR OUT OPTION 3 CNTL BITS
1725** BXS (R6,2) RETURN TO USER VIA REG 6
1726**
1727** I/O PARAMETER LIST
1728**
1729**IOBLK DC A (DEVADD) ADRS OF DEVICE ADRS
1730** DC A (XIOER) ERROR ROUTINE ADRS
1731**IODCB DC A (*-*) DCB ADRS OR LEVEL & INTR
1732**IOMOD DC A (*-*) MODIFIER
1733** DC A (*-*) ADRS OF LAST SVC CALL
1734**IORSF DC A (*-*) SECOND WORD OF LAST IDCB
1735**
1736** INTERRUPT CONTROL BLOCK FOR I/O COMMANDS
1737**
1738**INTBL DC A (DEVADD) ADRS OF DEVICE ADRS
1739** DC A (INTOK) INTERRUPT OK RETURN ADRS
1740** DC A (INTR) INTERRUPT ERROR ADRS
1741**INTCC DC X'0003' INTERRUPT CODE EXPECTED
1743** *****11MAY76**
1744**
1745** SUBROUTINE
1746**
1747** CONNECT INTERRUPT CONTROL BLOCK & PREPARE DEVICE
1748**
1749** PURPOSE
1750**
1751** TO CONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
1752** PREPARE ON THE DESIRED INTERRUPT LEVEL AND TO ALLOW THE DEVICE
1753** TO INTERRUPT.
1754**
1755** CALLING SEQUENCE
1756**
1757** THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
1758**
1759** --> BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BLK
1760** --> BAL \$CONP,R6 PREPARE DEVICE ONLY, ALREADY CONNECT
1761**
1762** RETURN CONTROL
1763**
1764** BXS (R6,2) RETURN TO USER VIA REG 6 IF OKAY
1765** OR B (R6)* IF THE DEVICE COULD NOT BE CONNECTED
1766**
1767** *****
1768**\$CONC MVB 6,R7 NUMBER OF BYTE TO CLEAR
1769** MVB 0,R3 * AND THE DATA TO USE
1770** MVA DEV1,R5 * ALONG WITH THE ADRS TO USE
1771** PFN R3,(R5) *
1772** MVWZ OPTM3,R3 CLEAR OLD CONTROLS FOR NEW ROUTINE
1773** MVA INTBI,R7 SET R7 TO CONTROL BLOCK AND
1774** SVC CIBC * CONNECT IT TO THIS DEVICE
1775** BN (R6)* ERROR RETURN TO USER
1776**
1777**\$CONP MVW \$INTL,IODCB PUT IN LEVEL & INTR PARAMETER
1778** MVA IOBLK,R7 SET R7 TO CONTROL BLOCK TO PREPARE
1779** MVW X'0708', \$IOIN INITIALIZE CONDITION CODE STORAGE
1780** MVWZ \$ISB,R3 * AND CLEAR OLD ISB VALUE
1781** MVW R6,LSTIO SET UP ADDRESS THAT STARTED LAST I/O
1782** SVC PRFP * AND CALL ON SUPVR
1783** BXS (R6,2) RETURN TO USER
1785** *****06APR76**
1786**
1787** SUBROUTINE
1788**
1789** DISCONNECT THE INTERRUPT CONTROL BLOCK AND LOG ERRORS
1790**
1791** PURPOSE
1792**
1793** DISCONNECT THE INTERRUPT CONTROL BLOCK TO THIS DEVICE AND
1794** SET THE 'NO GOOD' CONTROL BIT, THEN LOG THE DATA THAT HAS
1795** BEEN FOUND TO HELP THE OPERATOR DEFINE THE ERROR CONDITION.
1796**
1797** CALLING SEQUENCE
1798**
1799** THIS SUBROUTINE HAS THE FOLLOWING ENTRIES:
1800**

0028C8 4CA4
0028CA 6AC0 0002
0028CE 4CA8
0028D0 1006
0028D2 4C2A
0028D4 1002
0028D6 68D2 0000
0028DA 4C69
0028DC 5601
0028DE 4C21
0028E0 100D

0028E2 C520 2591
0028E6 F502
0028E8 1003
0028EA F506
0028EC 68D1 0000
0028F0 C520 2592
0028F4 6A00 2802
0028F8 68D2 0000
0028FC CB25 258C
002900 5601

002902 19D0
002904 2866
002906 0000
002908 0000
00290A 0000
00290C 0000

00290E 19D0
002910 2896
002912 2872
002914 0003

002916 0F06
002918 0B00
00291A 4524 2596
00291C 2BAC
00291E CB25 258C
002920 4724 290E
002922 6014
002924 6AD0 0000
00292E 8828 25CE 2906
002934 4724 2902
002938 4020 2590 0708
00293C CB25 2592
002942 6E0D 2594
002946 600C
002948 5601

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
1801** --> B \$ERRS SET 'NG' BIT AND CONVERT DATA TO LOG
1802** --> B \$CONX RETURN TO MDI SUPERVISOR TO TEST STS
1803**
1804** RETURN CONTROL
1805**
1806** B TURTN* RETURN TO MDI
1807** OR B (R6)* IF THE DEVICE COULD NOT BE CONNECTED
1808**
1809*****
1810+\$ERR\$ MVWI X'8000',TUSTATUS SET ON 'NO GOOD' STATUS BIT
1811+ HVA HEBLK,R7 GET ADRS OF CONTROL BLOCK
1812+ SVC X'4040',TUNORK+116 CONVERT HEX TO EBC VIS DCP
1813+ MVWI X'4040',TUNORK+116
1814+ MVWI X'4040',TUNORK+116
1815+ MVWI X'4040',TUNORK+120
1816+\$PRNT MVBI 4,R5
1817+ MVA TUNORK,R3 SET UP BUFFER STORAGE
1818+ MVW R3,BUFPT
1819+ MVA LINE1,R1
1820+ MVBI 4,R7
1821+ MVBI 8,R6
1822+\$VBUF MVFN (R3),(R1)
1823+ MVBI 4,R7
1824+ MVBI X'40',R2
1825+ MVW R2,(R1)+
1826+ JCT MVBUF,R6
1827+ MVBI 8,R6
1828+ AWI 44,R1
1829+ JCT MVBUF,R5
1830+ MVWI PIDMSG10,PID+2
1831+ MVA PAKETU,@DCADD1
1832+ MVA DC2PT,@DCADD2
1833+ OWI BIT0080,SUPSTAT
1834+ MVA \$TUID,R3 SET UP BUFFER STORAGE
1835+ BAL TUNSGWTR*,R7 GO TO MESSAGE WRITER
1836**
1837+\$CONX EQU *
1838+ MVB DEVADD,R7 GET DEVICE ADDRESS FROM MDI
1839+ RICE RELEASE INTERRUPT CONTROL BLOCK
1840+ B TURTN* RETURN TO MDI SUPERVISOR
1841**
1842+\$BEGIN DC A(0009) NUMBER OF LINES TO PRINT
1843+ DC A(0008) LINE LENGTH = 8 CHAR
1844+ DC C** ABORT*
1845+ DC A(0040) LINE LENGTH = 40 CHAR
1846+ DC C'TUID IOIN ISB INST SECT ID DATA CSCC '
1847+ DC A(0040) LINE LENGTH = 40 CHAR
1848+ LINE1 DC C'
1849+ DC A(0040) LINE LENGTH = 40 CHAR
1850+ DC C'CNTRL DCB1 DCB2 DCB3 LINE LENGTH = 40 CHAR
1851+ DC A(0040) LINE LENGTH = 40 CHAR
1852+ LINE2 DC C'
1853+ DC A(0040) LINE LENGTH = 40 CHAR
1854+ DC C'CS-0 CS-1 CS-2 CS-3 LINE LENGTH = 40 CHAR
1855+ DC A(0040) LINE LENGTH = 40 CHAR
1856+ LINE3 DC C'
1857+ DC A(0040) LINE LENGTH = 40 CHAR
1858+ DC C'CS-B CS-9 CS-A CS-B LINE LENGTH = 40 CHAR
1859+ DC A(0040) LINE LENGTH = 40 CHAR
1860+ LINE4 DC C'
1861**
1862+\$BUFPT DC A(*-*)
1863+\$DC2PT DC A(\$BEGIN)
1864+\$FIXTU DC X'0101'
1865+\$PAKETU DC X'0101'
1866+\$PIDMSG10 EQU X'F1F0'
1867+\$BIT0080 EQU X'0080'
1868**
1869** DATA CONTROL BLOCK FOR CONVERTING HEX TO EBCDIC
1870**
1871+\$HEBLK DC A(58) NUMBER OF BYTES TO CONVERT
1872+ DC A(\$TUID) FROM ADRS
1873+ DC A(TUNORK) AND THE TO ADRS
1874 COPY T7A97 15NOV77
1876 T7A97 TUIT \$ERRS
1877*****06FEB76**
1878**
1879** TEST UNIT
1880**
1881** 4963 DISK FILE VERIFICATION TEST 12/11/78
1882**
1883** PURPOSE
1884**
1885** THIS ROUTINE WILL ATTEMPT TO 'READ VERIFY' EVERY SECTOR ON
1886** THE 4963. ERROR AND/OR ALTERNATE SECTORS WILL BE LOGGED.
1887**
1888** CALLING SEQUENCE
1889**
1890** 'ERROR' LOGOUT FORMAT IS AS FOLLOWS:
1891** S/B PG/SEC HD/CYL HD/PHY# IS PG/SEC HD/CYL
1892**
1893** PROGRAM PASSES STATUS OF TEST OR FORMAT TO MDI AS FOLLOWS:
1894** . BITS 0-15 NOT USED
1895**
1896** RETURN CONTROL
1897**
1898** B TURTN* RETURN TO MDI SUPERVISOR
1899**
1900*****
1901+\$T7A97 MVW R7,TURTN SAVE RETURN ADDRESS
1902+ MVWI X'7A97', \$TUID SAVE TU ID FOR DISPLAY
1903+ MVA OPTN1,R4 SET UP POINTER ADRS IN R4
1904+ BAL \$CONC,R6 CLEAR DEV DEP STG AND CONNECT I/O BL
1905+ DC A(\$ERR\$) ERROR ADRS FOR INVALID PREP
1906**
1907**
1908+\$FXD EQU B56 FIXED HEAD INDICATOR
1909**
1910+\$T7A7A MVWZ TURESUL,R2 CLEAR TU RESULTS
1911+ BAL XIOCS,R6 *
1912+ DC A(\$ERR\$)
1913+ TWI X'0700',CSTL5 LARGE FILE ?
1914+ JON BIGF YES -58
1915+ TWI X'0600',CSTL5 SML FILE ?

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
1916 JON SMLF YES -23
1917 TWI X'0300',CSTL5 BIGM FILE ?
1918 JON BIGM YES -64
1919 TWI X'0200',CSTL5 SMLM FILE ?
1920 JON SMLM YES -29
1921 BIGF MVA HEDD2,R7 PARM ADDRESS -58
1922 AWI 6,HEADS SET NUMBER OF TRACKS
1923 J SMLFF
1924 SMLF MVA HEDD4,R7 PARM ADDRESS -23
1925 SMLFF TBTS (R4,FXD) SMALL FILE WITH FIXED HEADS
1926 AWI 4,HEADS SET NUMBER OF TRACKS
1927 J TSF3A JUMP TO START
1928 BIGM MVA HEDD6,R7 PARM ADDRESS -64
1929 AWI 6,HEADS SET NUMBER OF TRACKS
1930 J SMLM
1931 SMLM MVA HEDD8,R7 PARM ADDRESS -29
1932 SMLMM TBTR (R4,FXD) SMALL FILE NO FIXED HEADS
1933 AWI 4,HEADS SET NUMBER OF TRACKS
1934 TSF3A MVA ERSEC,BLK+2 ADDRESS OF 'BLK' PARAMETER LIST
1935 MVA ERSEC,R3 SET UP FOR OP CONSOLE
1936 SVC OUT PRINT HEADING
1937 MVA HEAD,R7 PARM ADDRESS
1938 SVC OUT PRINT HEADING
1939 MVWI 0,FGSEC INIT FGSEC
1940 TBTR (R4,FXD) TEST FIXED
1941 JON YES
1942 MVWI X'0000',HDCYL SET HEAD 0 CYL 0
1943 J TSF3C
1944 TSF3B MVWI X'0400',HDCYL SET HEAD 1 CYL 0
1945 TSF3C MVWI 0,VRDCB+2 SET FLAG & SECTOR
1946 MVW HDCYL,VRDCB+4 SET THE HEAD AND CYLINDER
1947 MVWI X'4000',VRDCB+12 FULL TRACK BYTE COUNT
1948 MVA ERSEC,ERLST STARTING ADDRESS OF ERROR LIST
1949 TS69C BAL \$RDVY,R6 READ-VERIFY FULL TRACK
1950 DC A(\$ERR\$)
1951 TBTR (R4,ER) ANY ERROR?
1952 J OFF NO
1953 TS69G BAL CK40,R6 GO TO ERROR ROUTINE
1954 BAL CK40,R6 READ AND CHECK SECTOR 40
1955 BAL UPDTE,R6 GO UPDATE SUBROUTINE
1956 MVW HDCYL,VRDCB+4 UPDATE HD/CYL IN VERIFY DCB
1957 J TS69C
1958 *
1959 *
1960 CK40 MVW R6,CK40R+2 SET UP RETURN ADDRESS
1961 MVWI X'0040',LGSEC LOG SECT NUM
1962 MVWI X'0020',PHYSIC PHY ID FOR SCT 40
1963 MVWI X'0020',RKDCB+2 PHY SCT# IN DCB
1964 MVW HDCYL,RKDCB+4 HD/CYL IN DCB
1965 MVA RDCB+2,\$RDCB+2 SET UP DCB
1966 MVA SCTID,\$RDCB+14 DATA ADDR
1967 MVA SCTID,RKDCB+14 DATA ADDR
1968 BAL \$RDID,R6 READ SECTOR ID
1969 DC A(\$ERR\$)
1970 TBTR (R4,ER) ANY ERROR?
1971 JON CSKEW YES TRY SKEWED
1972 TWI X'2F00',SCTID ASSIGNED AS ALT ,DEFFECTIVE?
1973 J OFF NO
1974 TWI X'0800',SCTID DISP?
1975 JON CK40R YES
1976 MVW CK40R+2,\$LSTZ+2 SET UP RETURN ADDRESS AFTER LIST
1977 B \$LSTZ+2 NO
1978 CSKEW BAL \$RKEW,R6 READ ID SKEWED
1979 DC A(\$ERR\$)
1980 MVW CK40R+2,\$LSTZ+2 SET UP RETURN ADDRESS AFTER LIST
1981 TBTR (R4,ER) ANY ERROR?
1982 BOFF LSTF NO-ID WRITTEN SKEWED
1983 B \$LSTF ID IS UNREADABLE
1984 CK40R B ** RETURN
1985 *
1986 ***** THIS SUBROUTINE WILL UPDATE THE HEAD AND CYLINDER *
1987 * AREA OF THE ID FIELD *
1988 * *****
1989 *****
1990 UPDTE MVW R6,UPD57+2 SAVE THE RETURN ADDRESS
1991 MVW HDCYL,R3 GET THE HEAD AND CYLINDER
1992 SRL 10,R3 SHIFT OUT THE CYL
1993 UPD01 CB HEADS+1,R3 CHECK FOR THE LAST
1994 JNE UPD05 DO THE NEXT TPACK
1995 MVW HDCYL,R3 GET THE HEAD AND CYLINDER
1996 SLL 6,R3 SHIFT OUT THE HEAD
1997 SRL 6,R3 BYTE OF THE WORD
1998 UPD02 CWI X'0166',R3 IS IT CYL 358
1999 B NO
2000 MVWI X'0167',HDCYL SET CYL TO 359
2001 TBTR (R4,FXD) IS IT FIXED HEADS
2002 J OFF NO
2003 AWI X'0400',HDCYL SET TRACK 1
2004 J UPD55 RETURN
2005 UPD05 AWI X'0400',HDCYL ADD 1 TO HEAD
2006 MVW HDCYL,R2 GET THE HEAD
2007 SLL 4,R2 SHIFT OUT EXCESS
2008 SRL 14,R2 ALIGN THE HEAD
2009 JNZ UPD06 NOT ZERO, CHECK NEXT
2010 MVWI 0,FGSEC SET SECTOR TO 0
2011 J UPD55 GO UPDATE HD/CYL
2012 UPD06 SWI 1,R2 CHECK HEADS 1-5 9
2013 JZ UPD08 GO SET THE OFFSET
2014 SWI 1,R2 CHECK HADS 2-6 10
2015 JZ UPD07 GO SET THE OFFSET
2016 MVWI X'0018',FGSEC OFFSET OF 24 FOR SECTOR 0
2017 J UPD55 *
2018 UPD07 MVWI X'0010',FGSEC OFFSET OF 16 FOR SECTOR 0
2019 J UPD55 *
2020 UPD08 MVWI X'0008',FGSEC OFFSET OF 8 FOR SECTOR 0
2021 J UPD55
2022 UPD20 CWI 359,R3 CHECK FOR LAST CYL
2023 JE TS69E END
2024 ABI 1,R3 INCREMENT THE CYL
2025 MVW R3,HDCYL REPLACE THE HDCYL
2026 TBTR (R4,FXD) TEST FIXED
2027 JON UPD05
2028 UPD54 MVWI 0,FGSEC SET SECTOR NUMBER TO ZERO
2029 UPD55 MVD FGSEC,SKDCB+2 SET SEEK DCB ADDR.

LOCTR OBJECT TEXT STMT SOURCE STATEMENT
002CE4 9028 2FFE 2692 2030 MVD FGSEC,RMDCB+2 SET READ MULT ID DCB
002CEA 6802 0000 2031 UPD57 B *-* RETURN

2032 *****
2033 *
2034 TS69E TBT (R4,FXD) TEST IF FIXED HEADS ?
2035 JON TS69X YES
2036 TS69U B *CONX EXIT
2037 TS69X MVWI X'41FF',HDCYL SET FIXED HD 1 CYL 0
2038 MVWI X'0000',VFDCEP+2 SELECT FIXED HEAD SECTOR #
2039 MVWI X'41FF',VRDCB+4 SELECT FIXED HEAD 0,CYLINDER 0 IN DCB
2040 TS69A BAL \$RDVY,R6 READ VERIFY FIXED HEADS
2041 DC A(\$ERR\$) ERROR
2042 TBTR (R4,ER) ANY ERROR?
2043 JOFF TS69Y NO
2044 BAL TT69,R6 GOTO ERROR ROUTINE
2045 TS69Y BAL CK40,R6 READ AND CHECK SECTOR 40
2046 AWI X'0400',VFDCEP+4 SELECT NEXT FIXED HEAD
2047 AWI X'0400',HDCYL UPDATE TO NEXT TRACK
2048 CWI X'61FF',VFDCEP+4 ALL FIXED HEADS TESTED?
2049 TS69U JE YES
2050 J TS69A LOOP

2051 *
2052 * ERROR AND LOG ROUTINE
2053 *
2054 TT69 MVW R6,TT69Z+2 SETUP RETURN ADDRESS
2055 MVWI X'0100',VRDCB+12 BYTE COUNT 100 (ONE SECTOR)
2056 MVWI 0,VRDCB+2 SET SECTOR ZERO
2057 TT69L BAL \$RDVY,R6 READ VERIFY
2058 DC A(\$ERR\$)
2059 TBTR (R4,EF) ANY ERROR?
2060 JOFF TT69A NO
2061 BAL \$LIST,R6 LIST ERROR
2062 TT69A TBTV (R4,B58) TEST RECORD NUM
2063 JON TT69B BCH IF 2ND RECORD NUM
2064 AWI X'0020',VRDCB+2 SPECIFY 2ND RECORD
2065 TBTR (R4,B57) NO RECORD FOUND
2066 JON TT69C
2067 J TT69L GO READ 2ND RECORD
2068 TT69B SWI X'001F',VRDCB+2 SPECIFY 1ST RECORD NUM
2069 CB SEC20,VRDCB+3 ALL RECORDS READ?
2070 JNE TT69L NO- GO READ 1ST RECORD
2071 MVWI 0,VRDCB+2 SET SECTOR ZERO
2072 MVWI X'4000',VRDCB+12 FULL BYTE COUNT
2073 TT69Z B RETURN TO CALLER

2074 *
2075 \$LIST EQU * LOGOUT BAD SECTORS
2076 MVW R6,\$LSTZ+2 SETUP RETURN ADDRESS
2077 MVW VRDCB+3,LGSEC+1 SECTOR THAT FAILED
2078 CWI X'0020',LGSEC+1 CHECK SECOND RECORD
2079 JLLT \$LSTA NO GO CONVERT
2080 SWI X'0020',LGSFC REMOVE THE SECOND RECORD
2081 J TSK2
2082 \$LSTA TWI X'0800',CSTL6 NO RECORD FOUND?
2083 JOFF TSK2 NO
2084 TBTS (R4,B57) SET NO RECORD FOUND IND
2085 TSK2 LGSEC+1,R6 GET THE SECTOR
2086 SLL 1,R6 ALIGN IT
2087 MVW R6,LGSEC SAVE IT IN WORK AREA
2088 BAL CONV,R7 CONVERT LOG TO PHYSICAL
2089 MVW PHYS+1,RKDCB+3 PHYSICAL SECTOR IN DCB
2090 MVW HDCYL,RKDCB+4 HEAD AND CYL INTO DCB
2091 MVW PHYS+1,RSDCB+3 *
2092 MVW HDCYL,FSDCB+4 *
2093 MVA SCTID,RSDCB+14 DATA ADDR
2094 MVA SCTID,RKDCB+14 DATA ADDF
2095 TSK1 BAL \$RDID,R6 READ SECTOR ID
2096 DC A(\$ERR\$)
2097 TBTR (R4,ER) ANY ERROR?
2098 JON TSKW YES TRY SKEWED
2099 TBTR (R4,B59) DISP FLAG ON?
2100 JON TSKW YES
2101 TWI X'0800',SCTID DISP FLAG ON?
2102 JOFF \$LSTF NO
2103 AWI 1,RSDCB+2 INC PHYSICAL SECTOR#
2104 AWI 1,RKDCB+2 INC PHYSICAL SECTOR#
2105 AWI 1,PHYSC INC PHYSICAL SECTOR#
2106 TBTS (R4,B59) TURN ON DISP FLAG IND
2107 J TSK1 READ CORRECT SECTOR ID
2108 TSKW BAL \$RKEW,R6 READ ID SKEWED
2109 DC A(\$ERR\$)
2110 TBTR (R4,ER) ANY ERROR?
2111 JOFF LSTF1 NO-ID WRITTEN SKEWED
2112 J \$LSTF ID IS UNREADABLE
2113 LSTF1 TBTR (R4,B59) DISP FLAG ON?
2114 JON LSTF YES
2115 TWI X'0800',SCTID DISP FLAG ON?
2116 JOFF LSTF NO
2117 AWI 1,RKDCB+2 INC PHYSICAL SECTOR#
2118 AWI 1,PHYSC INC PHYSICAL SECTOR#
2119 TBTS (R4,B59) TURN ON DISP FLAG IND
2120 J TSKW READ CORRECT SECTOR ID
2121 LSTF OWI X'0080',SCTID SET SKEWED FLAG(BIT 8 IN SECTOR #)
2122 \$LSTF MVB FGSEC,R5 GET THE FG/SEC
2123 SLL 8,R5 SAVE FLAG
2124 MVW LGSEC,R6 GET THE SECTOR
2125 AW R5,R6 COMBINE
2126 MVW R6,ERLST* PUT INTO THE LIST
2127 AWI 2,ERLST INCREMENT LIST ADDRESS
2128 MVW HDCYL,ERLST* ACTUAL HEAD/CYL SELECTED
2129 AWI 2,ERLST INCREMENT LIST ADDRESS
2130 MVW HDCYL,R3 GET HEAD
2131 SRL 10,R3 ISOLATE HEAD
2132 MVB R3,PHDST *
2133 MVB PHYS+1,PHDST+1 GET PHYSICAL SECTOR#
2134 MVW PHDST,ERLST* HEAD AND PHYSICAL SECTOR#
2135 AWI 2,ERLST INCREMENT LIST ADDRESS
2136 MVW SCTID,ERLST* ACTUAL FLAG AND SECTOR
2137 AWI 2,ERLST INCREMENT LIST ADDRESS
2138 MVW SCTID+2,ERLST* ACTUAL HEAD/CYL NUMBER
2139 MVA ERSEC,ERLST STARTING ADDR OF ERROR LIST
2140 TT69R MVA FILL+2,BLK+4 ADDRESS OF OUTPUT BUFFER
2141 MVBI 5,R1 NUMBER OF WORDS TO BE CONVERTED
2142 TT69S MVA BLK,R7 PAMP ADDRESS
2143 SVC HTOE CONVERT HEX TO EBC

LOCTR OBJECT TEXT STMT SOURCE STATEMENT
002E90 4029 2EBA 0002 2144 AWI 2,BLK+2 INCREMENT FROM ADDRESS
002E96 4029 2EBC 0009 2145 AWI 9,BLK+4 INCREMENT TO ADDRESS
002E9C 4029 2EBC 0009 2146 JCT TT69S,F1 LOOP
002E9E 4324 308C 2147 MVA ERSEC,R3 'FROM' ADDR
002EA2 4724 2EF2 2148 MVA DATA,R7 PARM ADDRESS
002EA6 6000 2149 SVC OUT PRINT ERROR SECTORS
002EA8 4020 2EBC 2EF8 2150 MVA FILL+2,BLK+4 'TO' ADDR
002EAE 4020 2EBA 308C 2151 MVA ERSEC,BLK+2 'FROM' ADDR
002EB4 6802 0000 2152 \$LSTZ B *-* RETURN TO CALLER

002EB8 0002 2153 *
002EBA 0000 2154 BLK DC X'0002'
002EBC 0000 2155 DC A(*-*)
002EFC 0000 2156 DC A(*-*) 'FROM'
***** 'TO'
002EFE 0080 2157 *
002EFC 2EC2 2158 DC X'0080'
002EC2 E261C260C6C761E2C 2159 HEAD DC A(HEAD4)
002EEF 00 2160 HEAD4 DC C'S/B-FG/SEC HD/CYL HD/PHY# IS-FG/SEC HD/CYL'
002EF0 00C0 2161 DC X'00' END OF PRINT CHARACTER
002EF2 2EF6 2162 DC X'00C0'
002EF4 7A6F 2163 DATA DC A(FILL)
002EF6 4040404040404040 2164 DC X'7A6F' INDICATION FOR OP CONSOLE
002EF9 00 2165 DC C' *
002E2A 0000 2166 DC X'00' END OF PRINT CHARACTER
002E2C 2F2E 2167 DC X'0000'
002E2E C5D9D9D6D940D6D94 2168 HEDD2 DC A(HEAD3)
002E2F 0000 2169 HEDD3 DC C'ERROR OR ALTERNATE SECTORS -58MB,FXD HEADS '
002E59 0000 2170 DC X'0000' END OF PRINT CHARACTER
002E5C 2F5E 2171 HEDD4 DC A(HEAD5)
002E5E C5D9D9D6D940D6D94 2172 HEDD5 DC C'ERROR OR ALTERNATE SECTORS -23MB,FXD HEADS '
002E5F 0000 2173 DC X'0000' END OF PRINT CHARACTER
002E8C 2F8E 2174 HEDD6 DC A(HEAD7)
002E8E C5D9D9D6D940D6D94 2175 HEDD7 DC C'ERROR OR ALTERNATE SECTORS -64MB,NO FXD HEADS '
002E8F 0000 2176 DC X'0000' END OF PRINT CHARACTER
002E90 2FC0 2177 HEDD8 DC A(HEAD9)
002E92 C09D9D6D940D6D94 2178 HEDD9 DC C'ERROR OR ALTERNATE SECTORS -29MB,NO FXD HEADS '
002E93 0000 2179 DC X'0000' END OF PRINT CHARACTER
002E94 1000 2180 DC X'1000' WRITE PROTECT BIT MASK
002E95 4000 2181 PROT DC X'4000' SECTOR 64 CONSTANT
002E96 0000 2182 ERRC DC A(*-*) ERROR COUNTER
002E97 0000 2183 ERLST DC A(*-*) ERROR LIST ADDRESS
002E98 0300 2184 THRE DC X'0300' CYL ONE ERROR FLAG
002E99 0200 2185 TWO DC X'0200' ERROR FLAG
002E9A 0000 2186 HEADS DC A(*-*) HEADS PER CYLINDER
002E9B 0000 2187 FGSEC DC A(*-*) FLAG/SECTOR FIELD
002E9C 0000 2188 HDCYL DC A(*-*) HEAD/CYLINDER FIELD
002E9D 0000 2189 PHDST DC A(*-*) HEAD/PHYSICAL SECTOR#
003004 2000 2190 SEC20 DC X'2000' CONSTANT

003006 00000000 2191 ID00 DC X'00000000'
00300A 00000000 2192 ID01 DC X'00000000'
00300E 00000000 2193 ID02 DC X'00000000'
003012 00000000 2194 ID03 DC X'00000000'
003016 00000000 2195 ID04 DC X'00000000'
00301A 00000000 2196 ID05 DC X'00000000'
00301E 00000000 2197 ID06 DC X'00000000'
003022 00000000 2198 ID07 DC X'00000000'
003026 00000000 2199 ID08 DC X'00000000'
00302A 00000000 2200 ID09 DC X'00000000'
00302E 00000000 2201 ID0A DC X'00000000'
003032 00000000 2202 ID0B DC X'00000000'
003036 00000000 2203 ID0C DC X'00000000'
00303A 00000000 2204 ID0D DC X'00000000'
00303E 00000000 2205 ID0E DC X'00000000'
003042 00000000 2206 ID0F DC X'00000000'
003046 00000000 2207 ID10 DC X'00000000'
00304A 00000000 2208 ID11 DC X'00000000'
00304E 00000000 2209 ID12 DC X'00000000'
003052 00000000 2210 ID13 DC X'00000000'
003056 00000000 2211 ID14 DC X'00000000'
00305A 00000000 2212 ID15 DC X'00000000'
00305E 00000000 2213 ID16 DC X'00000000'
003062 00000000 2214 ID17 DC X'00000000'
003066 00000000 2215 ID18 DC X'00000000'
00306A 00000000 2216 ID19 DC X'00000000'
00306E 00000000 2217 ID1A DC X'00000000'
003072 00000000 2218 ID1B DC X'00000000'
003076 00000000 2219 ID1C DC X'00000000'
00307A 00000000 2220 ID1D DC X'00000000'
00307E 00000000 2221 ID1E DC X'00000000'
003082 00000000 2222 ID1F DC X'00000000'
003086 00000000 2223 ID20 DC X'00000000'
00308A 0000 2224 CTR01 X'0000'
00308E 0000000000000000 2225 ERSEC DC SA(*-*)
003092 0000000000000000 2226 PATCH DC 20A(*-*)
003096 0000000000000000 2227 DS PATCH
00309E 00000000 2228 DS F'0'
000000 000000 2229 END

CROSS-REFERENCE LISTING

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
1768	\$CONC	ADDRESS. HEX LOCATION(00002916) IN CSECT(I7A69) LENGTH(2)
1837	\$CONX	ADDRESS. HEX LOCATION(000029AC) IN CSECT(I7A69) LENGTH(1)
1810	\$ERR\$	ADDRESS. HEX LOCATION(0000294A) IN CSECT(I7A69) LENGTH(6)
486	\$INTL	ADDRESS. HEX LOCATION(000025CE) IN CSECT(I7A69) LENGTH(2)
451	\$IOIN	ADDRESS. HEX LOCATION(00002590) IN CSECT(I7A69) LENGTH(2)
452	\$ISB	ADDRESS. HEX LOCATION(00002592) IN CSECT(I7A69) LENGTH(2)
436	\$LE	ABSOLUTE. HEX VALUE(00000026)
2075	\$LIST	ADDRESS. HEX LOCATION(00002D7C) IN CSECT(I7A69) LENGTH(1)
2082	\$LSTA	ADDRESS. HEX LOCATION(00002D96) IN CSECT(I7A69) LENGTH(6)
2122	\$LSTF	ADDRESS. HEX LOCATION(00002E2C) IN CSECT(I7A69) LENGTH(4)
2152	\$LSTZ	ADDRESS. HEX LOCATION(00002EB4) IN CSECT(I7A69) LENGTH(4)
856	\$RDID	ADDRESS. HEX LOCATION(0000277C) IN CSECT(I7A69) LENGTH(6)
877	\$RDVY	ADDRESS. HEX LOCATION(000027B8) IN CSECT(I7A69) LENGTH(6)
883	\$RKEW	ADDRESS. HEX LOCATION(000027C8) IN CSECT(I7A69) LENGTH(6)
450	\$TUID	ADDRESS. HEX LOCATION(0000258E) IN CSECT(I7A69) LENGTH(2)
102	@DCADD1	ADDRESS. HEX LOCATION(000019B8) IN CSECT(I7A69) LENGTH(1)
103	@DCADD2	ADDRESS. HEX LOCATION(000019BA) IN CSECT(I7A69) LENGTH(1)
46	@NVLD	ABSOLUTE. HEX VALUE(00000600)
38	@QUES	ABSOLUTE. HEX VALUE(00000100)
40	@STOP	ABSOLUTE. HEX VALUE(00000102)
45	@TUXX	ABSOLUTE. HEX VALUE(00000500)
1842	BEGIN	ADDRESS. HEX LOCATION(000029B6) IN CSECT(I7A69) LENGTH(2)
1921	BIGF	ADDRESS. HEX LOCATION(00002B5E) IN CSECT(I7A69) LENGTH(4)
1928	BIGM	ADDRESS. HEX LOCATION(00002B78) IN CSECT(I7A69) LENGTH(4)
1867	BIT0080	ABSOLUTE. HEX VALUE(00000080)
2155	BLK	ADDRESS. HEX LOCATION(00002EB8) IN CSECT(I7A69) LENGTH(2)
1862	BUPPT	ADDRESS. HEX LOCATION(00002B12) IN CSECT(I7A69) LENGTH(2)
407	B56	ABSOLUTE. HEX VALUE(00000018)
408	B57	ABSOLUTE. HEX VALUE(00000019)
409	B58	ABSOLUTE. HEX VALUE(0000001A)
410	B59	ABSOLUTE. HEX VALUE(0000001B)
803	CB07	ADDRESS. HEX LOCATION(00002762) IN CSECT(I7A69) LENGTH(2)
804	CB15	ADDRESS. HEX LOCATION(00002764) IN CSECT(I7A69) LENGTH(2)
805	CB23	ADDRESS. HEX LOCATION(00002766) IN CSECT(I7A69) LENGTH(2)
806	CB40	ADDRESS. HEX LOCATION(00002768) IN CSECT(I7A69) LENGTH(2)
440	CE	ABSOLUTE. HEX VALUE(0000002A)
525	CICB	ABSOLUTE. HEX VALUE(00000014)
1960	CK40	ADDRESS. HEX LOCATION(00002BF0) IN CSECT(I7A69) LENGTH(4)
1984	CK40R	ADDRESS. HEX LOCATION(00002C58) IN CSECT(I7A69) LENGTH(4)
622	CLDCB	ADDRESS. HEX LOCATION(000025F0) IN CSECT(I7A69) LENGTH(2)
780	CNVT1	ADDRESS. HEX LOCATION(00002706) IN CSECT(I7A69) LENGTH(6)
782	CNVT2	ADDRESS. HEX LOCATION(0000270E) IN CSECT(I7A69) LENGTH(6)
788	CNVT3	ADDRESS. HEX LOCATION(00002726) IN CSECT(I7A69) LENGTH(6)
790	CNVT4	ADDRESS. HEX LOCATION(0000272E) IN CSECT(I7A69) LENGTH(6)
796	CNVT5	ADDRESS. HEX LOCATION(00002746) IN CSECT(I7A69) LENGTH(6)
797	CNVT6	ADDRESS. HEX LOCATION(0000274C) IN CSECT(I7A69) LENGTH(6)
801	CNVT8	ADDRESS. HEX LOCATION(0000275E) IN CSECT(I7A69) LENGTH(4)
800	CNVT9	ADDRESS. HEX LOCATION(0000275A) IN CSECT(I7A69) LENGTH(4)
759	CONVT	ADDRESS. HEX LOCATION(000026BE) IN CSECT(I7A69) LENGTH(4)
438	CS	ABSOLUTE. HEX VALUE(00000028)
439	CSA	ABSOLUTE. HEX VALUE(00000029)
469	CSBUF	ADDRESS. HEX LOCATION(000025AE) IN CSECT(I7A69) LENGTH(1)
660	CSDCB	ADDRESS. HEX LOCATION(00002630) IN CSECT(I7A69) LENGTH(2)
1978	CSKEW	ADDRESS. HEX LOCATION(00002C42) IN CSECT(I7A69) LENGTH(4)
474	CSTL5	ADDRESS. HEX LOCATION(000025B6) IN CSECT(I7A69) LENGTH(2)
475	CSTL6	ADDRESS. HEX LOCATION(000025B8) IN CSECT(I7A69) LENGTH(2)

CROSS-REFERENCE LISTING

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
2164	DATAA	ADDRESS. HEX LOCATION(00002EF2) IN CSECT(I7A69) LENGTH(2)
459	DCBUF	ADDRESS. HEX LOCATION(0000259E) IN CSECT(I7A69) LENGTH(1)
1863	DC2PT	ADDRESS. HEX LOCATION(00002B14) IN CSECT(I7A69) LENGTH(2)
105	DEVADD	ADDRESS. HEX LOCATION(000019D0) IN CSECT(I7A69) LENGTH(1)
454	DEV1	ADDRESS. HEX LOCATION(00002596) IN CSECT(I7A69) LENGTH(2)
457	DEV4	ADDRESS. HEX LOCATION(0000259C) IN CSECT(I7A69) LENGTH(2)
611	DGDCB	ADDRESS. HEX LOCATION(000025E0) IN CSECT(I7A69) LENGTH(2)
67	DUMMY	ABSOLUTE. HEX VALUE(00000000)
362	ENTPT	ADDRESS. HEX LOCATION(0000253A) IN CSECT(I7A69) LENGTH(1)
47	EQ	ABSOLUTE. HEX VALUE(00000000)
431	ER	ABSOLUTE. HEX VALUE(00000021)
2184	ERLST	ADDRESS. HEX LOCATION(00002FF6) IN CSECT(I7A69) LENGTH(2)
2228	ERSEC	ADDRESS. HEX LOCATION(0000308C) IN CSECT(I7A69) LENGTH(2)
511	EXIT	ABSOLUTE. HEX VALUE(00000006)
1865	FAKETU	ADDRESS. HEX LOCATION(00002B18) IN CSECT(I7A69) LENGTH(2)
2188	FGSEC	ADDRESS. HEX LOCATION(00002FFE) IN CSECT(I7A69) LENGTH(2)
2166	FILL	ADDRESS. HEX LOCATION(00002EF6) IN CSECT(I7A69) LENGTH(51)
1908	FXD	ABSOLUTE. HEX VALUE(00000018)
381	F00017	ADDRESS. HEX LOCATION(00002540) IN CSECT(I7A69) LENGTH(1)
389	F00169	ADDRESS. HEX LOCATION(00002578) IN CSECT(I7A69) LENGTH(1)
2189	HDCYL	ADDRESS. HEX LOCATION(00003000) IN CSECT(I7A69) LENGTH(2)
2160	HEAD	ADDRESS. HEX LOCATION(00002EC0) IN CSECT(I7A69) LENGTH(2)
2187	HEADS	ADDRESS. HEX LOCATION(00002FFC) IN CSECT(I7A69) LENGTH(2)
2170	HEAD3	ADDRESS. HEX LOCATION(00002F2E) IN CSECT(I7A69) LENGTH(43)
2161	HEAD4	ADDRESS. HEX LOCATION(00002EC2) IN CSECT(I7A69) LENGTH(45)
2173	HEAD5	ADDRESS. HEX LOCATION(00002F5E) IN CSECT(I7A69) LENGTH(43)
2176	HEAD7	ADDRESS. HEX LOCATION(00002F8E) IN CSECT(I7A69) LENGTH(45)
2179	HEAD9	ADDRESS. HEX LOCATION(00002FC0) IN CSECT(I7A69) LENGTH(45)
1871	HEBLK	ADDRESS. HEX LOCATION(00002B1A) IN CSECT(I7A69) LENGTH(2)
2169	HEDD2	ADDRESS. HEX LOCATION(00002F2C) IN CSECT(I7A69) LENGTH(2)
2172	HEDD4	ADDRESS. HEX LOCATION(00002F5C) IN CSECT(I7A69) LENGTH(2)
2175	HEDD6	ADDRESS. HEX LOCATION(00002F8C) IN CSECT(I7A69) LENGTH(2)
2178	HEDD8	ADDRESS. HEX LOCATION(00002FBE) IN CSECT(I7A69) LENGTH(2)
531	HTOE	ABSOLUTE. HEX VALUE(0000001A)
507	IDLE	ABSOLUTE. HEX VALUE(00000002)
2194	ID00	ADDRESS. HEX LOCATION(00003006) IN CSECT(I7A69) LENGTH(4)
433	IN	ABSOLUTE. HEX VALUE(00000023)
1738	INTBL	ADDRESS. HEX LOCATION(0000290E) IN CSECT(I7A69) LENGTH(2)
1633	INTER	ADDRESS. HEX LOCATION(00002872) IN CSECT(I7A69) LENGTH(2)
1642	INTES	ADDRESS. HEX LOCATION(0000288A) IN CSECT(I7A69) LENGTH(2)
1646	INTET	ADDRESS. HEX LOCATION(00002892) IN CSECT(I7A69) LENGTH(2)
1673	INTOK	ADDRESS. HEX LOCATION(00002896) IN CSECT(I7A69) LENGTH(2)
1695	INTRX	ADDRESS. HEX LOCATION(000028C6) IN CSECT(I7A69) LENGTH(2)
1676	INTR1	ADDRESS. HEX LOCATION(0000289E) IN CSECT(I7A69) LENGTH(2)
1681	INTR2	ADDRESS. HEX LOCATION(000028AC) IN CSECT(I7A69) LENGTH(1)
1689	INTR3	ADDRESS. HEX LOCATION(000028BA) IN CSECT(I7A69) LENGTH(2)
1729	IOBLK	ADDRESS. HEX LOCATION(00002902) IN CSECT(I7A69) LENGTH(2)
1731	IODCF	ADDRESS. HEX LOCATION(00002906) IN CSECT(I7A69) LENGTH(2)
1732	IOMOD	ADDRESS. HEX LOCATION(00002908) IN CSECT(I7A69) LENGTH(2)
37	I7A69	CSECT. START(00002500) LENGTH(3008) ESDID(1)
741	LGSEC	ADDRESS. HEX LOCATION(000026AA) IN CSECT(I7A69) LENGTH(2)
1848	LINE1	ADDRESS. HEX LOCATION(000029EE) IN CSECT(I7A69) LENGTH(40)
2121	LSTF	ADDRESS. HEX LOCATION(00002E26) IN CSECT(I7A69) LENGTH(6)

DECLARED	NAME	ATTRIBUTES AND REFERENCES
2113	LSTF1	1982 2114 2116 ADDRESS. HEX LOCATION(00002E0A) IN CSECT(I7A69) LENGTH(2)
453	LSTIO	2111 ADDRESS. HEX LOCATION(00002594) IN CSECT(I7A69) LENGTH(2)
430	MI	1530 1781 ABSOLUTE. HEX VALUE(00000020)
1822	MVBUF	1691 ADDRESS. HEX LOCATION(0000297A) IN CSECT(I7A69) LENGTH(2)
442	NG	1826 1829 ABSOLUTE. HEX VALUE(0000002C)
437	NI	1694 ABSOLUTE. HEX VALUE(00000027)
339	N00001	1549 ADDRESS. HEX LOCATION(00002518) IN CSECT(I7A69) LENGTH(2)
342	N00002	315 372 ADDRESS. HEX LOCATION(0000251C) IN CSECT(I7A69) LENGTH(2)
345	N00003	318 ADDRESS. HEX LOCATION(00002520) IN CSECT(I7A69) LENGTH(2)
357	N00004	321 340 ADDRESS. HEX LOCATION(00002532) IN CSECT(I7A69) LENGTH(2)
359	N00005	324 ADDRESS. HEX LOCATION(00002534) IN CSECT(I7A69) LENGTH(2)
395	OPTN1	327 346 ADDRESS. HEX LOCATION(00002588) IN CSECT(I7A69) LENGTH(2)
418	OPTN3	1635 1675 1903 ADDRESS. HEX LOCATION(0000258C) IN CSECT(I7A69) LENGTH(2)
505	OUT	1724 1772 ABSOLUTE. HEX VALUE(00000000)
101	PARMARA	1936 1938 2149 ADDRESS. HEX LOCATION(0000196E) IN CSECT(I7A69) LENGTH(1)
2190	PHDST	355 ADDRESS. HEX LOCATION(00003002) IN CSECT(I7A69) LENGTH(2)
742	PHYSC	2132 2133 2134 ADDRESS. HEX LOCATION(000026AC) IN CSECT(I7A69) LENGTH(2)
69	PID	763 774 776 778 780 782 784 786 788 790 792 794 796 799 1962 2089 2091 2105 2118 2133 ADDRESS. HEX LOCATION(00001800) IN CSECT(I7A69) LENGTH(1)
1866	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 1830 ABSOLUTE. HEX VALUE(0000F1F0)
517	PREP	1830 ABSOLUTE. HEX VALUE(0000000C)
693	RDDCB	1782 ADDRESS. HEX LOCATION(00002660) IN CSECT(I7A69) LENGTH(2)
524	RICB	877 874 ABSOLUTE. HEX VALUE(00000013)
715	RKDCB	1839 ADDRESS. HEX LOCATION(00002680) IN CSECT(I7A69) LENGTH(2)
726	RMDCB	883 1963 1964 1965 1967 2089 2090 2094 2104 2117 ADDRESS. HEX LOCATION(00002690) IN CSECT(I7A69) LENGTH(2)
745	RSBA	863 2030 ADDRESS. HEX LOCATION(000026B2) IN CSECT(I7A69) LENGTH(2)
638	RSDCB	615 631 642 653 675 686 697 708 719 730 ADDRESS. HEX LOCATION(00002610) IN CSECT(I7A69) LENGTH(2)
0	R1	856 1965 1966 2091 2092 2093 2103 REGISTER. HEX VALUE(00000001)
0	R2	760 761 762 763 766 767 768 770 772 800 1819 1822 1825 1828 2141 2146 REGISTER. HEX VALUE(00000002)
0	R3	1824 1825 1910 2006 2007 2008 2012 2014 REGISTER. HEX VALUE(00000003)
0	R4	857 860 866 867 870 873 893 896 1518 1531 1534 1535 1538 1540 1597 1598 1599 1633 1634 1640 1644 1673 1674 1679 1692 1724 1769 1771 1772 1780 1817 1818 1822 1834 1935 1991 1992 1993 1995 1996 1997 1998 2022 2024 2025 2130 2131 2132 2147 REGISTER. HEX VALUE(00000004)
0	R5	1524 1525 1528 1542 1543 1545 1546 1549 1555 1563 1635 1636 1638 1642 1646 1675 1676 1677 1687 1688 1689 1691 1694 1704 1706 1708 1711 1713 1903 1925 1932 1940 1951 1970 1981 2001 2026 2034 2042 2059 2062 2065 2084 2097 2099 2106 2110 2113 2119 REGISTER. HEX VALUE(00000005)
0	R6	858 860 865 867 871 873 894 896 1532 1534 1536 1538 1554 1561 1683 1684 1685 1716 1717 1719 1721 1770 1771 1816 1829 2122 2123 2125 REGISTER. HEX VALUE(00000006)
0	R7	1530 1550 1564 1600 1705 1710 1712 1720 1723 1725 1775 1781 1783 1821 1826 1827 1904 1911 1949 1953 1954 1955 1960 1968 1978 1990 2040 2044 2045 2054 2057 2061 2076 2085 2086 2087 2095 2108 2124 2125 2126 REGISTER. HEX VALUE(00000007)
807	SAVE1	497 759 859 864 872 895 1533 1537 1544 1639 1680 1768 1773 1778 1811 1820 1823 1835 1838 1901 1921 1924 1928 1931 1937 2088 2142 2148 ADDRESS. HEX LOCATION(0000276A) IN CSECT(I7A69) LENGTH(2)
458	SCIID	760 800 ADDRESS. HEX LOCATION(00002596) IN CSECT(I7A69) LENGTH(2)
2191	SEC20	645 722 858 1966 1967 1972 1974 2093 2094 2101 2115 2121 2136 2138 ADDRESS. HEX LOCATION(00003004) IN CSECT(I7A69) LENGTH(2)
649	SKDCB	2069 ADDRESS. HEX LOCATION(00002620) IN CSECT(I7A69) LENGTH(2)
1924	SMLF	850 2029 ADDRESS. HEX LOCATION(00002B6A) IN CSECT(I7A69) LENGTH(4)
1925	SMLFF	1916 ADDRESS. HEX LOCATION(00002B6E) IN CSECT(I7A69) LENGTH(2)
1931	SMLM	1923 ADDRESS. HEX LOCATION(00002B84) IN CSECT(I7A69) LENGTH(4)

DECLARED	NAME	ATTRIBUTES AND REFERENCES
1932	SMLMM	ADDRESS. HEX LOCATION(00002B88) IN CSECT(I7A69) LENGTH(2)
515	START	1930 ABSOLUTE. HEX VALUE(0000000A)
104	SUPSTAT	1547 ADDRESS. HEX LOCATION(000019C4) IN CSECT(I7A69) LENGTH(1)
1934	TSF3A	1833 ADDRESS. HEX LOCATION(00002B90) IN CSECT(I7A69) LENGTH(6)
1944	TSF3B	1927 ADDRESS. HEX LOCATION(00002BB4) IN CSECT(I7A69) LENGTH(6)
1945	TSF3C	1941 ADDRESS. HEX LOCATION(00002BBA) IN CSECT(I7A69) LENGTH(6)
2108	TSKEW	1943 ADDRESS. HEX LOCATION(00002DFE) IN CSECT(I7A69) LENGTH(4)
2095	TSK1	2098 2120 ADDRESS. HEX LOCATION(00002DD2) IN CSECT(I7A69) LENGTH(4)
2085	TSK2	2107 ADDRESS. HEX LOCATION(00002DA0) IN CSECT(I7A69) LENGTH(4)
2040	TS69A	2081 2083 ADDRESS. HEX LOCATION(00002D08) IN CSECT(I7A69) LENGTH(4)
1949	TS69C	2050 ADDRESS. HEX LOCATION(00002BD2) IN CSECT(I7A69) LENGTH(4)
2034	TS69E	1957 ADDRESS. HEX LOCATION(00002CEE) IN CSECT(I7A69) LENGTH(2)
1954	TS69G	2023 ADDRESS. HEX LOCATION(00002BE0) IN CSECT(I7A69) LENGTH(4)
2036	TS69U	1952 ADDRESS. HEX LOCATION(00002CF2) IN CSECT(I7A69) LENGTH(4)
2037	TS69X	2049 ADDRESS. HEX LOCATION(00002CF6) IN CSECT(I7A69) LENGTH(6)
2045	TS69Y	2035 ADDRESS. HEX LOCATION(00002D16) IN CSECT(I7A69) LENGTH(4)
2054	TT69	2043 ADDRESS. HEX LOCATION(00002D30) IN CSECT(I7A69) LENGTH(4)
2062	TT69A	1953 2044 ADDRESS. HEX LOCATION(00002D4E) IN CSECT(I7A69) LENGTH(2)
2068	TT69B	2060 2066 ADDRESS. HEX LOCATION(00002D5E) IN CSECT(I7A69) LENGTH(6)
2057	TT69L	2063 ADDRESS. HEX LOCATION(00002D40) IN CSECT(I7A69) LENGTH(4)
2142	TT69S	2067 2070 ADDRESS. HEX LOCATION(00002E8A) IN CSECT(I7A69) LENGTH(4)
2073	TT69Z	2146 ADDRESS. HEX LOCATION(00002D78) IN CSECT(I7A69) LENGTH(4)
92	TUMSGWTR	2054 ADDRESS. HEX LOCATION(000018EA) IN CSECT(I7A69) LENGTH(1)
98	TURESUL	1835 ADDRESS. HEX LOCATION(000018C8) IN CSECT(I7A69) LENGTH(1)
487	TURTN	1910 ADDRESS. HEX LOCATION(000025D0) IN CSECT(I7A69) LENGTH(2)
74	TUSTATUS	1840 1901 ADDRESS. HEX LOCATION(00001818) IN CSECT(I7A69) LENGTH(1)
75	TUWORK	1810 ADDRESS. HEX LOCATION(0000181A) IN CSECT(I7A69) LENGTH(1)
1901	T7A97	1813 1814 1815 1817 1873 ADDRESS. HEX LOCATION(00002B20) IN CSECT(I7A69) LENGTH(4)
1990	UPDTE	347 ADDRESS. HEX LOCATION(00002C5C) IN CSECT(I7A69) LENGTH(4)
2005	UPD05	1955 ADDRESS. HEX LOCATION(00002C8C) IN CSECT(I7A69) LENGTH(6)
2012	UPD06	1994 2027 ADDRESS. HEX LOCATION(00002CA4) IN CSECT(I7A69) LENGTH(4)
2018	UPD07	2009 ADDRESS. HEX LOCATION(00002CB8) IN CSECT(I7A69) LENGTH(6)
2020	UPD08	2015 ADDRESS. HEX LOCATION(00002CC0) IN CSECT(I7A69) LENGTH(6)
2022	UPD20	2013 ADDRESS. HEX LOCATION(00002CC8) IN CSECT(I7A69) LENGTH(4)
2028	UPD54	1999 ADDRESS. HEX LOCATION(00002CD8) IN CSECT(I7A69) LENGTH(6)
2029	UPD55	2002 ADDRESS. HEX LOCATION(00002CDE) IN CSECT(I7A69) LENGTH(6)
2031	UPD57	2004 2011 2017 2019 2021 ADDRESS. HEX LOCATION(00002CEA) IN CSECT(I7A69) LENGTH(4)
682	VRDCB	1990 ADDRESS. HEX LOCATION(00002650) IN CSECT(I7A69) LENGTH(2)
704	WKDCB	877 1945 1946 1947 1956 2038 2039 2046 2048 2055 2056 2064 2068 2069 2071 2072 2077 ADDRESS. HEX LOCATION(00002670) IN CSECT(I7A69) LENGTH(2)
671	WRDCB	886 ADDRESS. HEX LOCATION(00002640) IN CSECT(I7A69) LENGTH(2)
743	WRSID	880 ADDRESS. HEX LOCATION(000026AE) IN CSECT(I7A69) LENGTH(2)
627	WSDCB	634 711 ADDRESS. HEX LOCATION(00002600) IN CSECT(I7A69) LENGTH(2)
434	XE	889 ABSOLUTE. HEX VALUE(00000024)
432	XI	1642 1704 ABSOLUTE. HEX VALUE(00000022)
1518	XIO	1546 1689 ADDRESS. HEX LOCATION(000027F4) IN CSECT(I7A69) LENGTH(4)
1704	XIOCK	851 854 861 868 875 878 881 884 887 890 897 ADDRESS. HEX LOCATION(000028C8) IN CSECT(I7A69) LENGTH(2)
1711	XIOCO	1556 ADDRESS. HEX LOCATION(000028DA) IN CSECT(I7A69) LENGTH(2)
1721	XIOCO	1709 ADDRESS. HEX LOCATION(000028F0) IN CSECT(I7A69) LENGTH(4)
1526	XIOCS	1718 ADDRESS. HEX LOCATION(00002806) IN CSECT(I7A69) LENGTH(6)
1713	XIOCV	1722 1911 ADDRESS. HEX LOCATION(000028DE) IN CSECT(I7A69) LENGTH(2)
1724	XIOCX	1707 ADDRESS. HEX LOCATION(000028FC) IN CSECT(I7A69) LENGTH(4)
1597	XIOER	1714 ADDRESS. HEX LOCATION(00002866) IN CSECT(I7A69) LENGTH(2)
1530	XIOI	1730 ADDRESS. HEX LOCATION(00002816) IN CSECT(I7A69) LENGTH(4)
1543	XIO2	1519 1522 ADDRESS. HEX LOCATION(0000283C) IN CSECT(I7A69) LENGTH(2)
1555	XIO8	1529 ADDRESS. HEX LOCATION(00002852) IN CSECT(I7A69) LENGTH(2)

DECLARED NAME ATTRIBUTES AND REFERENCES
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